From Soft Clustering to Hard Clustering: A Collaborative Annealing Fuzzy *c*-Means Algorithm

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Abstract—The fuzzy c-means clustering algorithm is the most widely used soft clustering algorithm. In contrast to hard clustering, the cluster membership of data generated using the fuzzy c-means algorithm is ambiguous. Similar to hard clustering algorithms, the clustering results of the fuzzy c-means clustering algorithm are also suboptimal with varied performance depending on initial solutions. In this paper, a collaborative annealing fuzzy c-means algorithm is presented. To address the issue of ambiguity, the proposed algorithm leverages an annealing procedure to phase out the fuzzy cluster membership degree toward a crispy one by reducing the exponent gradually according to a cooling schedule. To address the issue of suboptimality, the proposed algorithm employs multiple fuzzy c-means modules to generate alternative clusters based on memberships repeatedly reinitialized using a metaheuristic rule. Experimental results on eight benchmark datasets are elaborated to demonstrate the superiority of the proposed algorithm to thirteen prevailing hard and soft algorithms in terms of internal and external cluster validity indices.

Index Terms—Annealing procedure, collaborative clustering, fuzzy *c*-means (FCM) clustering, *k*-means (KM) clustering.

I. INTRODUCTION

C LUSTERING is a popular unsupervised or semisupervised learning technique to explore the hidden structures of datasets. It is to group unlabeled data into multiple disjoint subsets with high intracluster similarity and low intercluster similarity. It arises in numerous applications, such as image segmentation [1], information retrieval [1], data mining [1], document clustering [2], video surveillance [2], feature selection [3], and pattern recognition [3].

Over the past decades, numerous clustering algorithms have been proposed, and they are mainly divided into two classes,

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including hard and soft clustering. Hard clustering is based on the assumption of mutually exclusive clusters, whereas soft clustering relaxes the assumption allowing overlapped clusters. In addition, hard clustering provides a simpler and more straightforward interpretation of the results, whereas soft clustering usually requires further interpretation and analysis to determine appropriate cutoff values for membership assignments.

Hard clustering assigns each datum to one and only one cluster. Hard clustering methods may be classified as full-space clustering algorithms, subspace clustering algorithms, featureweighted clustering algorithms, and multiview clustering algorithms, depending on the feature spaces of their operations. Subspace clustering methods include the deep subspace clustering algorithm [4] and the robust possibilistic k-subspace clustering algorithm [5]. Feature-weighted clustering methods include the entropy weighting k-means (KM) clustering algorithm [6], the entropy-weighted power k-means (EWPKM) clustering algorithm [7], and the LASSO-weighted KM clustering algorithm [8]. Multiview clustering methods include the weighted multiview possibilistic c-means clustering algorithm with L2 regularization [9], and the multiview adjacency-constrained hierarchical clustering (HC) algorithm [10]. The hard clustering methods may be classified into hierarchical-based, center-based, distribution-based, and density-based clustering algorithms, according to the structure of the algorithms. HC-based methods cluster data based on the rule that closer data points exhibit more similarity to each other than the data points lying farther away, including divisive hierarchical algorithms [11] and agglomerative hierarchical algorithms [12]. The center-based clustering methods cluster data based on the rule that similarity is derived by the closeness of data to clusters, including KM [13], k-medoids algorithms [14], [15], k-harmonic means [16], and spectral clustering (SC) algorithms [17], [18], [19]. Distribution-based clustering methods cluster data based on the probability of data belonging to a specific distribution, including the expectationmaximization for Gaussian mixture model algorithms [20]. Density-based clustering methods cluster data based on the density of data points in the feature space, including the mean-shift algorithm [21], and the temporal streaming fuzzy density-based spatial clustering algorithm [22]. In addition, several collaborative clustering methods were proposed [23], including deep multiview collaborative clustering [24]. In spite of the progress, the clustering methods cannot guarantee the global optimality of clustering results. To mitigate the difficulty of discontinuity in the underlying objective function of KM, the power k-means

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(PKM) algorithm clusters data by minimizing the majorization function of an annealed power-mean function [25]. Though the clustering performance using PKM is significantly improved, the clustering result is still suboptimal and dependent on initialization. To achieve optimal clustering results, the collaborative annealing power *k*-means++ (CAPKM++) algorithm clusters data by employing multiple PKM modules reinitialized using a particle swarm optimization rule [26]. CAPKM++ is demonstrated to outperform PKM and many other baselines [26]. As an upgraded version of CAPKM++, CAPKM++2.0 [27] is shown to be able to improve clustering efficiency via reinitialization during annealing [27].

As a relaxation of hard clustering, soft clustering allows each datum to belong to multiple clusters with membership degrees. Soft clustering methods include possibilistic clustering algorithms [28] and fuzzy clustering algorithms [29]. Possibilistic clustering methods include the robust automatic merging possibilistic clustering algorithm [30], the sparse possibilistic *c*-means algorithm [31], and the robust possibilistic *k*-subspace clustering algorithm [5]. Fuzzy clustering methods include the fuzzy *c*-means (FCM) algorithm [32], the centroid autofused hierarchical FCM clustering algorithm [33], fuzzy density peaks clustering [34], the robust jointly sparse fuzzy clustering algorithm [35], the fuzzy low-rank structural clustering algorithm [36], and the robust FCM algorithm [37]. Soft clustering introduces ambiguity in clustering results due to assigning each data point a membership value to each cluster. In addition, similar to existing hard clustering methods, the results of the soft clustering methods are also suboptimal.

FCM is one of the popular soft clustering methods due to its efficiency and simplicity [29]. However, it suffers the same drawback as other fuzzy clustering algorithms. To remedy the shortcoming of performance sensitivity to initialization, many alternative methods have been proposed, such as the FCM variants with improved objective function and initialization, and additional constraints. FCM-like algorithms with improved objective function include adaptive FCM algorithm [38], generalized FCM clustering [39], enhanced FCM [40], fast generalized FCM [41], fuzzy weighted *c*-means [42], [43], generalized FCM algorithm with improved fuzzy partition [44], fuzzy local information c-means [45], Bayesian fuzzy clustering (BFC) [46], and kernel fuzzy c-means clustering (KFCM) [47]. FCM with improved initialization includes multistage random sampling [48], the genetic algorithm [49], the Gustafson–Kessel algorithm [50], initialization schemes by utilizing color space in image segmentation [51], [52], the Markov random field [53], and the two-phase fuzzy c-means (2PFCM) [54]. Constrained FCM algorithms with additional constraints include the FCM method with spatial constraints [55], [56].

To achieve optimal clustering performance and eliminate the ambiguity in cluster membership and the dependency of performance on initial solutions, we propose the collaborative annealing fuzzy *c*-means based on FCM (CAFCM). An annealing procedure is used in CAFCM to phase out the fuzziness of cluster membership. In addition, multiple modules are employed to engender alternative clusters and reinitialized repeatedly using a metaheuristic rule to maximize clustering quality and eliminate the influence of initialization on clustering performance. The innovative contributions of this work are summarized as follows.

- We theoretically prove that the underlying objective function of FCM is equivalent to that of PKM without annealing.
- We propose CAFCM with a cooling schedule and experimentally demonstrate that the polynomial cooling schedule is the most cost-effective one.
- We empirically estimate the computational complexity of CAFCM based on many datasets.
- We experimentally demonstrate that CAFCM outperforms existing hard and soft clustering algorithms in terms of the mean values and standard deviations of many indices.

The rest of this paper is organized as follows. The related work on KM, FCM, PKM, CAPKM++, and CAPKM++2.0 is provided in Section II. The details of the CAFCM algorithm are presented in Section III. Experimental results on eight datasets are reported in Section IV. The paper is concluded in Section V.

II. RELATED WORK

A. KM Algorithm

The KM algorithm is one of the most popular unsupervised learning algorithms. It groups the data into a preset number of clusters by minimizing the following objective function [13]:

$$f(\Theta) = \sum_{i=1}^{n} \min_{1 \le j \le k} ||x_i - \theta_j||_2^2,$$
(1)

where $X = \{x_1, ..., x_n\} \in \Re^{n \times p}$ is an unlabeled dataset, *n* is the number of data points, *k* is the number of clusters, *p* is the number of features, $\Theta = [\theta_1, ..., \theta_k]$, and $\theta_j \in \Re^p$ is the *j*-th center.

B. FCM Algorithm

As an extension of KM, FCM was developed by Dunn [57], and improved by Bezdek [32]. Differing from KM that assigns each data point to exactly one cluster, FCM allows data points to belong to multiple clusters with different degrees of membership. It is based on the minimization of the following biconvex objective function [32]:

$$f_m(\mu, \Theta) = \sum_{i=1}^n \sum_{j=1}^k \mu_{ij}^m ||x_i - \theta_j||^2,$$
(2)

where $\mu_{ij} \in [0, 1]$ is the degree of membership of the *i*-th datum in the *j*-th cluster, m > 1 is an exponent for controlling the degree of fuzzy overlap, and θ_j is the center of the *j*-th cluster. The fuzzy objective function is subject to a constraint $\sum_{j=1}^{k} \mu_{ij} = 1 \ (i = 1, ..., n); i.e.$, for each datum, the sum of the membership degrees over all clusters is one. For j = 1, ..., k, the centers are updated as follows [32]:

$$\theta_j = \frac{\sum_{i=1}^n \mu_{ij}^m x_i}{\sum_{i=1}^n \mu_{ij}^m}.$$
(3)

For i = 1, ..., n and j = 1, ..., k, the degrees are updated alternatingly as follows [32]:

$$\mu_{ij} = \frac{1}{\sum_{l=1}^{k} \left(\frac{||x_i - \theta_j||}{||x_i - \theta_l||}\right)^{\frac{2}{m-1}}}.$$
(4)

Similar to KM, FCM iterates over (3) and (4) until no degree changes. Due to the biconvexity of the fuzzy objective function in (2), the alternating method cannot guarantee to converge to the global optimal cluster.

Note that $\lim_{m\to 1} \mu_{ij} \in \{0,1\}$; i.e., FCM degenerates to KM [29].

C. PKM Algorithm

PKM [25] is proposed to improve KM algorithms by minimizing the following annealed power function:

$$f_s(\Theta) := \sum_{i=1}^n \left(\frac{1}{k} \sum_{j=1}^k ||x_i - \theta_j||_2^{2s} \right)^{\frac{1}{s}},$$
(5)

where s < 0 denotes a power parameter.

Rather than minimizing the concave power-mean functions in (5), PKM minimizes the following convex majorization function [25]:

$$\hat{f}_s(\Theta) = \sum_{i=1}^n \sum_{j=1}^k w_{ij}(t) ||x_i - \theta_j(t+1)||_2^2.$$
(6)

The weights are updated as follows [25]:

$$w_{ij}(t) = \frac{||x_i - \theta_j(t)||^{2(s-1)}}{(\sum_{l=1}^k ||x_i - \theta_l(t)||^{2s})^{1-\frac{1}{s}}}.$$
(7)

The clusters are updated as follows [25]:

$$\theta_j(t+1) = \frac{1}{\sum_{i=1}^n w_{ij}(t)} \sum_{i=1}^n w_{ij}(t) x_i$$

The power parameter s is decreased at each step according to the following cooling schedule [25]:

$$s(t+1) = \eta s(t),$$

where s(0) < 0 and $\eta > 1$.

Let $s = -\frac{1}{m-1}$. The weight updating rule in (7) is rewritten as follows:

$$w_{ij} = \frac{||x_i - \theta_j||^{2(s-1)}}{(\sum_{l=1}^k ||x_i - \theta_l||^{2s})^{1 - \frac{1}{s}}} = \frac{||x_i - \theta_j||^{-2m/(m-1)}}{(\sum_{l=1}^k ||x_i - \theta_l||^{-2/(m-1)})^m}.$$
(8)

Via substituting the weight updating rule in (8), the objective function in (5) is rewritten as follows:

$$\hat{f}_{s}(\Theta) = \sum_{i=1}^{n} \sum_{j=1}^{k} w_{ij} ||x_{i} - \theta_{j}||^{2}$$
$$= \sum_{i=1}^{n} \sum_{j=1}^{k} \frac{||x_{i} - \theta_{j}||^{-2m/(m-1)}}{(\sum_{l=1}^{k} ||x_{i} - \theta_{l}||^{-2/(m-1)})^{m}}$$

$$||x_i - \theta_j||^2. \tag{9}$$

The degree updating rule of FCM in (4) is rewritten as follows:

$$\mu_{ij} = \frac{1}{\sum_{l=1}^{k} \left(\frac{||x_i - \theta_j||}{||x_i - \theta_l||}\right)^{\frac{2}{m-1}}} \\ = \frac{||x_i - \theta_j||^{-2/(m-1)}}{\sum_{l=1}^{k} ||x_i - \theta_l||^{2/(m-1)}}.$$
(10)

Via substituting degree updating rule (10), the objective function of FCM in (2) is rewritten as follows:

$$f_m(\mu, \Theta) = \sum_{i=1}^n \sum_{j=1}^k \mu_{ij}^m ||x_i - \theta_j||^2$$

=
$$\sum_{i=1}^n \sum_{j=1}^k \frac{||x_i - \theta_j||^{-2m/(m-1)}}{(\sum_{l=1}^k ||x_i - \theta_l||^{-2/(m-1)})^m}$$

$$||x_i - \theta_j||^2.$$
(11)

It indicates that the objective functions of FCM in (2) and PKM in (6) are equivalent.

D. CAPKM++ and CAPKM++2.0 Algorithms

PKM is demonstrated in [25] to perform better than Lloyd's algorithm [13] and *k*-harmonic means [16]. Nevertheless, its clustering results are not globally optimal since its performance heavily depends on the anchor points where its majorization functions are located. To address the aforementioned issue, CAPKM++ [26] employs multiple PKM modules to generate centers for alternative clusters, and use a particle swarm optimization rule for repositioning the initial centers.

CAPKM++2.0 [27] is an upgraded version of CAPKM++. CAPKM++2.0 reinitializes the weights in the majorization function during annealing rather than reinitializing cluster centers after annealing. In addition, CAPKM++2.0 minimizes the powermean functions directly instead of their majorization function as in PKM and CAPKM++. It is demonstrated in [27] that CAPKM++2.0 is more efficient than CAPKM++ in terms of algorithmic complexities.

III. ALGORITHM DESCRIPTION

The proposed CAFCM algorithm consists of triple loops: an FCM clustering loop, a reinitialization loop, and an annealing loop. In the FCM clustering loop, multiple FCM modules iterate until convergence. In the reinitialization loop, the FCM modules are reinitialized. In the annealing loop, an exponent m(t) decreases iteratively. The fuzzy objective function in (2) is minimized during such an annealing process, similar to PKM [25], CAPKM++ [26], and CAPKM++2.0 [27]. As shown in Fig. 1, the following three types of cooling schedules may be used for the annealing of exponent m(t). An exponential cooling schedule

$$m_e(t) = (m_e(0) - 1)\exp(-t) + 1.$$
 (12)

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Fig. 1. Annealing curves of the three cooling schedules.

A polynomial cooling schedule

$$m_p(t) = \frac{m_p(0) - 1}{t + 1} + 1.$$
 (13)

A logarithmic cooling schedule

$$m_l(t) = \frac{m_l(0) - 1}{\ln(t+e)} + 1.$$
(14)

Note that $\lim_{t\to\infty} m_e(t) = \lim_{t\to\infty} m_p(t) = \lim_{t\to\infty} m_l(t)$ = 1. Each of the three cooling schedules has its pros and cons. As shown in Fig. 1, the exponential cooling schedule is the fastest, and it may cause prematurity in analogy to simulated annealing. The logarithmic cooling schedule is the slowest, and it takes a very long time to reduce to 1. The polynomial schedule is in-between.

In analogy to CAPKM++ [26] and CAPKM++2.0 [27], to overcome the biconvexity, $\mu(0)$ is repeatedly reinitialized according to the following particle swarm optimization rule in [58]:

$$v^{(i)}(t+1) = c_0 v^{(i)}(t) + c_1 r_1(\mu^{(i)*} - \mu^{(i)}(t))$$
(15a)

$$+ c_2 r_2 (\mu^* - \mu^{(i)}(t)), \tag{15b}$$

$$\mu^{(i)}(t+1) = \mu^{(i)}(t) + v^{(i)}(t+1), \tag{15c}$$

where $v^{(i)}(t)$ is an incremental vector of the *i*-th module, $\mu^{(i)*}$ is the current best degree vector of the *i*-th module, $\mu^{(i)}(t)$ is the current degree vector of the *i*-th module, μ^* is the current best degree vector of the multiple modules, $c_0 \in [0, 1]$ is a constant, c_1, c_2 are two positive constants, and r_1, r_2 are two random numbers in [0,1].

The high diversity of solutions is essential for improving clustering performance. A diversity measure of solutions is defined as follows:

$$\delta(\mu) = \frac{1}{Nnk} \sum_{j=1}^{N} \|\mu^{(j)} - \mu^*\|_2, \tag{16}$$

where N is the population size (i.e., the number of alternative cluster sets).

Mutation operation is a commonly used method to maintain a certain level of diversity and prevent premature convergence. If the diversity measure is below a threshold (i.e., $\delta(\mu) < \delta_{\min}$),



Fig. 2. Flowchart of CAFCM.

then a wavelet mutation operator is used to assure the diversity [59]

$$\mu^{(i)}(t+1) = \begin{cases} \mu^{(i)}(t) + \zeta(\overline{\mu}^{(i)} - \mu^{(i)}(t)) & \zeta > 0\\ \mu^{(i)}(t) + \zeta(\mu^{(i)}(t) - \underline{\mu}^{(i)}) & \zeta < 0, \end{cases}$$
(17)

where $\overline{\mu}^{(i)} = 1$ and $\underline{\mu}^{(i)} = 0$ are the upper bound and lower bound of the membership degree of the *i*-th module, and ζ is defined by a wavelet function

$$\zeta = \frac{1}{\sqrt{a}} \exp{-\frac{1}{2} \left(\frac{\psi}{a}\right)^2} \cos\left(\frac{5\psi}{a}\right),$$

where $a = \exp(10(\ell/\ell_{\text{max}}))$ is the amplitude of the wavelet function, ℓ_{max} is the maximum iterative number, and ψ is the frequency of the wavelet function to be randomly generated from the interval [-2.5a, 2.5a].

Fig. 2 portrays a flowchart of the CAFCM algorithm, and Algorithm 1 details its procedure. In Steps 6–10, centers Θ and degrees μ are updated alternately until convergence, where ϵ in Step 10 is to determine whether $f_m(\mu^{(i)}(\hat{t}), \Theta^{(i)}(\hat{t}))$ and $f_m(\mu^{(i)}(\hat{t}-1), \Theta^{(i)}(\hat{t}-1))$ are close enough. In Steps 11–13, the individual best degrees $\tilde{\mu}^{(i)}$ are determined. In Steps 15–21, Algorithm 1: CAFCM.

Input: $M, N, m(0), c_0, c_1$ and $c_2, X \in \mathbb{R}^{n \times p}$. particle/group best degrees $\tilde{\mu}^{(p)}/\mu^*$, $f(\tilde{\mu}^{(p)}) = f(\mu^*) = \infty$, initial degrees $[\mu^{(1)}(0), ..., \mu^{(N)}(0)]$, initial incremental vector $[v^{(1)}(0), ..., v^{(N)}(0)],$ **Output:** μ^* . 1 $t \leftarrow 0;$ 2 repeat while l < M do 3 for i = 1 to N do 4 $\hat{t} \leftarrow 1;$ 5 repeat 6 Update $\Theta^{(i)}(\hat{t})$ according to Eqn. (3); 7 Update $\mu^{(i)}(\hat{t})$ according to Eqn. (4); 8 $\hat{t} \leftarrow \hat{t} + 1;$ 9 **until** $|f_m(\mu^{(i)}(\hat{t}), \Theta^{(i)}(\hat{t})) - f_m(\mu^{(i)}(\hat{t} - \hat{t}))|$ 10 1), $\Theta^{(i)}(\hat{t}-1))| < \epsilon;$ $\begin{array}{c} \text{if } f(\mu^{(i)}) < f(\tilde{\mu}^{(i)}) \text{ then} \\ \mid \quad \tilde{\mu}^{(i)} \leftarrow \mu^{(i)}; \end{array} \end{array}$ 11 12 end 13 14 end $i^* = \arg\min_i \{ f(\mu^{(1)}), ..., f(\mu^{(i)}), ..., f(\mu^{(N)}) \};$ 15 if $f(\mu^{(i^*)}) < f(\mu^*)$ then 16 $\mu^* \leftarrow \mu^{(i^*)};$ 17 $l \leftarrow 0$: 18 19 else $l \leftarrow l + 1;$ 20 end 21 for i = 1 to N do 22 Update $v^{(i)}$ according to Eqn. (15a); 23 Update $\mu^{(i)}$ according to Eqn. (15c); 24 end 25 Compute $\delta(\mu)$ according to Eqn. (16); 26 if $\delta(\mu) < \delta_{\min}$ then 27 Perform mutation according to Eqn. (17); 28 end 29 end 30 $t \leftarrow t + 1;$ 31 Reduce m(t) according to Eqn. (12), Eqn. (13), or 32 Eqn. (14); 33 until $m(t) - 1 < \epsilon$; 34 return μ^* .

the group best degrees μ^* are determined and the termination counter is updated. In Steps 22–25, the degrees are reinitialized according to (15). In Step 26, the diversity of the N sets of degrees is measured according to (16). In Steps 27–29, the wavelet mutation operator in (17) is performed if the diversity measure is below the preset threshold δ_{\min} . In Step 32, the exponent m is reduced according to one of the three cooling schedules. In Step 10, the termination condition whether m is close to 1 is determined. The code of CAFCM is available in Github.¹

 TABLE I

 Information About the Eight Benchmark Datasets and the Corresponding Hyper-Parameter Values Used in CAFCM

Datasets	n	p	k	N	M
NCI9 ² [60] WarpPIE10P ³ [60]	60 210	9712 2420	9 10	2 2	10 5
WQ-White ⁴ [61] PageBlocks ⁵ [61]	4898 5472	11 10	11 5	2 2	15 5
Optdigits ⁷ [61]	5500 5620	40 65	11 10	$\frac{3}{2}$	15 5
$LR^{9}[63]$	20000	13 16	2 26	3	5 15

 ² [Online]. Available: https://jundongl.github.io/scikit-feature/files/datasets/nci9.mat
 ³ [Online]. Available: https://jundongl.github.io/scikit-feature/files/datasets/ warpPIE10P.mat

⁴ [Online]. Available: https://sci2s.ugr.es/keel/dataset.php?cod=209

⁵ [Online]. Available: https://sci2s.ugr.es/keel/dataset.php?cod=104

⁶ [Online]. Available: https://sci2s.ugr.es/keel/dataset.php?cod=72

⁷ [Online]. Available: https://sci2s.ugr.es/keel/dataset.php?cod=199

⁸ [Online]. Available: https://archive.ics.uci.edu/ml/datasets/Electrical+Grid+ Stability+Simulated+Data+

⁹ [Online]. Available: https://archive.ics.uci.edu/ml/datasets/Letter+Recognition

IV. EXPERIMENTAL RESULTS

In the experiments, the CAFCM parameters are set as follows. The value of the initial exponent m(0) is set to 2, as in most of the existing references. The diversity threshold δ_{\min} is set to a sufficiently small value (i.e., 10^{-3}). In the FCM clustering loop of CAFCM, the parameter ϵ is also set to a sufficiently small value (i.e., 10^{-3}) as a stopping criterion of cluster membership updating. In the particle swarm optimization rule in (15), c_0 , c_1 , and c_2 are set to 1, as typically in many references, e.g., in [26] and [27].

A. Cooling Schedules

In this section, we compare the performances of CAFCM with the three cooling schedules. To make a fair comparison, the three cooling schedules are set to the same number of iterations. Since the logarithmic cooling schedule takes a long time for m(t) to reduce to 1, instead of iterating over every t, sampling time $\tau(t)$ is used under the condition that the value of $m_l(\tau)$ is larger than that of the polynomial cooling schedule at every sampling time (i.e., $m_l(\tau(t)) > m_p(t)$) to keep its annealing process slower than the polynomial one. Since $\frac{m_p(0)}{t+2} > \frac{m_p(0)-1}{t+1}$ for $t > m_p(0) - 1$, letting $\frac{m_l(0)-1}{\ln(\tau(t)+e)} + 1 = \frac{m_p(0)}{t+2} + 1$ enables $m_l(\tau(t)) > m_p(t)$. The solution to the equation is $\tau(t) = \exp(\frac{(m_l(0)-1)(t+2)}{m_l(0)}) - e$, assuming that $m_l(0) = m_p(0)$.

The experimental results are based on eight commonly used datasets summarized in Table I. In addition, to show the superiority of CAFCM with the logarithmic cooling schedule on the dataset that is difficult to cluster, a dataset under uniform distribution (UDD) is generated, where $n = 5\,000$ and p = 2.

Fig. 3 shows 20-run Monte Carlo test results of CAFCM (N = 2 and M = 5) with the three cooling schedules on the six datasets in Table I and the UDD. As shown in Fig. 3, CAFCM with the polynomial cooling schedule or the logarithmic cooling

¹[Online]. Available: https://github.com/HongzongLI-CS/CAFCM-Github



Fig. 3. Monte Carlo test results of CAFCM (N = 2 and M = 5) with the three cooling schedules on the six datasets and the UDD with two different k values. (a) NCI9. (b) WarpPIE10P. (c) WQ-White. (d) PageBlock. (e) Texture. (f) Optdigits. (g) UDD (k = 40). (h) UDD (k = 60).

schedule outperforms that with the exponential cooling schedule. It is also shown in Fig. 3 that CAFCM with the logarithmic cooling schedule outperforms that with the polynomial cooling schedule on NCI9, Texture, and UDD, especially on the UDD, and the superiority is more evident for a larger k value on the UDD.

Although the performance of CAFCM with the logarithmic cooling schedule is better than that with the polynomial cooling schedule, it takes too long time to reach 1, or it is difficult to set a reasonable sampling time to achieve high performance. In view of the fact that CAFCM with the polynomial cooling schedule performs well on the six datasets in Table I, the polynomial cooling schedule $m_p(t)$ is used in all the other experiments.

B. Hyperparameters Selection

Similar to CAPKM++ [26] and CAPKM++2.0 [27], the values of two hyperparameters N and M in Algorithm 1 are selected based on 50-run Monte Carlo tests on the six datasets. Fig. 4 depicts the boxplots of the Monte Carlo test results obtained using the CAFCM algorithm over 20 runs on the six datasets. As shown in Fig. 4, the results of the objective function values reaching zero standard deviation with N = 2 and M = 10 on NCI9, N = 2 and M = 5 on WQ-White, N = 2 and M = 15 on WarpPIE10P, N = 2 and M = 5 on PageBlocks, N = 3 and M = 15 on Texture, and N = 2 and M = 5 on Optdigits. Table I tabulates the values of the two hyperparameters (i.e., N and M) used in CAFCM on the eight datasets.

C. Convergent Behaviors

Fig. 5 depicts twelve snapshots of the convergent centers Θ and the convergent degrees μ values in the FCM clustering loop (Steps 6–10) of CAFCM on the six datasets. Fig. 6 depicts the monotonically decreasing values of $f_m(\mu, \Theta)$ in (2) corresponding to Θ and μ in Fig. 5. They show that the centers and the degrees reach their equilibria and the fuzzy objective function values reach their minima with a range of 40–400 iterations in the FCM clustering loop of CAFCM.

Fig. 7 depicts the monotonically decreasing values of $f(\Theta)$ in the annealing loop (Steps 2–33) of CAFCM on the six datasets. It shows that CAFCM converges within 120 iterations on NCI9, 80 iterations on WarpPIE10P, 1 000 iterations on WineQuality-White, 30 iterations on PageBlocks, 160 iterations on Texture, and 1 500 iterations on Optidigits.

D. Performance Comparison

The clustering performance of CAFCM is compared with the following six fuzzy clustering algorithms and seven crisp clustering algorithm: KM,¹⁰ *k*-mean++ (KM++),¹¹ PKM [25], EWPKM,¹² (SC,¹³ HC,¹⁴ CAPKM++2.0 [27], BFC [46], fuzzy subspace clustering (FSC) [64], maximum entropy clustering (MEC) [65], FCM,¹⁵ KFCM [47], and 2PFCM [54]. The clustering results of the fuzzy clustering algorithms (i.e., BFC, FSC, MEC, FCM, KFCM, and 2PFCM) are determined by the maximum fuzzy membership degrees. The code of PKM is provided by the authors of [25]. The agglomerative HC algorithm is used. The code of BFC is obtained from a link in [46]. As BFC involves the Cholesky factorization of the covariance matrices of data, and the covariance matrices of some data are not positive

- ¹²[Online]. Available: https://github.com/DebolinaPaul/EWP
- ¹³[Online]. Available: https://www.mathworks.com/help/stats/ spectralcluster.html
- ¹⁴[Online]. Available: https://www.mathworks.com/help/stats/hierarchicalclustering.html?s_tid=srchtitle_hierarchical%20clustering_1

¹⁵[Online]. Available: https://www.mathworks.com/help/fuzzy/fcm.html

¹⁰[Online]. Available: https://www.mathworks.com/help/stats/kmeans. html?s_tid=srchtitle_kmean_1

¹¹[Online]. Available: https://github.com/xuyxu/Clustering



Fig. 4. Monte Carlo test results using CAFCM with several values of N and M on the six datasets. (a) NCI9. (b) WarpPIE10P. (c) WineQuality-White. (d) PageBlock. (e) Texture. (f) Optdigits.



Fig. 5. Snapshots of the convergent centers Θ and the membership degrees μ values in the FCM clustering loop of CAFCM (Steps 6–10) on the six datasets, where the lines in the left-hand side subplots portray the first feature values of k centers, and the lines in the right-hand side subplots portray the k membership degrees. (a) NCI9. (b) WarpPIE10P. (c) WineQuality-White. (d) PageBlock. (e) Texture. (f) Optdigits.

definite, BFC may not be applicable to some datasets. The codes of FSC and MEC are obtained from Github.¹⁶ The codes of KFCM and 2PFCM are shared by the authors of [47] and [54], respectively. The Euclidean distance is used as the dissimilarity measure in all algorithms.

The performance evaluation for the experimental results is based on nineteen internal criteria listed in Table S-I in the Supplementary Materials, and three external criteria described in Section S-I in the Supplementary Materials, Due to the wide range of values of WGSS, CHI, XBI, and TWI, they are

¹⁶[Online]. Available: https://github.com/kailugaji/Fuzzy_Clustering_ Algorithms normalized by p, (n - k)/(k - 1), n, and pk, respectively, to facilitate the later tabular presentation.

Tables II–V tabulate the means and standard deviations of the internal and external cluster validity indices values over 50 runs by using CAFCM and thirteen prevailing algorithms with random initialization on the eight datasets, where \times indicates "not applicable", and the best and second-best results are boldfaced and underlined, respectively. Specifically, CAFCM achieves 81 best and 20 second-best means out of 168 entries (i.e., 48.21% and 60.12% for the best and the best plus the second-best), and CAPKM++2.0 ranks in second place, achieving 40 best and 55 second-best means (i.e., 23.81% and 56.55%), and SC ranks in third place, achieving 23 best and

TABLE II

MEAN VALUES AND STANDARD DEVIATIONS OF INTERNAL AND EXTERNAL CLUSTER VALIDITY INDICES RESULTING FROM CAFCM, AND THIRTEEN BASELINES ON NCI9 AND WARPPIE10P, WHERE N = 2 and M = 10 in CAPKM++2.0 and CAFCM on NCI9, and N = 2 and M = 5 in CAPKM++2.0 and CAFCM on WARPPIE10P

NCI9	КМ	KM++	РКМ	EWPKM	SC	HC	CAPKM++2.0
WGSS↓	5.2462 ± 0.1468	5.2877 ± 0.1555	4.8592 ± 0.0129	4.8614 ± 0.0114	6.5683 ± 0.1529	5.0366 ± 0.0000	4.8116 ± 0.0029
MRI↓	0.8730 ± 0.0147	0.8734 ± 0.0135	0.8468 ± 0.0056	0.8472 ± 0.0052	1.0039 ± 0.0117	0.8442 ± 0.0000	$\underline{0.8335 \pm 0.0012}$
GPI↓ BHCI↑	0.0488 ± 0.0138	0.0515 ± 0.0149	0.0246 ± 0.0025 0.7302 ± 0.0340	0.0247 ± 0.0023 0.7264 ± 0.0218	0.2306 ± 0.0263 0.0200 ± 0.0584	0.0247 ± 0.0000 0.7685 ± 0.0000	$\frac{0.0183 \pm 0.0008}{0.8268 \pm 0.0067}$
CLI.	0.0390 ± 0.0780 0.1656 ± 0.0342	0.0380 ± 0.0720 0.1641 ± 0.0319	0.1234 ± 0.0142	0.1246 ± 0.0133	0.5009 ± 0.0347	0.1085 ± 0.0000 0.1102 ± 0.0000	$\frac{0.8208 \pm 0.0007}{0.0866 \pm 0.0028}$
TI∱	0.3300 ± 0.0412	0.3383 ± 0.0420	0.3217 ± 0.0200	0.3195 ± 0.0189	-0.0142 ± 0.0397	0.3551 ± 0.0000	$\overline{0.3802 \pm 0.0040}$
DGI↑	1.4203 ± 0.0616	1.4370 ± 0.0812	$\frac{1.5220 \pm 0.0197}{0.1026 \pm 0.0007}$	1.5147 ± 0.0191	1.2395 ± 0.0984	1.5442 ± 0.0000	1.4940 ± 0.0216
RLI↑ CHI↑	0.1864 ± 0.0046 0.4874 ± 0.0341	0.1883 ± 0.0059 0.5000 ± 0.0418	0.1936 ± 0.0006 0.5550 ± 0.0041	0.1935 ± 0.0005 0.5543 ± 0.0036	0.1218 ± 0.0048 0.1548 ± 0.0140	0.1949 ± 0.0000 0.5531 ± 0.0000	0.1954 ± 0.0002 0.5704 ± 0.0009
RTI↓	2.1592 ± 0.4266	2.1165 ± 0.5580	1.8350 ± 0.0041	1.8238 ± 0.0725	6.6390 ± 2.6748	1.8860 ± 0.0000	1.4976 ± 0.0811
WGI↑	0.1928 ± 0.0142	0.1938 ± 0.0175	0.2093 ± 0.0047	0.2088 ± 0.0047	0.1237 ± 0.0325	0.2143 ± 0.0000	$\overline{0.2347 \pm 0.0027}$
DI↑ BHI↑	0.6114 ± 0.0332 718 3157 \pm 59 4908	0.6227 ± 0.0336 727 5179 \pm 55 6430	0.6634 ± 0.0089 777 2263 \pm 5 3801	0.6626 ± 0.0113 778 3061 + 5 3550	$0.4/2/\pm 0.012/$ 520.9616 \pm 150.5932	$\frac{0.6890 \pm 0.0000}{705.6937 \pm 0.0000}$	$0.6568 \pm 0.00/5$ 760 8223 \pm 6 2293
PBMI↑	44.2921 ± 8.8454	47.9437 ± 11.1767	57.0968 ± 2.6056	57.2552 ± 2.3421	48.1918 ± 12.6702	52.3096 ± 0.0000	41.1212 ± 0.1705
XBI↓	0.0120 ± 0.0010	0.0119 ± 0.0011	0.0102 ± 0.0000	0.0102 ± 0.0000	0.0161 ± 0.0006	0.0102 ± 0.0000	$\underline{0.0101\pm0.0000}$
DBI	2.3937 ± 0.1579	2.3963 ± 0.1722	2.5070 ± 0.0599	2.5108 ± 0.0578	2.6560 ± 0.5068	2.2793 ± 0.0000	2.2491 ± 0.0248
TWL.	0.5749 ± 0.0120	0.5800 ± 0.0154	0.5399 ± 0.0014	0.5401 ± 0.0013	0.7271 ± 0.0087	0.5406 ± 0.0000	$\frac{-0.5013 \pm 0.0017}{0.5346 \pm 0.0003}$
, ACC↑	0.3973 ± 0.0417	0.3907 ± 0.0464	0.4373 ± 0.0141	0.4317 ± 0.0144	0.2623 ± 0.0225	0.4667 ± 0.0000	0.4640 ± 0.0085
NMI†	0.3976 ± 0.0440	0.3922 ± 0.0447	0.4753 ± 0.0134	0.4720 ± 0.0140	0.2475 ± 0.0302	0.4750 ± 0.0000	$\frac{0.1010 \pm 0.0000}{0.4811 \pm 0.0056}$
ARI↑	0.1113 ± 0.0412	0.1084 ± 0.0453	$\overline{0.1773} \pm 0.0138$	0.1729 ± 0.0147	0.0019 ± 0.0164	0.1946 ± 0.0000	0.2005 ± 0.0082
NCI9	FCM	MEC	FSC	2PFCM	BFC	KFCM	CAFCM
WGSSL	6.4080 ± 0.0000	6.4080 ± 0.0000	6.3000 ± 0.1441	6.4080 ± 0.0000	×	6.2337 ± 0.1136	4.7992 ± 0.0000
MRU	0.8775 ± 0.0000	0.8775 ± 0.0000	0.9983 ± 0.0087	0.8775 ± 0.0000	~	0.8862 ± 0.0035	0.8314 ± 0.0000
GPI↓	0.0872 ± 0.0000	0.0872 ± 0.0000	0.0971 ± 0.0058	0.0872 ± 0.0000	×	0.0988 ± 0.0062	0.0168 ± 0.0000
BHGI↑	0.6512 ± 0.0000	0.6512 ± 0.0000	0.0052 ± 0.0433	0.6512 ± 0.0000	×	0.5948 ± 0.0226	0.8553 ± 0.0000
CI↓ TI↑	0.1481 ± 0.0000 0.4606 \pm 0.0000	0.1481 ± 0.0000 0.4606 ± 0.0000	0.4534 ± 0.0187 0.0023 ± 0.0193	0.1481 ± 0.0000 0.4606 \pm 0.0000	×	0.1732 ± 0.0101 0.4152 ± 0.0153	0.0750 ± 0.0000 0.4128 ± 0.0000
DGI↑	1.5162 ± 0.0000	1.5162 ± 0.0000	1.2437 ± 0.0333	1.5162 ± 0.0000	×	$\frac{0.4152 \pm 0.0155}{1.4460 \pm 0.0692}$	1.4970 ± 0.0000
RLI↑	0.2620 ± 0.0000	0.2620 ± 0.0000	0.1231 ± 0.0052	0.2620 ± 0.0000	×	0.1976 ± 0.0110	0.1970 ± 0.0000
CHI↑ PTI↓	1.6299 ± 0.0000 1 3893 \pm 0.0000	1.6299 ± 0.0000 1 3893 \pm 0 0000	0.1587 ± 0.0172 4.0573 ± 0.5801	1.6299 ± 0.0000 1 3893 \pm 0.0000	×	$\frac{0.5960 \pm 0.0971}{1.5432 \pm 0.3750}$	0.5744 ± 0.0000 1.7243 ± 0.0000
WGI↑	0.2265 ± 0.0000	0.2265 ± 0.0000	0.0609 ± 0.0058	0.2265 ± 0.0000	×	0.2348 ± 0.0316	0.2366 ± 0.0000
DI↑	0.5961 ± 0.0000	0.5961 ± 0.0000	0.4831 ± 0.0153	0.5961 ± 0.0000	×	$\overline{0.5718 \pm 0.0303}$	0.7067 ± 0.0000
BHI↑ DDMI↑	1031.1357 ± 0.0000	1031.1357 ± 0.0000 220.2380 \pm 0.0000	$\frac{1025.6173 \pm 26.0115}{12.7660 \pm 3.7023}$	1031.1357 ± 0.0000) ×	588.0926 ± 152.9647	695.6437 ± 0.0000
XBI.	0.0131 ± 0.0000	0.0131 ± 0.0000	0.0163 ± 0.0003	0.0131 ± 0.0000	×	$\frac{90.7854 \pm 22.4090}{0.0136 \pm 0.0013}$	0.0101 ± 0.0000
DBI↓	2.3399 ± 0.0000	2.3399 ± 0.0000	3.9249 ± 0.1331	2.3399 ± 0.0000	×	1.8879 ± 0.3532	$\underline{2.1064 \pm 0.0000}$
LSSRI↑	-1.7195 ± 0.0000	-1.7195 ± 0.0000	-1.8462 ± 0.1079 0.7247 ± 0.0107	-1.7195 ± 0.0000 0.7120 ± 0.0000	×	-1.4070 ± 0.0860 0.6741 ± 0.0115	-0.5543 ± 0.0000 0.5332 ± 0.0000
	0.7120 ± 0.0000	0.7120 ± 0.0000	0.7247 ± 0.0107	0.7120 ± 0.0000	<u>^</u>	0.0741 ± 0.0115	0.352 ± 0.0000
NMI↑	0.2000 ± 0.0000 0.0649 ± 0.0000	0.2000 ± 0.0000 0.0649 ± 0.0000	0.2960 ± 0.0233 0.2855 ± 0.0335	0.2000 ± 0.0000 0.0649 ± 0.0000	×	0.2377 ± 0.0146 0.1473 ± 0.0197	0.4667 ± 0.0000 0.4553 ± 0.0000
ARI↑	0.0050 ± 0.0000	0.0050 ± 0.0000	0.0007 ± 0.0247	0.0050 ± 0.0000	×	0.0107 ± 0.0055	0.1775 ± 0.0000
WarpPIE10P	KM	KM++	PKM	EWPKM	SC	НС	CAPKM++2.0
WarpPIE10P WGSS	KM 3.6702 ± 0.1250	KM++ 3.6396 ± 0.1102	PKM 3.4673 + 0.0081	EWPKM 3.4660 ± 0.0053	SC 5.4244 ± 0.1375	HC 3.5330 ± 0.0000	CAPKM++2.0 3.4485 ± 0.0007
WarpPIE10P WGSS↓ MR1	$\frac{\text{KM}}{3.6702 \pm 0.1250}$ 0.5617 ± 0.0153	KM++ 3.6396 ± 0.1102 0.5549 ± 0.0114	PKM 3.4673 ± 0.0081 0.5519 ± 0.0020	EWPKM 3.4660 ± 0.0053 0.5528 ± 0.0011	SC 5.4244 ± 0.1375 1.0070 ± 0.0072	HC 3.5330 ± 0.0000 0.5548 ± 0.0000	CAPKM++2.0 3.4485 ± 0.0007 0.5375 ± 0.0014
WarpPIE10P WGSS↓ MRI↓ GPI↓	KM 3.6702 ± 0.1250 0.5617 ± 0.0153 0.0184 ± 0.0038	KM++ 3.6396 ± 0.1102 0.5549 ± 0.0114 0.0168 ± 0.0025	PKM 3.4673 ± 0.0081 0.5519 ± 0.0020 0.0152 ± 0.0003	EWPKM 3.4660 ± 0.0053 0.5528 ± 0.0011 0.0154 ± 0.0001	SC 5.4244 ± 0.1375 1.0070 ± 0.0072 0.2305 ± 0.0077	HC 3.5330 ± 0.0000 0.5548 ± 0.0000 0.0168 ± 0.0000	$\begin{array}{c} \text{CAPKM++2.0} \\ \hline 3.4485 \pm 0.0007 \\ \hline 0.5375 \pm 0.0014 \\ \hline 0.0132 \pm 0.0002 \end{array}$
WarpPIE10P WGSS↓ MRI↓ GPI↓ BHGI↑	KM 3.6702 ± 0.1250 0.5617 ± 0.0153 0.0184 ± 0.0038 0.8269 ± 0.0287 0.0287	KM++ 3.6396 ± 0.1102 0.5549 ± 0.0114 0.0168 ± 0.0025 0.8998 ± 0.0231 0.9924 ± 0.0112	PKM 3.4673 ± 0.0081 0.5519 ± 0.0020 0.0152 ± 0.0003 0.8334 ± 0.0030 0.0020	EWPKM 3.4660 ± 0.0053 0.5528 ± 0.0011 0.0154 ± 0.0001 0.8314 ± 0.0021 0.0012	$\begin{array}{c} \text{SC} \\ \hline 5.4244 \pm 0.1375 \\ 1.0070 \pm 0.0072 \\ 0.2305 \pm 0.0077 \\ -0.0002 \pm 0.0140 \\ 0.0002 \pm 0.0101 \end{array}$	HC 3.5330 ± 0.0000 0.5548 ± 0.0000 0.0168 ± 0.0000 0.8260 ± 0.0000 0.82260 ± 0.0000	$\begin{array}{c} CAPKM++2.0\\ \hline 3.4485 \pm 0.0007\\ \hline 0.5375 \pm 0.0014\\ \hline 0.0132 \pm 0.0002\\ \hline 0.8589 \pm 0.0012\\ \hline 0.6752 \pm 0.0002\\ \hline 0.6752 \pm 0.0002\\ \hline \end{array}$
WarpPIE10P WGSS↓ MRI↓ GPI↓ BHGI↑ CI↓ TI↑	$\begin{array}{c} \text{KM} \\ \hline 3.6702 \pm 0.1250 \\ 0.5617 \pm 0.0153 \\ 0.0184 \pm 0.0038 \\ 0.8269 \pm 0.0287 \\ 0.0924 \pm 0.0127 \\ 0.3804 \pm 0.0204 \end{array}$	$\begin{array}{r} \text{KM++}\\ 3.6396 \pm 0.1102\\ 0.5549 \pm 0.0114\\ 0.0168 \pm 0.0025\\ 0.8398 \pm 0.0231\\ 0.0867 \pm 0.0113\\ 0.3849 \pm 0.0232\end{array}$	$\begin{array}{c} \mbox{PKM} \\ \hline 3.4673 \pm 0.0081 \\ 0.5519 \pm 0.0020 \\ 0.0152 \pm 0.0003 \\ 0.8334 \pm 0.0030 \\ 0.0938 \pm 0.0014 \\ 0.3555 \pm 0.0005 \end{array}$	EWPKM 3.4660 ± 0.0053 0.5528 ± 0.0011 0.0154 ± 0.0001 0.8314 ± 0.0021 0.945 ± 0.0012 0.945 ± 0.0015	$\begin{array}{c} \text{SC} \\ \hline 5.4244 \pm 0.1375 \\ 1.0070 \pm 0.0072 \\ 0.2305 \pm 0.0077 \\ -0.0002 \pm 0.0140 \\ 0.4955 \pm 0.0101 \\ 0.0007 \pm 0.0097 \\ \end{array}$	$\begin{array}{c} \text{HC} \\ \hline 3.5330 \pm 0.0000 \\ 0.5548 \pm 0.0000 \\ 0.0168 \pm 0.0000 \\ 0.8260 \pm 0.0000 \\ 0.0925 \pm 0.0000 \\ 0.3630 + 0.0000 \\ \end{array}$	CAPKM++2.0 3.4485 ± 0.0007 0.5375 ± 0.0014 0.0132 ± 0.0002 0.8589 ± 0.0012 0.0793 ± 0.0008 0.3715 + 0.0009
$\begin{tabular}{c} \hline WarpPIE10P \\ \hline WGSS \downarrow \\ \hline MRI \downarrow \\ GPI \downarrow \\ BHGI \uparrow \\ CI \downarrow \\ TI \uparrow \\ DGI \uparrow \end{tabular}$	$\begin{array}{c} \text{KM} \\ \hline 3.6702 \pm 0.1250 \\ 0.5617 \pm 0.0153 \\ 0.0184 \pm 0.0038 \\ 0.8269 \pm 0.0287 \\ 0.0924 \pm 0.0127 \\ 0.3804 \pm 0.0204 \\ 0.4522 \pm 0.0789 \end{array}$	$\begin{array}{c} \text{KM++}\\ \hline 3.6396 \pm 0.1102\\ 0.5549 \pm 0.0114\\ 0.0168 \pm 0.0025\\ 0.8398 \pm 0.0231\\ 0.0867 \pm 0.0113\\ 0.3849 \pm 0.0232\\ 0.4596 \pm 0.0865\\ \end{array}$	$\begin{array}{c} \hline PKM \\ \hline \\ 3.4673 \pm 0.0081 \\ 0.5519 \pm 0.0020 \\ 0.0152 \pm 0.0003 \\ 0.8334 \pm 0.0030 \\ 0.0938 \pm 0.0014 \\ 0.3555 \pm 0.0005 \\ 0.4318 \pm 0.0280 \\ \hline \end{array}$	$\begin{array}{c} \hline \\ \hline $	$\begin{array}{c} SC \\ \hline 5.4244 \pm 0.1375 \\ 1.0070 \pm 0.0072 \\ 0.2305 \pm 0.0077 \\ -0.0002 \pm 0.0140 \\ 0.4955 \pm 0.0101 \\ -0.0002 \pm 0.0097 \\ 0.6521 \pm 0.0102 \end{array}$	$\begin{array}{c} \text{HC} \\ \hline \\ 3.5330 \pm 0.0000 \\ 0.5548 \pm 0.0000 \\ 0.0168 \pm 0.0000 \\ 0.8260 \pm 0.0000 \\ 0.0225 \pm 0.0000 \\ 0.3630 \pm 0.0000 \\ 0.6178 \pm 0.0000 \end{array}$	CAPKM++2.0 3.4485 ± 0.0007 0.5375 ± 0.0014 0.0132 ± 0.0002 0.8589 ± 0.0012 0.0793 ± 0.0008 0.3715 ± 0.0008 0.6017 ± 0.0483
WarpPIE10P WGSS↓ MRI↓ GPI↓ BHGI↑ CI↓ TI↑ DGI↑ RLI↑	$\begin{array}{c} \text{KM} \\ \hline \\ 3.6702 \pm 0.1250 \\ 0.5617 \pm 0.0153 \\ 0.0184 \pm 0.0038 \\ 0.8269 \pm 0.0287 \\ 0.0924 \pm 0.0127 \\ 0.3804 \pm 0.0224 \\ 0.4522 \pm 0.0789 \\ 0.2544 \pm 0.0030 \\ \end{array}$	$\begin{array}{c} {\rm KM}{\rm H}{\rm H}{\rm H}{\rm 3.6396 \pm 0.1102} \\ {\rm 0.5549 \pm 0.0114} \\ {\rm 0.0168 \pm 0.0025} \\ {\rm 0.8398 \pm 0.0231} \\ {\rm 0.0867 \pm 0.0113} \\ {\rm 0.3849 \pm 0.0232} \\ {\rm 0.4596 \pm 0.0865} \\ {\rm 0.4596 \pm 0.0019} \end{array}$	$\begin{array}{c} \hline PKM \\ \hline 3.4673 \pm 0.0081 \\ 0.5519 \pm 0.0020 \\ 0.0152 \pm 0.0003 \\ 0.8334 \pm 0.0030 \\ 0.0938 \pm 0.0014 \\ 0.3555 \pm 0.0005 \\ 0.4318 \pm 0.0280 \\ 0.2575 \pm 0.0002 \end{array}$	$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	$\begin{array}{c} \text{SC} \\ \hline 5.4244 \pm 0.1375 \\ 1.0070 \pm 0.0072 \\ 0.2305 \pm 0.0077 \\ -0.0002 \pm 0.0140 \\ -0.0002 \pm 0.0097 \\ 0.6521 \pm 0.0102 \\ 0.1493 \pm 0.0052 \end{array}$	$\begin{array}{c} \text{HC} \\ \hline \\ 3.5330 \pm 0.0000 \\ 0.5548 \pm 0.0000 \\ 0.8260 \pm 0.0000 \\ 0.0925 \pm 0.0000 \\ 0.3630 \pm 0.0000 \\ 0.6178 \pm 0.0000 \\ 0.2550 \pm 0.0000 \\ \hline \end{array}$	CAPKM++2.0 3.4485 ± 0.0007 0.5375 ± 0.0014 0.0132 ± 0.0002 0.8589 ± 0.0012 0.0793 ± 0.0008 0.3715 ± 0.0009 0.6017 ± 0.0483 0.2576 ± 0.0002
WarpPIE10P WGSS↓ MRI↓ GPI↓ BHGI↑ CI↓ TI↑ DGI↑ RLI↑ CH1↑ PTI↓	$\begin{array}{c} {\sf KM} \\ \hline \\ 3.6702 \pm 0.1250 \\ 0.5617 \pm 0.0153 \\ 0.0184 \pm 0.0038 \\ 0.8269 \pm 0.0287 \\ 0.0924 \pm 0.0127 \\ 0.3804 \pm 0.0224 \\ 0.4522 \pm 0.0789 \\ 0.2544 \pm 0.0030 \\ 2.0035 \pm 0.1020 \\ 1.1935 \pm 0.3724 \end{array}$	$\begin{array}{c} {\rm KM}{\rm H}{\rm H}{\rm H}{\rm H}{\rm I}{\rm I}{\rm I}{\rm I}{\rm I}{\rm I}{\rm I}{\rm I$	$\begin{array}{c} \hline PKM \\ \hline 3.4673 \pm 0.0081 \\ 0.5519 \pm 0.0020 \\ 0.0152 \pm 0.0003 \\ 0.8334 \pm 0.0030 \\ 0.0938 \pm 0.0014 \\ 0.3555 \pm 0.0005 \\ 0.4318 \pm 0.0280 \\ 0.2575 \pm 0.0002 \\ 2.1704 \pm 0.0073 \\ 0.9863 \pm 0.0381 \end{array}$	$\begin{array}{c} \hline \\ \hline $	$\begin{array}{c} SC \\ \hline 5.4244 \pm 0.1375 \\ 1.0070 \pm 0.0072 \\ 0.2305 \pm 0.0077 \\ -0.0002 \pm 0.0140 \\ 0.4955 \pm 0.0101 \\ -0.0002 \pm 0.0097 \\ \textbf{0.6521} \pm 0.0102 \\ 0.1493 \pm 0.0052 \\ 0.3086 \pm 0.0273 \\ 3.2132 \pm 0.6500 \end{array}$	HC 3.5330 ± 0.0000 0.5548 ± 0.0000 0.0168 ± 0.0000 0.0255 ± 0.0000 0.0325 ± 0.0000 0.6178 ± 0.0000 0.2550 ± 0.0000 0.2550 ± 0.0000 0.2550 ± 0.00000 0.2590 ± 0.00000 0.9925 ± 0.00000 0.9925 ± 0.00000	CAPKM++2.0 3.4485 ± 0.0007 0.5375 ± 0.0014 0.0132 ± 0.0002 0.8589 ± 0.0012 0.0793 ± 0.0008 0.3715 ± 0.0009 0.6017 ± 0.0483 0.2576 ± 0.0002 2.1877 ± 0.0006 0.9109 ± 0.0115
$\begin{tabular}{ c c c c c } \hline WarpPIE10P \\ \hline WGSS \downarrow \\ \hline MRI \downarrow \\ GPI \downarrow \\ BHGI \uparrow \\ CI \downarrow \\ TI \uparrow \\ DGI \uparrow \\ RLI \uparrow \\ CHI \uparrow \\ CHI \uparrow \\ RTI \downarrow \\ WGI \uparrow \\ \hline \end{tabular}$	$\begin{array}{c} {\sf KM} \\ \hline \\ 3.6702 \pm 0.1250 \\ 0.5617 \pm 0.0153 \\ 0.0184 \pm 0.0038 \\ 0.8269 \pm 0.0287 \\ 0.0924 \pm 0.0127 \\ 0.3804 \pm 0.0204 \\ 0.4522 \pm 0.0789 \\ 0.2544 \pm 0.0030 \\ 2.0035 \pm 0.1020 \\ 1.1935 \pm 0.3724 \\ 0.3000 \pm 0.0166 \end{array}$	$\begin{array}{c} {\rm KM} ++ \\ 3.6396 \pm 0.1102 \\ 0.5549 \pm 0.0114 \\ 0.0168 \pm 0.0025 \\ 0.8398 \pm 0.0231 \\ 0.0867 \pm 0.0113 \\ 0.3849 \pm 0.0232 \\ 0.4596 \pm 0.0865 \\ 0.02548 \pm 0.0019 \\ 2.0236 \pm 0.0852 \\ 1.0997 \pm 0.1915 \\ 0.3023 \pm 0.0167 \end{array}$	$\begin{array}{c} \hline PKM \\ \hline \\ 3.4673 \pm 0.0081 \\ 0.5519 \pm 0.0020 \\ 0.0152 \pm 0.0003 \\ 0.8334 \pm 0.0030 \\ 0.0938 \pm 0.0014 \\ 0.3555 \pm 0.0005 \\ 0.4318 \pm 0.0280 \\ 0.2575 \pm 0.0002 \\ 2.1704 \pm 0.0073 \\ 0.9863 \pm 0.0381 \\ 0.3032 \pm 0.0016 \end{array}$	$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	$\begin{array}{c} \text{SC} \\ \hline \\ 5.4244 \pm 0.1375 \\ 1.0070 \pm 0.0072 \\ 0.2305 \pm 0.0077 \\ -0.0002 \pm 0.0140 \\ 0.4955 \pm 0.0101 \\ -0.0002 \pm 0.0097 \\ \textbf{0.6521} \pm 0.0102 \\ 0.1493 \pm 0.0052 \\ 0.3086 \pm 0.0273 \\ 3.2132 \pm 0.6500 \\ 0.1608 \pm 0.0138 \end{array}$	HC 3.5330 ± 0.0000 0.5548 ± 0.0000 0.0168 ± 0.0000 0.0255 ± 0.0000 0.3630 ± 0.0000 0.3630 ± 0.0000 0.2550 ± 0.0000 0.2550 ± 0.0000 2.0299 ± 0.0000 0.3082 ± 0.0000 0.3058 ± 0.0000	$\begin{array}{c} \hline CAPKM++2.0\\ \hline 3.4485 \pm 0.0007\\ 0.5375 \pm 0.0014\\ \hline 0.0132 \pm 0.0002\\ \hline 0.8589 \pm 0.0012\\ \hline 0.0793 \pm 0.0008\\ \hline 0.3715 \pm 0.0009\\ \hline 0.6017 \pm 0.0483\\ \hline 0.2576 \pm 0.0002\\ \hline 2.1877 \pm 0.0006\\ \hline 0.9109 \pm 0.0115\\ \hline 0.3275 \pm 0.0046\\ \hline 0.3275 \pm 0.0046\\ \hline \end{array}$
$\begin{tabular}{lllllllllllllllllllllllllllllllllll$	$\begin{array}{c} \text{KM} \\ \hline 3.6702 \pm 0.1250 \\ 0.5617 \pm 0.0153 \\ 0.0184 \pm 0.0038 \\ 0.8269 \pm 0.0287 \\ 0.0924 \pm 0.0127 \\ 0.3804 \pm 0.0204 \\ 0.0244 \pm 0.0789 \\ 0.2544 \pm 0.0030 \\ 2.0035 \pm 0.1020 \\ 1.1935 \pm 0.3724 \\ 0.3000 \pm 0.0166 \\ 0.1508 \pm 0.0278 \end{array}$	$\begin{array}{c} {\rm KM}{\rm H}{\rm H}{\rm H}{\rm A}{\rm 3.6396}\pm0.1102\\ {\rm 0.5549}\pm0.0114\\ {\rm 0.0168}\pm0.0025\\ {\rm 0.8398}\pm0.0231\\ {\rm 0.0867}\pm0.0113\\ {\rm 0.3849}\pm0.0232\\ {\rm 0.4596}\pm0.0865\\ {\rm 0.2548}\pm0.0019\\ {\rm 2.0236}\pm0.0852\\ {\rm 1.0997}\pm0.1915\\ {\rm 0.3023}\pm0.0167\\ {\rm 0.1571}\pm0.0299\\ \end{array}$	$\begin{array}{c} \hline PKM \\ \hline \\ 3.4673 \pm 0.0081 \\ 0.5519 \pm 0.0020 \\ 0.0152 \pm 0.0003 \\ 0.8334 \pm 0.0030 \\ 0.0938 \pm 0.0014 \\ 0.3555 \pm 0.0005 \\ 0.4318 \pm 0.0280 \\ 0.2575 \pm 0.0002 \\ 2.1704 \pm 0.0073 \\ 0.9863 \pm 0.0381 \\ 0.3032 \pm 0.0016 \\ 0.1619 \pm 0.0106 \end{array}$	$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	$\begin{array}{c} SC \\ \hline 5.4244 \pm 0.1375 \\ 1.0070 \pm 0.0072 \\ 0.2305 \pm 0.0077 \\ -0.0002 \pm 0.0140 \\ 0.4955 \pm 0.0101 \\ -0.0002 \pm 0.0097 \\ \textbf{0.6521} \pm 0.0102 \\ 0.1493 \pm 0.0052 \\ 0.3086 \pm 0.0273 \\ 3.2132 \pm 0.6500 \\ 0.1608 \pm 0.0138 \\ 0.1653 \pm 0.0000 \end{array}$	$\begin{array}{c} \text{HC} \\ \hline \\ 3.5330 \pm 0.0000 \\ 0.5548 \pm 0.0000 \\ 0.0168 \pm 0.0000 \\ 0.0252 \pm 0.0000 \\ 0.0925 \pm 0.0000 \\ 0.3630 \pm 0.0000 \\ 0.6178 \pm 0.0000 \\ 0.2550 \pm 0.0000 \\ 2.0299 \pm 0.0000 \\ 2.0299 \pm 0.0000 \\ 0.3058 \pm 0.0000 \\ 0.3058 \pm 0.0000 \\ 0.2625 \pm 0.0000 \\ 0.2625 \pm 0.0000 \\ 0.262 \pm 0.0000 \\ 0.000 \\ 0.262 \pm 0.0000 \\ 0.000 \\ 0.262 \pm 0.0000 \\ 0.000 \\ 0.262 \pm 0.0000 \\ $	$\begin{array}{c} \hline CAPKM++2.0\\ \hline 3.4485 \pm 0.0007\\ 0.5375 \pm 0.0014\\ 0.0132 \pm 0.0002\\ \hline 0.073 \pm 0.0008\\ 0.0793 \pm 0.0008\\ 0.0715 \pm 0.0009\\ 0.6017 \pm 0.0009\\ 0.6017 \pm 0.0006\\ 0.21877 \pm 0.0006\\ \hline 0.9109 \pm 0.0115\\ \hline 0.3275 \pm 0.0046\\ 0.2284 \pm 0.0188\\ \hline \end{array}$
$\begin{tabular}{lllllllllllllllllllllllllllllllllll$	$\begin{array}{c} {\rm KM} \\ \hline \\ 3.6702 \pm 0.1250 \\ 0.5617 \pm 0.0153 \\ 0.0184 \pm 0.0038 \\ 0.8269 \pm 0.0287 \\ 0.0924 \pm 0.0127 \\ 0.3804 \pm 0.0204 \\ 0.4522 \pm 0.0789 \\ 0.2544 \pm 0.0030 \\ 2.0035 \pm 0.1020 \\ 1.1935 \pm 0.3724 \\ 0.3000 \pm 0.0166 \\ 0.1508 \pm 0.0278 \\ 41.1859 \pm 1.4855 \\ 14.8157 \pm 7.855 \\ 14.855 \\ $	$\begin{array}{c} {\rm KM} ++ \\ 3.6396 \pm 0.1102 \\ 0.5549 \pm 0.0114 \\ 0.0168 \pm 0.0025 \\ 0.8398 \pm 0.0231 \\ 0.0867 \pm 0.0113 \\ 0.3849 \pm 0.0232 \\ 0.4596 \pm 0.0855 \\ 0.2548 \pm 0.0019 \\ 2.0236 \pm 0.00852 \\ 1.0997 \pm 0.1915 \\ 0.3023 \pm 0.0167 \\ 0.1571 \pm 0.0299 \\ 41.8175 \pm 1.4292 \\ 15.7846 \pm 1.9157 \\ 0.7846 \pm 1.9157 \\ 0.7845 \pm 1.9157 \\ 0.7846 \pm 1.9157 \\ 0.7845 \\$	$\begin{array}{c} \mbox{PKM} \\ \hline 3.4673 \pm 0.0081 \\ 0.5519 \pm 0.0020 \\ 0.0152 \pm 0.0003 \\ 0.8334 \pm 0.0030 \\ 0.0938 \pm 0.0014 \\ 0.3555 \pm 0.0005 \\ 0.4318 \pm 0.0280 \\ 0.2575 \pm 0.0002 \\ 2.1704 \pm 0.0073 \\ 0.9863 \pm 0.0381 \\ 0.3032 \pm 0.0016 \\ 0.1619 \pm 0.0106 \\ 39.6807 \pm 0.5807 \\ 1.54603 \pm 0.0181 \end{array}$	$\begin{array}{c} \hline \\ \hline $	$\begin{array}{c} SC \\ \hline \\ 5.4244 \pm 0.1375 \\ 1.0070 \pm 0.0072 \\ 0.2305 \pm 0.0077 \\ -0.0002 \pm 0.0140 \\ 0.4955 \pm 0.0101 \\ -0.0002 \pm 0.0097 \\ 0.6521 \pm 0.0097 \\ 0.3086 \pm 0.0273 \\ 3.2132 \pm 0.6500 \\ 0.1608 \pm 0.0138 \\ 0.1633 \pm 0.0000 \\ 29.1643 \pm 1.4002 \\ 7.4846 \pm 0.2933 \end{array}$	HC 3.5330 ± 0.0000 0.5548 ± 0.0000 0.0168 ± 0.0000 0.025 ± 0.0000 0.03630 ± 0.0000 0.3630 ± 0.0000 0.2550 ± 0.0000 0.2550 ± 0.0000 0.2029 ± 0.0000 0.3058 ± 0.0000 0.3058 ± 0.0000 0.2022 ± 0.0000 0.2022 ± 0.0000 0.20479 ± 0.0000 $15 1854 + 0.0000$	$\begin{array}{c} \hline CAPKM++2.0\\ \hline 3.4485 \pm 0.0007\\ 0.5375 \pm 0.0012\\ 0.0132 \pm 0.0002\\ 0.0793 \pm 0.0008\\ 0.0793 \pm 0.0008\\ 0.0793 \pm 0.0008\\ 0.3715 \pm 0.0009\\ 0.6017 \pm 0.0483\\ 0.2576 \pm 0.0002\\ 2.1877 \pm 0.0006\\ 0.9109 \pm 0.0115\\ 0.3275 \pm 0.0048\\ 0.2284 \pm 0.0188\\ 41.2249 \pm 0.0376\\ 15.2649 \pm 0.0376\\ \end{array}$
$\begin{tabular}{lllllllllllllllllllllllllllllllllll$	$\begin{array}{c} {\rm KM} \\ \hline \\ 3.6702 \pm 0.1250 \\ 0.5617 \pm 0.0153 \\ 0.0184 \pm 0.0038 \\ 0.8269 \pm 0.0287 \\ 0.0924 \pm 0.0127 \\ 0.3804 \pm 0.0204 \\ 0.4522 \pm 0.0789 \\ 0.2544 \pm 0.0030 \\ 2.0035 \pm 0.1020 \\ 1.1935 \pm 0.3724 \\ 0.3000 \pm 0.0166 \\ 0.1508 \pm 0.0278 \\ 41.1859 \pm 1.4855 \\ 14.8197 \pm 1.7981 \\ 0.0322 \pm 0.0136 \end{array}$	$\begin{array}{c} {\rm KM} ++ \\ \hline 3.6396 \pm 0.1102 \\ 0.5549 \pm 0.0114 \\ 0.0168 \pm 0.0025 \\ 0.8398 \pm 0.0231 \\ 0.0867 \pm 0.0113 \\ 0.0867 \pm 0.0113 \\ 0.4596 \pm 0.0365 \\ 0.2548 \pm 0.0019 \\ 2.0236 \pm 0.0855 \\ 1.0997 \pm 0.1915 \\ 0.3023 \pm 0.0167 \\ 0.1571 \pm 0.0299 \\ 41.8175 \pm 1.4292 \\ 15.7846 \pm 1.8157 \\ 0.0311 \pm 0.0116 \end{array}$	$\begin{array}{c} \hline PKM \\ \hline \\ 3.4673 \pm 0.0081 \\ 0.5519 \pm 0.0020 \\ 0.0152 \pm 0.0003 \\ 0.8334 \pm 0.0030 \\ 0.0938 \pm 0.0014 \\ 0.3555 \pm 0.0005 \\ 0.4318 \pm 0.0280 \\ 0.2575 \pm 0.0002 \\ 2.1704 \pm 0.0073 \\ 0.9863 \pm 0.0381 \\ 0.3032 \pm 0.0016 \\ 0.1619 \pm 0.0106 \\ 39.6807 \pm 0.5807 \\ 15.4603 \pm 0.0361 \\ 0.0301 \pm 0.0061 \end{array}$	$\begin{array}{c} \hline \\ \hline $	$\begin{array}{c} SC \\ \hline 5.4244 \pm 0.1375 \\ 1.0070 \pm 0.0072 \\ 0.2305 \pm 0.0077 \\ 0.0002 \pm 0.0140 \\ 0.4955 \pm 0.0101 \\ -0.0002 \pm 0.0097 \\ 0.6521 \pm 0.0102 \\ 0.1493 \pm 0.0052 \\ 0.3086 \pm 0.0273 \\ 3.2132 \pm 0.6500 \\ 0.1608 \pm 0.0138 \\ 0.0163 \pm 0.0000 \\ 29.1643 \pm 1.4002 \\ 7.4846 \pm 0.2832 \\ 0.0161 \pm 0.0004 \end{array}$	$\begin{array}{c} HC \\ \hline 3.5330 \pm 0.0000 \\ 0.5548 \pm 0.0000 \\ 0.0168 \pm 0.0000 \\ 0.8260 \pm 0.0000 \\ 0.0925 \pm 0.0000 \\ 0.0925 \pm 0.0000 \\ 0.0575 \pm 0.0000 \\ 0.2550 \pm 0.0000 \\ 0.2550 \pm 0.0000 \\ 0.09082 \pm 0.0000 \\ 0.3058 \pm 0.0000 \\ 0.2062 \pm 0.0000 \\ 0.2062 \pm 0.0000 \\ 42.0479 \pm 0.0000 \\ 15.1854 \pm 0.0000 \\ 0.0146 \pm 0.0000 \\ 0.0146 \pm 0.0000 \end{array}$	$\begin{array}{c} \hline CAPKM++2.0\\ \hline 3.4485 \pm 0.0007\\ \hline 0.5375 \pm 0.0014\\ \hline 0.0132 \pm 0.0002\\ \hline 0.8589 \pm 0.0012\\ \hline 0.0793 \pm 0.0008\\ \hline 0.3715 \pm 0.0009\\ \hline 0.6017 \pm 0.0048\\ \hline 0.2576 \pm 0.0002\\ \hline 2.1877 \pm 0.0006\\ \hline 0.9109 \pm 0.0115\\ \hline 0.3275 \pm 0.0046\\ \hline 0.2284 \pm 0.0188\\ \hline 41.2249 \pm 0.0376\\ \hline 15.2649 \pm 0.1076\\ \hline 0.0156 \pm 0.0036\\ \hline \end{array}$
WarpPIE10P WGSS↓ MRI↓ GPI↓ BHGI↑ CI↓ TI↑ RI↓ DGI↑ RI↓ WGI↑ DI↑ BHI↑ PBMI↑ XBL↓ DBI↓	$\begin{array}{c} {\sf KM} \\ \hline \\ 3.6702 \pm 0.1250 \\ 0.5617 \pm 0.0153 \\ 0.0184 \pm 0.0038 \\ 0.8269 \pm 0.0287 \\ 0.0924 \pm 0.0127 \\ 0.3804 \pm 0.0224 \\ 0.0127 \\ 0.3804 \pm 0.0204 \\ 0.4522 \pm 0.0789 \\ 0.2544 \pm 0.0030 \\ 2.0035 \pm 0.1020 \\ 1.1935 \pm 0.3724 \\ 0.3000 \pm 0.0166 \\ 0.1508 \pm 0.0278 \\ 41.1859 \pm 1.4855 \\ 14.8197 \pm 1.7981 \\ 0.0322 \pm 0.0136 \\ 1.6531 \pm 0.0813 \\ \end{array}$	$\begin{array}{c} {\rm KM} ++ \\ 3.6396 \pm 0.1102 \\ 0.5549 \pm 0.0114 \\ 0.0168 \pm 0.0025 \\ 0.8398 \pm 0.0231 \\ 0.0867 \pm 0.0113 \\ 0.3849 \pm 0.0231 \\ 0.4596 \pm 0.0865 \\ 0.2548 \pm 0.0019 \\ 2.0226 \pm 0.0852 \\ 1.0997 \pm 0.1915 \\ 0.3023 \pm 0.0167 \\ 0.1571 \pm 0.0299 \\ 1.8175 \pm 1.4292 \\ 15.7846 \pm 1.8157 \\ 0.0311 \pm 0.0131 \\ 1.6543 \pm 0.0833 \\ 1.6543 \pm 0.0833 \\ \end{array}$	$\begin{array}{c} \hline PKM \\ \hline \\ 3.4673 \pm 0.0081 \\ 0.5519 \pm 0.0020 \\ 0.0152 \pm 0.0003 \\ 0.8334 \pm 0.0030 \\ 0.0938 \pm 0.0014 \\ 0.3555 \pm 0.0005 \\ 0.4318 \pm 0.0280 \\ 0.2575 \pm 0.0002 \\ 2.1704 \pm 0.0231 \\ 0.9863 \pm 0.0381 \\ 0.3032 \pm 0.0016 \\ 0.1619 \pm 0.0106 \\ 3.96807 \pm 0.5807 \\ 15.4603 \pm 0.1819 \\ 0.0301 \pm 0.0061 \\ 1.5892 \pm 0.0337 \\ \end{array}$	$\begin{array}{c} \hline \\ \hline $	$\begin{array}{c} \text{SC} \\ \hline \\ 5.4244 \pm 0.1375 \\ 1.0070 \pm 0.0072 \\ 0.2305 \pm 0.0077 \\ -0.0002 \pm 0.0071 \\ -0.0002 \pm 0.0097 \\ 0.4955 \pm 0.0101 \\ -0.0002 \pm 0.0097 \\ 0.6521 \pm 0.0102 \\ 0.1493 \pm 0.0052 \\ 0.3086 \pm 0.0273 \\ 3.2132 \pm 0.6500 \\ 0.1608 \pm 0.0138 \\ 0.1653 \pm 0.0000 \\ 29.1643 \pm 1.4002 \\ 7.4846 \pm 0.2832 \\ 0.0161 \pm 0.0004 \\ 1.6824 \pm 0.0650 \\ \end{array}$	$\begin{array}{c} HC \\ \hline \\ 3.5330 \pm 0.0000 \\ 0.5548 \pm 0.0000 \\ 0.0168 \pm 0.0000 \\ 0.8260 \pm 0.0000 \\ 0.0925 \pm 0.0000 \\ 0.0925 \pm 0.0000 \\ 0.2550 \pm 0.0000 \\ 0.2550 \pm 0.0000 \\ 0.299 \pm 0.0000 \\ 0.9082 \pm 0.0000 \\ 0.9082 \pm 0.0000 \\ 0.3058 \pm 0.0000 \\ 0.2062 \pm 0.0000 \\ 1.53854 \pm 0.0000 \\ 0.0146 \pm 0.0000 \\ 1.5338 \pm 0.0000 \\ \end{array}$	$\begin{array}{c} \hline CAPKM++2.0\\ \hline 3.4485 \pm 0.0007\\ \hline 0.5375 \pm 0.0014\\ \hline 0.0132 \pm 0.0002\\ \hline 0.8589 \pm 0.0012\\ \hline 0.0793 \pm 0.0008\\ \hline 0.3715 \pm 0.0009\\ \hline 0.0175 \pm 0.0009\\ \hline 0.0175 \pm 0.0048\\ \hline 0.2576 \pm 0.0002\\ \hline 2.1877 \pm 0.0006\\ \hline 0.9109 \pm 0.0115\\ \hline 0.3275 \pm 0.0046\\ \hline 0.2284 \pm 0.0176\\ \hline 0.2284 \pm 0.0376\\ \hline 1.2249 \pm 0.0376\\ \hline 1.52649 \pm 0.0376\\ \hline 1.52649 \pm 0.0376\\ \hline 1.5912 \pm 0.0216\\ \hline 1.5912 \pm 0.0216\\ \hline \end{array}$
WarpPIE10P WGSS↓ MRI↓ GPI↓ BHGI↑ CI↓ TI↑ RLI↑ CH↓ BHI↑ PBMI↑ XBI↓ DBI↓ DBI↓ DSRI↑	$\begin{array}{c} {\sf KM} \\ \hline \\ 3.6702 \pm 0.1250 \\ 0.5617 \pm 0.0153 \\ 0.0184 \pm 0.0038 \\ 0.8269 \pm 0.0287 \\ 0.0924 \pm 0.0127 \\ 0.3804 \pm 0.0127 \\ 0.3804 \pm 0.0204 \\ 0.4522 \pm 0.0789 \\ 0.2544 \pm 0.0030 \\ 2.0035 \pm 0.1020 \\ 1.1935 \pm 0.3724 \\ 0.3000 \pm 0.0166 \\ 0.1508 \pm 0.0278 \\ 41.1859 \pm 1.4855 \\ 14.8197 \pm 1.7981 \\ 0.0322 \pm 0.0136 \\ 1.6531 \pm 0.0813 \\ 0.06911 \pm 0.0509 \\ 0.3670 \pm 0.0125 \\ 0.3670 \pm 0.0125 \\ 0.0125 \\ 0.0125 \\ 0.0125 \\ 0.0029 \\ 0.0125 \\ 0.0125 \\ 0.0125 \\ 0.0125 \\ 0.0125 \\ 0.0025 $	$\begin{array}{c} {\rm KM} ++ \\ 3.6396 \pm 0.1102 \\ 0.5549 \pm 0.0114 \\ 0.0168 \pm 0.0025 \\ 0.8398 \pm 0.0231 \\ 0.0867 \pm 0.0113 \\ 0.0867 \pm 0.0113 \\ 0.0867 \pm 0.0132 \\ 0.4596 \pm 0.0865 \\ 0.02548 \pm 0.0019 \\ 2.02264 \pm 0.0852 \\ 1.0997 \pm 0.1915 \\ 0.3023 \pm 0.0167 \\ 0.1571 \pm 0.0299 \\ 41.8175 \pm 1.4292 \\ 15.7846 \pm 1.8157 \\ 0.0311 \pm 0.0116 \\ 1.6543 \pm 0.0033 \\ 0.7040 \pm 0.0432 \\ 0.3630 \pm 0.0167 \\ 0.3630 \pm 0.0167 \\ 0.3630 \pm 0.0166 \\ 0.3630 \pm 0.0167 \\ 0.3630 \pm 0.0166 \\ 0.0160 \\ 0.3630 \pm 0.0166 \\ 0.0160 \\ 0.0100 \\ 0.0000 \\ 0.0000 \\ 0.0000 \\ 0.0000 \\ 0.0000 \\ 0.0000 \\ 0.0000 \\ 0.0000 \\ 0.0000 \\ 0.0000 \\ 0.0000 \\ 0.0000 \\ 0.0000 \\ 0.0000 \\ 0.0000 \\ 0.0000 \\ 0.0000 \\ 0.0000 $	$\begin{array}{c} \hline PKM \\ \hline \\ 3.4673 \pm 0.0081 \\ 0.5519 \pm 0.0020 \\ 0.0152 \pm 0.0003 \\ 0.8334 \pm 0.0030 \\ 0.0938 \pm 0.0014 \\ 0.3555 \pm 0.0005 \\ 0.4318 \pm 0.0280 \\ 0.2575 \pm 0.0002 \\ 2.1704 \pm 0.0073 \\ 0.9863 \pm 0.0381 \\ 0.3032 \pm 0.0016 \\ 0.1619 \pm 0.0106 \\ 3.9.6807 \pm 0.5807 \\ 1.5892 \pm 0.0381 \\ 0.0301 \pm 0.0061 \\ 1.5892 \pm 0.0337 \\ 0.7749 \pm 0.0034 \\ 0.3467 \pm 0.0098 \\ 0.3467 \pm 0.0098 \\ \end{array}$	$\begin{array}{c} \hline \\ \hline $	$\begin{array}{c} SC \\ \hline 5.4244 \pm 0.1375 \\ 1.0070 \pm 0.0072 \\ 0.2305 \pm 0.0077 \\ -0.0002 \pm 0.0140 \\ 0.4955 \pm 0.0101 \\ -0.0002 \pm 0.0097 \\ 0.6521 \pm 0.0102 \\ 0.1493 \pm 0.0052 \\ 0.3086 \pm 0.0273 \\ 3.2132 \pm 0.6500 \\ 0.1608 \pm 0.0138 \\ 0.1633 \pm 0.0000 \\ 29.1643 \pm 1.4002 \\ 7.4846 \pm 0.2832 \\ 0.0161 \pm 0.0004 \\ 1.6824 \pm 0.0650 \\ -1.1803 \pm 0.0199 \\ 0.8404 \pm 0.0195 \end{array}$	$\begin{array}{c} HC \\ \hline \\ 3.5330 \pm 0.0000 \\ 0.5548 \pm 0.0000 \\ 0.0168 \pm 0.0000 \\ 0.8260 \pm 0.0000 \\ 0.0925 \pm 0.0000 \\ 0.0925 \pm 0.0000 \\ 0.2550 \pm 0.0000 \\ 0.2550 \pm 0.0000 \\ 0.3058 \pm 0.0000 \\ 0.3058 \pm 0.0000 \\ 0.3058 \pm 0.0000 \\ 0.3058 \pm 0.0000 \\ 1.5385 \pm 0.0000 \\ 1.5338 \pm 0.0000 \\ 1.5338 \pm 0.0000 \\ 1.5338 \pm 0.0000 \\ 1.5338 \pm 0.0000 \\ 0.3658 \pm 0.0000 \\ 1.5338 \pm 0.0000 \\ 1.5388 \pm 0.0000 \\ 1.5588 \pm 0.000$	$\begin{array}{c} \hline CAPKM++2.0\\ \hline 3.4485 \pm 0.0007\\ 0.5375 \pm 0.0014\\ \hline 0.0132 \pm 0.0002\\ 0.8589 \pm 0.0012\\ 0.0793 \pm 0.0008\\ \hline 0.3715 \pm 0.0009\\ 0.3715 \pm 0.0009\\ 0.3715 \pm 0.0048\\ 0.2576 \pm 0.0002\\ 2.1877 \pm 0.0046\\ 0.9109 \pm 0.0115\\ \hline 0.3275 \pm 0.0046\\ 0.22284 \pm 0.0188\\ 41.2249 \pm 0.0376\\ 15.2649 \pm 0.036\\ 1.5912 \pm 0.0216\\ 0.0156 \pm 0.0036\\ 1.5912 \pm 0.0216\\ 0.7829 \pm 0.0003\\ 0.3488 \pm 0.0003\\ 0.0003\\ 0.3488 \pm 0.0003\\ 0$
	$\begin{array}{c} {\sf KM} \\ \hline \\ 3.6702 \pm 0.1250 \\ 0.5617 \pm 0.0153 \\ 0.0184 \pm 0.0038 \\ 0.8269 \pm 0.0287 \\ 0.0924 \pm 0.0127 \\ 0.3804 \pm 0.0224 \\ 0.0127 \\ 0.3804 \pm 0.0204 \\ 0.4522 \pm 0.0789 \\ 0.2544 \pm 0.0030 \\ 2.0035 \pm 0.1020 \\ 1.1935 \pm 0.3724 \\ 0.3000 \pm 0.0166 \\ 0.1508 \pm 0.0278 \\ 41.1859 \pm 1.4855 \\ 14.8197 \pm 1.7981 \\ 0.0322 \pm 0.0136 \\ 1.6531 \pm 0.0813 \\ 0.6911 \pm 0.0813 \\ 0.6901 \pm 0.0125 \\ 0.3600 \pm 0.0125 \\ 0.3600 \pm 0.0228 \\ 0.0256 \\ 0.0256 \\ 0.0125 \\ 0.0266 \\ 0.0256 \\ 0.0256 \\ 0.0015 \\ 0.0015 \\ 0.0015 \\ 0.0015 \\ 0.0015 \\ 0.0015 \\ 0.0015 \\ 0.0015 \\ 0.0015 \\ 0.0015 \\ 0.0015 \\ 0.0015 \\ 0.0015 \\ 0.0005 \\ 0.0015 \\$	$\begin{array}{c} {\rm KM} ++ \\ 3.6396 \pm 0.1102 \\ 0.5549 \pm 0.0114 \\ 0.0168 \pm 0.0025 \\ 0.8398 \pm 0.0231 \\ 0.0867 \pm 0.0113 \\ 0.0867 \pm 0.0113 \\ 0.0867 \pm 0.019 \\ 2.0236 \pm 0.0852 \\ 1.0997 \pm 0.1915 \\ 0.3023 \pm 0.0167 \\ 0.1571 \pm 0.0299 \\ 41.8175 \pm 1.4292 \\ 15.7846 \pm 1.8157 \\ 0.0311 \pm 0.0116 \\ 1.6543 \pm 0.0832 \\ 1.6543 \pm 0.0832 \\ 0.0369 \pm 0.0167 \\ 0.03704 \pm 0.0432 \\ 0.3699 \pm 0.0106 \\ 0.3804 + 0.0232 \\ 0.3699 \pm 0.0106 \\ 0.3804 + 0.0232 \\ 0.3699 \pm 0.0106 \\ 0.3804 + 0.0232 \\ 0.3699 \pm 0.023 \\ 0.0106 \\ 0.3804 + 0.0232 \\ 0.3609 \pm 0.023 \\ 0.3804 + 0.0232 \\ 0.3609 \pm 0.023 \\ 0.3804 + 0.0232 \\ 0.0167 \\ 0.3804 + 0.0232 \\ 0.0167 \\ 0.017 \\$	$\begin{array}{c} \hline PKM \\ \hline \\ 3.4673 \pm 0.0081 \\ 0.5519 \pm 0.0020 \\ 0.0152 \pm 0.0003 \\ 0.8334 \pm 0.0030 \\ 0.0938 \pm 0.0014 \\ 0.3555 \pm 0.0005 \\ 0.4318 \pm 0.0280 \\ 0.2575 \pm 0.0002 \\ 2.1704 \pm 0.0073 \\ 0.9863 \pm 0.0381 \\ 0.3032 \pm 0.0016 \\ 0.1619 \pm 0.0106 \\ 3.96807 \pm 0.5807 \\ 15.4603 \pm 0.1819 \\ 0.0301 \pm 0.0061 \\ 1.5892 \pm 0.0331 \\ 0.7749 \pm 0.0034 \\ 0.3467 \pm 0.0042 \\ 0.3764 \pm 0.0042 \\ 0.0042 \\ 0.3764 \pm 0.0042 \\ $	$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	$\begin{array}{c} SC \\ \hline 5.4244 \pm 0.1375 \\ 1.0070 \pm 0.0072 \\ 0.2305 \pm 0.0077 \\ -0.0002 \pm 0.0140 \\ 0.4955 \pm 0.0101 \\ -0.0002 \pm 0.0097 \\ 0.6521 \pm 0.0102 \\ 0.1493 \pm 0.0052 \\ 0.3086 \pm 0.0273 \\ 3.2132 \pm 0.6500 \\ 0.1608 \pm 0.0138 \\ 0.1633 \pm 0.0000 \\ 29.1643 \pm 1.4002 \\ 7.4846 \pm 0.2832 \\ 0.0161 \pm 0.0004 \\ 1.6824 \pm 0.0650 \\ -1.1803 \pm 0.0109 \\ 0.8404 \pm 0.0185 \\ 0.0374 + 0.0135 \\ 0.0374 + 0.0$	$\begin{array}{c} \mbox{HC} \\ \hline \mbox{HC} \\ 3.5330 \pm 0.0000 \\ 0.05548 \pm 0.0000 \\ 0.0168 \pm 0.0000 \\ 0.0255 \pm 0.0000 \\ 0.0925 \pm 0.0000 \\ 0.0255 \pm 0.0000 \\ 0.2550 \pm 0.0000 \\ 0.2550 \pm 0.0000 \\ 0.0255 \pm 0.0000 \\ 0.03058 \pm 0.0000 \\ 0.3058 \pm 0.0000 \\ 1.51854 \pm 0.0000 \\ 1.51854 \pm 0.0000 \\ 1.51854 \pm 0.0000 \\ 1.513854 \pm 0.0000 \\ 1.5338 \pm 0.0000 \\ 0.7080 \pm 0.0000 \\ 0.3628 \pm$	$\begin{array}{c} \hline CAPKM++2.0\\ \hline 3.4485 \pm 0.0007\\ 0.5375 \pm 0.0014\\ \hline 0.0132 \pm 0.0002\\ 0.8589 \pm 0.0012\\ 0.0793 \pm 0.0008\\ \hline 0.3715 \pm 0.0008\\ \hline 0.3715 \pm 0.0008\\ \hline 0.3715 \pm 0.0008\\ \hline 0.2576 \pm 0.0048\\ \hline 0.2576 \pm 0.0046\\ \hline 0.2575 \pm 0.0046\\ \hline 0.3275 \pm 0.0046\\ \hline 0.3275 \pm 0.0046\\ \hline 0.3275 \pm 0.0046\\ \hline 0.3264 \pm 0.0188\\ \hline 41.2249 \pm 0.0376\\ \hline 15.2649 \pm 0.036\\ \hline 1.5912 \pm 0.0026\\ \hline 1.5912 \pm 0.0026\\ \hline 0.348 \pm 0.0003\\ \hline 0.3488 \pm 0.0003\\ \hline 0.3488 \pm 0.0003\\ \hline 0.3488 \pm 0.0003\\ \hline 0.3275 \pm 0.0026\\ \hline 0.3488 \pm 0.0003\\ \hline 0.348 \pm 0.0003\\ \hline 0.348 \pm 0.0003\\ \hline 0.348 \pm 0.0003\\ \hline$
$\begin{tabular}{lllllllllllllllllllllllllllllllllll$	$\begin{array}{c} {\rm KM} \\ \hline \\ 3.6702 \pm 0.1250 \\ 0.5617 \pm 0.0153 \\ 0.0184 \pm 0.0038 \\ 0.8269 \pm 0.0287 \\ 0.0924 \pm 0.0127 \\ 0.3804 \pm 0.0204 \\ 0.0240 \pm 0.0204 \\ 0.0300 \pm 0.0160 \\ 0.1508 \pm 0.0278 \\ 0.1508 \pm 0.0278 \\ 1.1859 \pm 1.4855 \\ 14.8197 \pm 1.7981 \\ 0.0322 \pm 0.0136 \\ 1.6531 \pm 0.0813 \\ 0.6911 \pm 0.0509 \\ 0.3670 \pm 0.0125 \\ 0.2008 \pm 0.0238 \\ 0.3006 \pm 0.0334 \\ \end{array}$	$\begin{array}{c} {\rm KM} ++ \\ 3.6396 \pm 0.1102 \\ 0.5549 \pm 0.0114 \\ 0.0168 \pm 0.0025 \\ 0.8398 \pm 0.0231 \\ 0.0867 \pm 0.0113 \\ 0.3849 \pm 0.0232 \\ 0.4596 \pm 0.0865 \\ 0.2548 \pm 0.0019 \\ 2.0236 \pm 0.0852 \\ 1.0997 \pm 0.1915 \\ 0.3023 \pm 0.0167 \\ 0.3023 \pm 0.0167 \\ 0.371 \pm 0.0299 \\ 41.8175 \pm 1.4292 \\ 1.6543 \pm 0.0833 \\ 0.7040 \pm 0.0432 \\ 0.3639 \pm 0.0106 \\ 0.2849 \pm 0.0223 \\ 0.3024 \pm 0.0304 \end{array}$	$\begin{array}{c} \hline PKM \\ \hline \\ 3.4673 \pm 0.0081 \\ 0.5519 \pm 0.0020 \\ 0.0152 \pm 0.0003 \\ 0.8334 \pm 0.0030 \\ 0.0938 \pm 0.0014 \\ 0.3555 \pm 0.0005 \\ 0.4318 \pm 0.0280 \\ 0.2575 \pm 0.0002 \\ 2.1704 \pm 0.0073 \\ 0.9863 \pm 0.0381 \\ 0.3032 \pm 0.0016 \\ 0.1619 \pm 0.0106 \\ 39.6807 \pm 0.5807 \\ 1.5892 \pm 0.0331 \\ 0.0301 \pm 0.0061 \\ 1.5892 \pm 0.0337 \\ 0.7749 \pm 0.0034 \\ 0.3467 \pm 0.0034 \\ 0.3467 \pm 0.0043 \\ 0.3726 \pm 0.0043 \\ 0.3962 \pm 0.0037 \\ \end{array}$	$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	$\begin{array}{c} SC \\ \hline 5.4244 \pm 0.1375 \\ 1.0070 \pm 0.0072 \\ 0.2305 \pm 0.0077 \\ -0.0002 \pm 0.0140 \\ 0.4955 \pm 0.0101 \\ -0.0002 \pm 0.0097 \\ 0.6521 \pm 0.0102 \\ 0.1493 \pm 0.0052 \\ 0.3086 \pm 0.0273 \\ 3.2132 \pm 0.6500 \\ 0.1608 \pm 0.0138 \\ 0.1633 \pm 0.0000 \\ 29.1643 \pm 1.4002 \\ 7.4846 \pm 0.2832 \\ 0.0161 \pm 0.0054 \\ 1.6824 \pm 0.0650 \\ -1.1803 \pm 0.009 \\ 0.8404 \pm 0.0135 \\ 0.2874 \pm 0.0136 \\ 0.3835 \pm 0.0155 \\ 0.3835 \pm 0.0155 \\ \end{array}$	$\begin{array}{c} \mbox{HC} \\ \hline \mbox{HC} \\ 3.5330 \pm 0.0000 \\ 0.05548 \pm 0.0000 \\ 0.0168 \pm 0.0000 \\ 0.0255 \pm 0.0000 \\ 0.0925 \pm 0.0000 \\ 0.2550 \pm 0.0000 \\ 0.2550 \pm 0.0000 \\ 0.2550 \pm 0.0000 \\ 0.2550 \pm 0.0000 \\ 0.0368 \pm 0.0000 \\ 0.3058 \pm 0.0000 \\ 0.3058 \pm 0.0000 \\ 0.3058 \pm 0.0000 \\ 0.2062 \pm 0.0000 \\ 1.51854 \pm 0.0000 \\ 0.2062 \pm 0.0000 \\ 0.7080 \pm 0.0000 \\ 0.7800 \pm 0.0000 \\ 0.3618 \pm 0.0000 \\ 0.2857 \pm 0.0000 \\ 0.0000 \\ 0.2857 \pm 0.0000 \\ 0.28$	$\hline \hline $
$ \begin{array}{c} \hline WarpPIE10P\\ \hline WGSS \downarrow \\ \hline MRI \downarrow \\ GPI \downarrow \\ BHGI \uparrow \\ CI \downarrow \\ TI \uparrow \\ DGI \uparrow \\ RLI \uparrow \\ CHI \uparrow \\ RTI \downarrow \\ WGI \uparrow \\ DI \uparrow \\ BHI \uparrow \\ PBMI \uparrow \\ ZBI \downarrow \\ DBI \downarrow \\ LSSRI \uparrow \\ TWI \downarrow \\ \hline ACC \uparrow \\ NMI \uparrow \\ ARI \uparrow \\ \end{array} $	$\begin{array}{c} {\rm KM} \\ \hline \\ 3.6702 \pm 0.1250 \\ 0.5617 \pm 0.0153 \\ 0.0184 \pm 0.0038 \\ 0.8269 \pm 0.0287 \\ 0.0924 \pm 0.0127 \\ 0.3804 \pm 0.0204 \\ 0.0187 \\ 0.0924 \pm 0.0189 \\ 0.2544 \pm 0.0030 \\ 2.0035 \pm 0.0120 \\ 1.1935 \pm 0.3724 \\ 0.3000 \pm 0.0166 \\ 0.1508 \pm 0.0278 \\ 41.1859 \pm 1.4855 \\ 14.8197 \pm 1.7981 \\ 0.0322 \pm 0.0136 \\ 1.6531 \pm 0.0813 \\ 0.6911 \pm 0.0509 \\ 0.3670 \pm 0.0125 \\ 0.2808 \pm 0.0238 \\ 0.3006 \pm 0.0324 \\ 0.00872 \pm 0.0209 \\ \end{array}$	$\begin{array}{c} {\rm KM} ++ \\ \hline 3.6396 \pm 0.1102 \\ 0.5549 \pm 0.0114 \\ 0.0168 \pm 0.0025 \\ 0.8398 \pm 0.0231 \\ 0.08398 \pm 0.0231 \\ 0.0867 \pm 0.0113 \\ 0.3849 \pm 0.0232 \\ 0.4596 \pm 0.0852 \\ 2.0236 \pm 0.00852 \\ 1.0997 \pm 0.1915 \\ 0.3023 \pm 0.0167 \\ 0.1571 \pm 0.0299 \\ 41.8175 \pm 1.4292 \\ 15.7846 \pm 1.8157 \\ 0.0311 \pm 0.0116 \\ 1.6543 \pm 0.0033 \\ 0.7040 \pm 0.0433 \\ 0.7404 \pm 0.0433 \\ 0.7404 \pm 0.0433 \\ 0.3639 \pm 0.0106 \\ 0.2849 \pm 0.0223 \\ 0.3024 \pm 0.0304 \\ 0.0893 \pm 0.0204 \\ \end{array}$	$\begin{tabular}{ c c c c c } \hline PKM \\ \hline 3.4673 \pm 0.0081 \\ 0.5519 \pm 0.0020 \\ 0.0152 \pm 0.0003 \\ 0.8334 \pm 0.0030 \\ 0.0938 \pm 0.0014 \\ 0.3555 \pm 0.0005 \\ 0.4318 \pm 0.0280 \\ 0.2575 \pm 0.0002 \\ 2.1704 \pm 0.0073 \\ 0.9863 \pm 0.0381 \\ 0.3032 \pm 0.0016 \\ 0.1619 \pm 0.0106 \\ 0.39.6807 \pm 0.5807 \\ 15.4603 \pm 0.1819 \\ 0.0301 \pm 0.0061 \\ 1.5892 \pm 0.0331 \\ 0.3740 \pm 0.0038 \\ 0.3740 \pm 0.0038 \\ 0.3726 \pm 0.0038 \\ 0.3726 \pm 0.0038 \\ 0.3926 \pm 0.0037 \\ 0.3926 \pm 0.0031 \\ 0.3062 \pm 0.0043 \\ 0.3926 \pm 0.0040 \\ 0.9927 \pm 0.0040 \\ \hline \end{tabular}$	$\begin{tabular}{ c c c c c c c } \hline EWPKM \\ \hline 3.4660 \pm 0.0053 \\ 0.5528 \pm 0.0011 \\ 0.0154 \pm 0.0001 \\ 0.8314 \pm 0.0021 \\ 0.0945 \pm 0.0012 \\ 0.3550 \pm 0.0015 \\ 0.4442 \pm 0.0285 \\ 0.2575 \pm 0.0001 \\ 2.1717 \pm 0.0048 \\ 0.9807 \pm 0.0281 \\ 0.3035 \pm 0.0013 \\ 0.1662 \pm 0.0079 \\ 39.4854 \pm 0.3599 \\ 15.2328 \pm 0.0447 \\ 0.0281 \pm 0.0020 \\ 1.5787 \pm 0.0102 \\ 0.7755 \pm 0.0022 \\ 0.3466 \pm 0.0005 \\ 0.2702 \pm 0.0044 \\ 0.0962 \pm 0.0044 \\ \hline \end{tabular}$	$\begin{array}{c} SC \\ \hline \\ 5.4244 \pm 0.1375 \\ 1.0070 \pm 0.0072 \\ 0.2305 \pm 0.0077 \\ -0.0002 \pm 0.0140 \\ 0.4955 \pm 0.0101 \\ -0.0002 \pm 0.0097 \\ 0.6521 \pm 0.0102 \\ 0.1493 \pm 0.0052 \\ 0.3086 \pm 0.0273 \\ 3.2132 \pm 0.6500 \\ 0.1608 \pm 0.0138 \\ 0.1663 \pm 0.0000 \\ 29.1643 \pm 1.4002 \\ 7.4846 \pm 0.2832 \\ 0.0161 \pm 0.0054 \\ 1.6824 \pm 0.0650 \\ -1.1803 \pm 0.1009 \\ -1.1803 \pm 0.1009 \\ 0.8404 \pm 0.0185 \\ 0.2874 \pm 0.0136 \\ 0.3835 \pm 0.0155 \\ 0.0917 \pm 0.0162 \\ \end{array}$	$\begin{array}{c} \mbox{HC} \\ \hline \mbox{HC} \\ 3.5330 \pm 0.0000 \\ 0.05548 \pm 0.0000 \\ 0.0168 \pm 0.0000 \\ 0.0255 \pm 0.0000 \\ 0.0925 \pm 0.0000 \\ 0.2550 \pm 0.0000 \\ 0.2550 \pm 0.0000 \\ 0.2550 \pm 0.0000 \\ 0.2550 \pm 0.0000 \\ 0.0358 \pm 0.0000 \\ 0.3058 \pm 0.0000 \\ 0.3058 \pm 0.0000 \\ 1.51854 \pm 0.0000 \\ 1.51854 \pm 0.0000 \\ 1.51338 \pm 0.0000 \\ 1.5338 \pm 0.0000 \\ 0.7080 \pm 0.0000 \\ 0.3628 \pm 0.0000 \\ 0.3614 \pm 0.0000 \\ 0.3614 \pm 0.0000 \\ 0.3614 \pm 0.0000 \\ 0.3614 \pm 0.0000 \\ \hline 0.0000 \\ \hline 0.1117 \pm 0.0000 \\ \hline 0.0000 \\ \hline$	$\begin{array}{c} \hline CAPKM++2.0\\ \hline 3.4485 \pm 0.0007\\ 0.5375 \pm 0.0014\\ \hline 0.0132 \pm 0.0002\\ \hline 0.8589 \pm 0.0012\\ \hline 0.0793 \pm 0.0008\\ \hline 0.3715 \pm 0.0009\\ \hline 0.3715 \pm 0.0009\\ \hline 0.3715 \pm 0.0009\\ \hline 0.2576 \pm 0.0002\\ \hline 2.1877 \pm 0.0006\\ \hline 0.9109 \pm 0.0115\\ \hline 0.02284 \pm 0.0188\\ \hline 41.2249 \pm 0.0036\\ \hline 1.52649 \pm 0.0176\\ \hline 15.2649 \pm 0.0036\\ \hline 1.5912 \pm 0.0216\\ \hline 0.0156 \pm 0.0036\\ \hline 1.5912 \pm 0.0013\\ \hline 0.3448 \pm 0.0001\\ \hline 0.2827 \pm 0.0037\\ \hline 0.3112 \pm 0.0037\\ \hline 0.3112 \pm 0.0037\\ \hline 0.3112 \pm 0.0017\\ \hline \end{array}$
$\begin{tabular}{lllllllllllllllllllllllllllllllllll$	$\begin{array}{c} {\rm KM} \\ \hline \\ 3.6702 \pm 0.1250 \\ 0.5617 \pm 0.0153 \\ 0.0184 \pm 0.0038 \\ 0.8269 \pm 0.0287 \\ 0.0924 \pm 0.0127 \\ 0.3804 \pm 0.0204 \\ 0.4522 \pm 0.0789 \\ 0.2544 \pm 0.0030 \\ 2.0035 \pm 0.1020 \\ 1.1935 \pm 0.3724 \\ 0.3000 \pm 0.0166 \\ 0.1508 \pm 0.0278 \\ 41.1859 \pm 1.4855 \\ 14.8197 \pm 1.7981 \\ 0.0322 \pm 0.0136 \\ 1.6531 \pm 0.0813 \\ 0.6911 \pm 0.0509 \\ 0.3670 \pm 0.0125 \\ 0.2808 \pm 0.0238 \\ 0.3006 \pm 0.0238 \\ 0.3061 \pm 0.0209 \\ FCM \end{array}$	$\begin{array}{r} {\rm KM} ++ \\ 3.6396 \pm 0.1102 \\ 0.5549 \pm 0.0114 \\ 0.0168 \pm 0.0025 \\ 0.8398 \pm 0.0231 \\ 0.0867 \pm 0.0113 \\ 0.0867 \pm 0.0113 \\ 0.4596 \pm 0.0865 \\ 0.2548 \pm 0.0019 \\ 2.0236 \pm 0.0852 \\ 0.0191 \pm 0.0195 \\ 0.3023 \pm 0.0167 \\ 0.1571 \pm 0.0299 \\ 41.8175 \pm 1.4292 \\ 15.7846 \pm 1.8157 \\ 0.0311 \pm 0.0116 \\ 1.6543 \pm 0.0833 \\ 0.7040 \pm 0.0422 \\ 0.3639 \pm 0.0106 \\ 0.2849 \pm 0.0223 \\ 0.0083 \pm 0.0204 \\ \\ \end{array}$	$\begin{tabular}{ c c c c c } \hline PKM \\ \hline 3.4673 \pm 0.0081 \\ 0.5519 \pm 0.0020 \\ 0.0152 \pm 0.0003 \\ 0.8334 \pm 0.0030 \\ 0.0385 \pm 0.0014 \\ 0.3555 \pm 0.0005 \\ 0.4318 \pm 0.0280 \\ 0.2575 \pm 0.0002 \\ 2.1704 \pm 0.0073 \\ 0.9863 \pm 0.0381 \\ 0.3032 \pm 0.0016 \\ 0.1619 \pm 0.0106 \\ 39.6807 \pm 0.5807 \\ 15.4603 \pm 0.1819 \\ 0.0301 \pm 0.0061 \\ 1.5892 \pm 0.0337 \\ 0.7749 \pm 0.0038 \\ 0.2726 \pm 0.0043 \\ 0.3062 \pm 0.0043 \\ 0.3097 \pm 0.0040 \\ FSC \end{tabular}$	$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	$\begin{array}{c} & SC \\ & 5.4244 \pm 0.1375 \\ & 1.0070 \pm 0.0072 \\ & 0.2305 \pm 0.0077 \\ & 0.0002 \pm 0.0140 \\ & 0.4955 \pm 0.0101 \\ & -0.0002 \pm 0.0097 \\ & 0.6521 \pm 0.0102 \\ & 0.1493 \pm 0.0052 \\ & 0.3086 \pm 0.0273 \\ & 3.2132 \pm 0.6500 \\ & 0.1633 \pm 0.0000 \\ & 29.1643 \pm 1.4002 \\ & 7.4846 \pm 0.2832 \\ & 0.0161 \pm 0.0004 \\ & 1.6824 \pm 0.0085 \\ & -1.1803 \pm 0.1095 \\ & 0.8404 \pm 0.0185 \\ & 0.3835 \pm 0.0155 \\ & 0.0917 \pm 0.0162 \\ & BFC \end{array}$	$\begin{array}{l} \mbox{HC} \\ \hline $3.5330 \pm 0.0000 \\ 0.0168 \pm 0.0000 \\ 0.0168 \pm 0.0000 \\ 0.8260 \pm 0.0000 \\ 0.0925 \pm 0.0000 \\ 0.0925 \pm 0.0000 \\ 0.0178 \pm 0.0000 \\ 0.2550 \pm 0.0000 \\ 0.2550 \pm 0.0000 \\ 0.0982 \pm 0.0000 \\ 0.0308 \pm 0.0000 \\ 0.2052 \pm 0.0000 \\ 0.2052 \pm 0.0000 \\ 0.2052 \pm 0.0000 \\ 0.2052 \pm 0.0000 \\ 0.0000 \\ 0.3038 \pm 0.0000 \\ 0.2052 \pm 0.0000 \\ 0.0146 \pm 0.0000 \\ 0.7088 \pm 0.0000 \\ 0.3628 \pm 0.0000 \\ 0.3614 \pm 0.0000 \\ 0.3117 \pm 0.0000 \\ 0.1117 \pm 0.0000 \\ \hline \end{tabular}$	$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$
WarpPIE10P WGSS↓ MRI↓ GPI↓ BHGI↑ CL↓ T↑ DGI↑ RLI↑ CHI↑ RTI↓ BHGI↑ BHI↓ DBI↓ LSSRI↑ NMI↑ ARI↑ WGSS↓	$\begin{array}{r} {\rm KM} \\ \hline \\ 3.6702 \pm 0.1250 \\ 0.5617 \pm 0.0153 \\ 0.0184 \pm 0.0038 \\ 0.8269 \pm 0.0287 \\ 0.0924 \pm 0.0127 \\ 0.3804 \pm 0.0204 \\ 0.4522 \pm 0.0789 \\ 0.2544 \pm 0.0030 \\ 2.0035 \pm 0.1020 \\ 1.1935 \pm 0.3724 \\ 0.3000 \pm 0.0166 \\ 0.1508 \pm 0.0278 \\ 41.1859 \pm 1.4855 \\ 14.8197 \pm 1.7981 \\ 0.0322 \pm 0.0136 \\ 1.6531 \pm 0.0813 \\ 0.6911 \pm 0.0509 \\ 0.3670 \pm 0.0125 \\ 0.2808 \pm 0.0238 \\ 0.3006 \pm 0.0238 \\ 0.3005 \pm 0.0781 \\ \hline \end{array}$	$\begin{array}{r} {\rm KM} ++ \\ 3.6396 \pm 0.1102 \\ 0.5549 \pm 0.0114 \\ 0.0168 \pm 0.0025 \\ 0.8398 \pm 0.0231 \\ 0.0867 \pm 0.0113 \\ 0.0867 \pm 0.0113 \\ 0.4596 \pm 0.0865 \\ 0.2548 \pm 0.0019 \\ 2.0236 \pm 0.0852 \\ 1.0997 \pm 0.1915 \\ 0.3023 \pm 0.0167 \\ 0.1571 \pm 0.0299 \\ 41.8175 \pm 1.4292 \\ 15.7846 \pm 1.8157 \\ 0.0311 \pm 0.0116 \\ 1.6543 \pm 0.0833 \\ 0.7040 \pm 0.0432 \\ 0.3639 \pm 0.0106 \\ 0.2849 \pm 0.0223 \\ 0.3024 \pm 0.0304 \\ 0.0893 \pm 0.0204 \\ {\rm MEC} \\ \hline {\rm 5.7692 \pm 0.4605 \\ \end{array}$	$\begin{tabular}{ c c c c c } \hline PKM \\ \hline 3.4673 \pm 0.0081 \\ 0.5519 \pm 0.0020 \\ 0.0152 \pm 0.0003 \\ 0.8334 \pm 0.0030 \\ 0.0938 \pm 0.0014 \\ 0.3555 \pm 0.0005 \\ 0.4318 \pm 0.0280 \\ 0.2575 \pm 0.0002 \\ 2.1704 \pm 0.0073 \\ 0.9863 \pm 0.0381 \\ 0.03012 \pm 0.0016 \\ 0.1619 \pm 0.0106 \\ 39.6807 \pm 0.5807 \\ 15.4603 \pm 0.1819 \\ 0.0301 \pm 0.0061 \\ 1.5892 \pm 0.0034 \\ 0.3467 \pm 0.0008 \\ 0.2726 \pm 0.0034 \\ 0.3467 \pm 0.0008 \\ 0.2726 \pm 0.0043 \\ 0.3062 \pm 0.0043 \\ 0.3097 \pm 0.0040 \\ FSC \\ \hline 4.5079 \pm 0.2281 \\ \hline \end{tabular}$	$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	$\begin{array}{c} \text{SC} \\ \hline \\ 5.4244 \pm 0.1375 \\ 1.0070 \pm 0.0072 \\ 0.2305 \pm 0.0077 \\ -0.0002 \pm 0.0140 \\ 0.4955 \pm 0.0101 \\ -0.0002 \pm 0.0097 \\ 0.6521 \pm 0.0102 \\ 0.1493 \pm 0.0052 \\ 0.3086 \pm 0.0273 \\ 3.2132 \pm 0.6500 \\ 0.1608 \pm 0.0138 \\ 0.1653 \pm 0.0000 \\ 29.1643 \pm 1.4002 \\ 7.4846 \pm 0.2832 \\ 0.0161 \pm 0.0004 \\ 1.6824 \pm 0.0000 \\ -1.1803 \pm 0.1009 \\ 0.8404 \pm 0.0185 \\ 0.2874 \pm 0.0136 \\ 0.3835 \pm 0.0155 \\ 0.0917 \pm 0.0162 \\ \hline \text{BFC} \\ \times \end{array}$	$\begin{array}{l} \hline \mbox{HC} \\ \hline \mbox{3.5330} \pm 0.0000 \\ 0.5548 \pm 0.0000 \\ 0.0168 \pm 0.0000 \\ 0.8260 \pm 0.0000 \\ 0.0925 \pm 0.0000 \\ 0.0925 \pm 0.0000 \\ 0.2550 \pm 0.0000 \\ 0.2550 \pm 0.0000 \\ 0.0982 \pm 0.0000 \\ 0.0982 \pm 0.0000 \\ 0.0308 \pm 0.0000 \\ 0.2052 \pm 0.0000 \\ 0.3038 \pm 0.0000 \\ 0.3038 \pm 0.0000 \\ 0.3038 \pm 0.0000 \\ 0.3038 \pm 0.0000 \\ 0.3028 \pm 0.0000 \\ 0.3038 \pm 0.0000 \\ 0.3628 \pm 0.368 \\ 0.368 \pm 0.368 \\ 0.368 \pm 0.0000 \\ 0.36$	$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$
$\begin{tabular}{lllllllllllllllllllllllllllllllllll$	$\begin{array}{r} {\rm KM} \\ \hline \\ 3.6702 \pm 0.1250 \\ 0.5617 \pm 0.0153 \\ 0.0184 \pm 0.0038 \\ 0.8269 \pm 0.0287 \\ 0.0924 \pm 0.0127 \\ 0.3004 \pm 0.0204 \\ 0.4522 \pm 0.0789 \\ 0.2544 \pm 0.0030 \\ 2.0035 \pm 0.1020 \\ 1.1935 \pm 0.3724 \\ 0.3000 \pm 0.0166 \\ 0.1508 \pm 0.0278 \\ 41.1859 \pm 1.4855 \\ 14.8197 \pm 1.7981 \\ 0.0322 \pm 0.0136 \\ 1.6531 \pm 0.0813 \\ 0.6911 \pm 0.0509 \\ 0.3670 \pm 0.0125 \\ 0.2808 \pm 0.0238 \\ 0.00872 \pm 0.0299 \\ \hline {\rm FCM} \\ 4.0995 \pm 0.0781 \\ 0.5964 \pm 0.0033 \\ \end{array}$	$\begin{array}{r} {\rm KM} ++ \\ 3.6396 \pm 0.1102 \\ 0.5549 \pm 0.0114 \\ 0.0168 \pm 0.0025 \\ 0.8398 \pm 0.0231 \\ 0.0867 \pm 0.0113 \\ 0.3849 \pm 0.0232 \\ 0.4596 \pm 0.0865 \\ 0.2548 \pm 0.0019 \\ 2.0236 \pm 0.0852 \\ 1.0997 \pm 0.1915 \\ 0.3023 \pm 0.0167 \\ 0.1571 \pm 0.0299 \\ 41.8175 \pm 1.4292 \\ 15.7846 \pm 1.8157 \\ 0.0311 \pm 0.0116 \\ 1.6543 \pm 0.0833 \\ 0.7040 \pm 0.0432 \\ 0.3639 \pm 0.0106 \\ 0.2849 \pm 0.0223 \\ 0.3024 \pm 0.0304 \\ 0.0893 \pm 0.0204 \\ \hline {\rm MEC} \\ 5.7692 \pm 0.4605 \\ 0.6727 \pm 0.0235 \\ \hline \end{array}$	$\begin{array}{c} \hline {\rm PKM} \\ \hline \\ 3.4673 \pm 0.0081 \\ 0.5519 \pm 0.0020 \\ 0.0152 \pm 0.0003 \\ 0.8334 \pm 0.0030 \\ 0.0938 \pm 0.0014 \\ 0.3555 \pm 0.0005 \\ 0.4318 \pm 0.0280 \\ 0.2575 \pm 0.0002 \\ 2.1704 \pm 0.0073 \\ 0.9863 \pm 0.0381 \\ 0.3032 \pm 0.0016 \\ 0.1619 \pm 0.0106 \\ 3.96807 \pm 0.5807 \\ 15.4603 \pm 0.1819 \\ 0.0301 \pm 0.0061 \\ 1.5892 \pm 0.0337 \\ 0.7749 \pm 0.0034 \\ 0.3467 \pm 0.0008 \\ 0.2726 \pm 0.0043 \\ 0.3062 \pm 0.0043 \\ 0.0927 \pm 0.0040 \\ \hline {\rm FSC} \\ 4.5079 \pm 0.2281 \\ 0.6437 \pm 0.0320 \\ \hline \end{array}$	$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	$\begin{array}{c} & SC \\ \hline & 5.4244 \pm 0.1375 \\ 1.0070 \pm 0.0072 \\ 0.2305 \pm 0.0077 \\ -0.0002 \pm 0.0097 \\ -0.0002 \pm 0.0097 \\ 0.4955 \pm 0.0101 \\ -0.0002 \pm 0.0097 \\ 0.6521 \pm 0.0102 \\ 0.1493 \pm 0.0052 \\ 0.3086 \pm 0.0273 \\ 3.2132 \pm 0.6500 \\ 0.1608 \pm 0.0138 \\ 0.1653 \pm 0.0000 \\ 29.1643 \pm 1.4002 \\ 7.4846 \pm 0.2832 \\ 0.0161 \pm 0.0004 \\ 1.6824 \pm 0.0650 \\ -1.1803 \pm 0.1055 \\ 0.2874 \pm 0.0136 \\ 0.3835 \pm 0.0155 \\ 0.0917 \pm 0.0162 \\ \hline BFC \\ \times \\ \times \end{array}$	$\begin{array}{l} \hline \mbox{HC} \\ \hline \mbox{3.5330} \pm 0.0000 \\ 0.5548 \pm 0.0000 \\ 0.0168 \pm 0.0000 \\ 0.8260 \pm 0.0000 \\ 0.0925 \pm 0.0000 \\ 0.0925 \pm 0.0000 \\ 0.2550 \pm 0.0000 \\ 0.2550 \pm 0.0000 \\ 0.0982 \pm 0.0000 \\ 0.0982 \pm 0.0000 \\ 0.0982 \pm 0.0000 \\ 0.0308 \pm 0.0000 \\ 0.0362 \pm 0.0000 \\ 0.3628 \pm 0.0000 \\ $	$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$
WarpPIE10P WGSS↓ MRI↓ GPI↓ BHGI↑ CL↓ TI↑ RI↓ DGI↑ RI↓ DBI↓ LSSRI↑ TWI↓ ACC↑ NMI↑ ARI↑ WarpPIE10P WGS\$↓	$\begin{array}{r} {\rm KM} \\ \hline \\ 3.6702 \pm 0.1250 \\ 0.5617 \pm 0.0153 \\ 0.0184 \pm 0.0038 \\ 0.8269 \pm 0.0287 \\ 0.0924 \pm 0.0127 \\ 0.3804 \pm 0.0204 \\ 0.4522 \pm 0.0789 \\ 0.2544 \pm 0.0030 \\ 2.0035 \pm 0.1020 \\ 1.1935 \pm 0.3724 \\ 0.3000 \pm 0.0166 \\ 0.1508 \pm 0.0278 \\ 41.1859 \pm 1.4855 \\ 14.8197 \pm 1.7981 \\ 0.0322 \pm 0.0136 \\ 0.16531 \pm 0.0813 \\ 0.6911 \pm 0.0509 \\ 0.3670 \pm 0.0125 \\ 0.2808 \pm 0.0238 \\ 0.0032 \pm 0.0298 \\ FCM \\ \hline 4.0995 \pm 0.0781 \\ 0.095 \pm 0.0731 \\ 0.0932 \\ \pm 0.0032 \\ \hline \end{array}$	$\begin{array}{r} {\rm KM} ++ \\ 3.6396 \pm 0.1102 \\ 0.5549 \pm 0.0114 \\ 0.0168 \pm 0.0025 \\ 0.8398 \pm 0.0231 \\ 0.0867 \pm 0.0113 \\ 0.3849 \pm 0.0231 \\ 0.4596 \pm 0.0865 \\ 0.2548 \pm 0.0019 \\ 2.0226 \pm 0.0852 \\ 1.0997 \pm 0.1915 \\ 0.3023 \pm 0.0167 \\ 0.1571 \pm 0.0299 \\ 1.8175 \pm 1.4292 \\ 15.7846 \pm 1.8157 \\ 0.0311 \pm 0.0116 \\ 1.6543 \pm 0.0833 \\ 0.7040 \pm 0.0123 \\ 0.3639 \pm 0.0106 \\ 0.2849 \pm 0.0223 \\ 0.3024 \pm 0.0304 \\ 0.0893 \pm 0.0204 \\ \hline {\rm MEC} \\ 5.7692 \pm 0.4605 \\ 0.6727 \pm 0.0235 \\ 0.073 \pm 0.0137 \\ \hline \end{array}$	$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	$\begin{array}{c} SC \\ \hline 5.4244 \pm 0.1375 \\ 1.0070 \pm 0.0072 \\ 0.2305 \pm 0.0077 \\ -0.0002 \pm 0.0077 \\ -0.0002 \pm 0.0097 \\ 0.4955 \pm 0.0101 \\ -0.0002 \pm 0.0097 \\ 0.6521 \pm 0.0102 \\ 0.1493 \pm 0.0052 \\ 0.3086 \pm 0.0273 \\ 3.2132 \pm 0.6500 \\ 0.1608 \pm 0.0138 \\ 0.1653 \pm 0.0000 \\ 2.91.643 \pm 1.4002 \\ 7.4846 \pm 0.2832 \\ 0.0161 \pm 0.0004 \\ 1.6824 \pm 0.0650 \\ -1.1803 \pm 0.1050 \\ -1.803 \pm 0.1055 \\ 0.0917 \pm 0.0136 \\ 0.3835 \pm 0.0155 \\ 0.0917 \pm 0.0162 \\ \hline BFC \\ \times \\ \times \\ \times \\ \end{array}$	$\begin{array}{r} \label{eq:heat} HC \\ \hline 3.5330 \pm 0.0000 \\ 0.5548 \pm 0.0000 \\ 0.0168 \pm 0.0000 \\ 0.8260 \pm 0.0000 \\ 0.0255 \pm 0.0000 \\ 0.0255 \pm 0.0000 \\ 0.2550 \pm 0.0000 \\ 0.2550 \pm 0.0000 \\ 0.2029 \pm 0.0000 \\ 0.0982 \pm 0.0000 \\ 0.3058 \pm 0.0000 \\ 0.3058 \pm 0.0000 \\ 0.3058 \pm 0.0000 \\ 1.51854 \pm 0.0000 \\ 1.51854 \pm 0.0000 \\ 1.5338 \pm 0.0000 \\ 0.3628 \pm 0.0000 \\ 0.3628 \pm 0.0000 \\ 0.3628 \pm 0.0000 \\ 0.3614 \pm 0.0000 \\ 0.3614 \pm 0.0000 \\ 0.3614 \pm 0.0000 \\ 0.3614 \pm 0.0000 \\ 0.3628 \pm 0.0000 $	$\begin{array}{c} \hline CAPKM++2.0\\ \hline 3.4485 \pm 0.0007\\ 0.5375 \pm 0.0014\\ \hline 0.0132 \pm 0.0002\\ 0.8589 \pm 0.0012\\ 0.0793 \pm 0.0008\\ \hline 0.3715 \pm 0.0009\\ 0.3715 \pm 0.0009\\ 0.3715 \pm 0.0002\\ 0.1575 \pm 0.0002\\ 0.1575 \pm 0.0006\\ 0.9109 \pm 0.0115\\ 0.3275 \pm 0.0046\\ 0.12284 \pm 0.0188\\ 41.2249 \pm 0.0376\\ 15.2649 \pm 0.036\\ 1.5912 \pm 0.0216\\ 0.0156 \pm 0.0036\\ 1.5912 \pm 0.0216\\ 0.3448 \pm 0.0003\\ 0.3448 \pm 0.0003\\ 0.33112 \pm 0.0017\\ \hline CAFCM\\ 3.4481 \pm 0.0000\\ 0.5368 \pm 0.0000\\ 0.0131 \pm 0.0000\\ \hline \end{array}$
$\begin{tabular}{lllllllllllllllllllllllllllllllllll$	$\begin{array}{r} {\rm KM} \\ \hline \\ 3.6702 \pm 0.1250 \\ 0.5617 \pm 0.0153 \\ 0.0184 \pm 0.0038 \\ 0.8269 \pm 0.0287 \\ 0.0924 \pm 0.0127 \\ 0.3804 \pm 0.0127 \\ 0.3804 \pm 0.0204 \\ 0.4522 \pm 0.0789 \\ 0.2544 \pm 0.0030 \\ 2.0035 \pm 0.1020 \\ 1.1935 \pm 0.3724 \\ 0.3000 \pm 0.0166 \\ 0.1508 \pm 0.0278 \\ 1.1835 \pm 1.4855 \\ 14.8197 \pm 1.7981 \\ 0.0322 \pm 0.0136 \\ 1.6531 \pm 0.0813 \\ 0.6911 \pm 0.0509 \\ 0.3670 \pm 0.0125 \\ 0.0278 \\ 0.0032 \\ 0.0033 \\ 0.0035 \\ 0.0033 \\ 0.0032 \\ 0.0033 \\ 0.0035 \\ 0.0033 \\ 0.0033 \\ 0.0078 \\ 0.0033 \\ 0.0078 \\ 0.0033 \\ 0.0078 \\ 0.0033 \\ 0.0025 \\ 0.0012 \\ 0.0033 \\ 0.0265 \\ 0.0012 \\ 0.7720 \\ \pm 0.0033 \\ 0.0245 \\ 0.0012 \\ 0.0045 \\ 0.01151 \\ 0.0033 \\ 0.0265 \\ 0.0012 \\ 0.0045 \\ 0.0031 \\ 0.0045 \\ 0.01151 \\ 0.0003 \\ 0.0045 \\ 0.01181 \\ 0.0003 \\ 0.0035 \\ 0.0012 \\ 0.0045 \\ 0.01181 \\ 0.0003 \\ 0.0005 \\ 0.0012 \\ 0.0045 \\ 0.01181 \\ 0.0003 \\ 0.0005 \\ 0.0012 \\ 0.0045 \\ 0.01181 \\ 0.0003 \\ 0.0005 \\ 0.0012 \\ 0.0045 \\ 0.01181 \\ 0.0003 \\ 0.0005 \\ 0.0012 \\ 0.0045 \\ 0.01181 \\ 0.0003 \\ 0.0005 \\ 0.0012 \\ 0.0045 \\ 0.0012 \\ 0.0045 \\ 0.0012 \\ 0.0045 \\ 0.0012 \\ 0.0045 \\ 0.0012 \\ 0.0045 \\ 0.0012 \\ 0.0045 \\ 0.0012 \\ 0.0045 \\ 0.0012 \\ 0.0045 \\ 0.0012 \\ 0.0045 \\ 0.0012 \\ 0.0045 \\ 0.0012 \\ 0.0045 \\ 0.0012 \\ 0.0045 \\ 0.0012 \\ 0.0045 \\ 0.0012 \\ 0.0045 \\ 0.0012 \\ 0.0045 \\ 0.0012 \\ 0.0045 \\ 0.0012 \\ 0.0045 \\ 0.0012 \\ 0.0045 \\ 0.0012 \\ 0.0012 \\ 0.0045 \\ 0.0012 \\ 0.0012 \\ 0.0045 \\ 0.0012 \\ 0.0012 \\ 0.0045 \\ 0.0012 \\ 0.0012 \\ 0.0045 \\ 0.0012 \\ 0.0012 \\ 0.0012 \\ 0.0045 \\ 0.0012 \\ 0.0012 \\ 0.0045 \\ 0.0012 \\ 0.0045 \\ 0.0012 \\ 0.0045 \\ 0.0012 \\ 0.0045 \\ 0.0012 \\ 0.0012 \\ 0.0045 \\ 0.0012 \\ 0.0012 \\ 0.0045 \\ 0.0012 \\$	$\begin{array}{r} {\rm KM} ++ \\ 3.6396 \pm 0.1102 \\ 0.5549 \pm 0.0114 \\ 0.0168 \pm 0.0025 \\ 0.8398 \pm 0.0231 \\ 0.0867 \pm 0.0113 \\ 0.0867 \pm 0.0113 \\ 0.0867 \pm 0.0113 \\ 0.0874 \pm 0.0231 \\ 0.0852 \pm 0.0852 \\ 1.0997 \pm 0.1915 \\ 0.3023 \pm 0.0167 \\ 0.1571 \pm 0.0299 \\ 41.8175 \pm 1.4292 \\ 15.7846 \pm 1.8157 \\ 0.0311 \pm 0.0116 \\ 1.6543 \pm 0.0832 \\ 0.3639 \pm 0.0106 \\ 0.2849 \pm 0.0223 \\ 0.3024 \pm 0.0304 \\ 0.0893 \pm 0.0204 \\ \hline {\rm MEC} \\ \hline 5.7692 \pm 0.4605 \\ 0.6727 \pm 0.0235 \\ 0.0730 \pm 0.0137 \\ 0.6944 \pm 0.0510 \\ 0.1350 \pm 0.025 \\ 0.0150 \\ 0.1501 \\ 0.0254 \\ 0.0016 \\ \hline {\rm MEC} \\ \hline \end{tabular}$	$\begin{array}{c} \hline PKM \\ \hline \\ 3.4673 \pm 0.0081 \\ 0.5519 \pm 0.0020 \\ 0.0152 \pm 0.0003 \\ 0.8334 \pm 0.0030 \\ 0.0938 \pm 0.0014 \\ 0.3555 \pm 0.0005 \\ 0.4318 \pm 0.0280 \\ 0.2575 \pm 0.0002 \\ 2.1704 \pm 0.0073 \\ 0.9863 \pm 0.0381 \\ 0.3032 \pm 0.0016 \\ 0.1619 \pm 0.0106 \\ 3.96807 \pm 0.5807 \\ 1.5892 \pm 0.0061 \\ 1.5892 \pm 0.0337 \\ 0.7749 \pm 0.034 \\ 0.3061 \pm 0.0381 \\ 0.3062 \pm 0.0037 \\ 0.3667 \pm 0.0043 \\ 0.3667 \pm 0.0043 \\ 0.0457 \pm 0.0130 \\ 0.0457 \pm 0.0130 \\ 0.0457 \pm 0.0130 \\ 0.0687 \pm 0.0037 \\ 0.04587 \pm 0.0037 \\ 0.04587 \pm 0.0032 \\ 0.0037 \\ 0.04587 \pm 0.0032 \\ 0.04587 \pm 0.0037 \\ 0.04587 \pm 0.0037 \\ 0.04587 \pm 0.0032 \\ 0.04587 \pm 0.0037 \\ 0.04587 \pm 0.0037 \\ 0.0087 \\ 0.0087 \\ 0.0087 \\ 0.0087 \\ 0.0030 \\ 0.0457 \\ 0.0030 \\ 0.0457 \\ 0.0030 \\ 0.0457 \\ 0.0030 \\ 0.0457 \\ 0.0030 \\ 0.0457 \\ 0.0030 \\ 0.0457 \\ 0.0030 \\ 0.0457 \\ 0.0030 \\ 0.0457 \\ 0.0030 \\ 0.0037 \\ 0.0030 \\ 0.0457 \\ 0.0030 \\ 0.0457 \\ 0.0030 \\ 0.0457 \\ 0.0030 \\ 0.0457 \\ 0.0030 \\ 0.0457 \\ 0.0030 \\ 0.0457 \\ 0.0030 \\ 0.0037 \\ 0.0030 \\ 0.00357 \\ 0.0030 \\ 0.0037 \\ 0.0030 \\ 0.0037 \\ 0.0030 \\ 0.$	$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	$\begin{array}{c} SC \\ \hline 5.4244 \pm 0.1375 \\ 1.0070 \pm 0.0072 \\ 0.2305 \pm 0.0077 \\ -0.0002 \pm 0.0101 \\ -0.0002 \pm 0.0101 \\ -0.0002 \pm 0.0097 \\ 0.4955 \pm 0.0102 \\ 0.1493 \pm 0.0052 \\ 0.3086 \pm 0.0273 \\ 3.2132 \pm 0.6500 \\ 0.1608 \pm 0.0138 \\ 0.1633 \pm 0.0000 \\ 29.1643 \pm 1.4002 \\ 7.4846 \pm 0.2832 \\ 0.0161 \pm 0.0004 \\ 1.6824 \pm 0.0550 \\ -1.1803 \pm 0.0109 \\ 0.8404 \pm 0.0185 \\ 0.2874 \pm 0.0135 \\ 0.0917 \pm 0.0162 \\ \hline BFC \\ \times \\ \end{array}$	$\begin{array}{r} \label{eq:heat} HC \\ \hline HC \\ 3.5330 \pm 0.0000 \\ 0.5548 \pm 0.0000 \\ 0.0168 \pm 0.0000 \\ 0.0255 \pm 0.0000 \\ 0.0925 \pm 0.0000 \\ 0.0255 \pm 0.0000 \\ 0.2550 \pm 0.0000 \\ 0.2550 \pm 0.0000 \\ 0.3638 \pm 0.0000 \\ 0.3058 \pm 0.0000 \\ 0.3058 \pm 0.0000 \\ 0.3058 \pm 0.0000 \\ 1.5338 \pm 0.0000 \\ 0.3628 \pm 0.0000 \\ 0.3614 \pm 0.0000 \\ 0.1117 \pm 0.0000 \\ \text{KFCM} \\ 4.9026 \pm 0.3384 \\ 0.6351 \pm 0.0209 \\ 0.0506 \pm 0.0119 \\ 0.7501 \pm 0.0406 \\ 0.1118 \pm 0.0005 \\ 0.0118 \pm 0.0005 \\ 0.0118 \pm 0.0005 \\ 0.0118 \pm 0.0005 \\ 0.0015 \\ 0.0005 \\ 0.0015 \\ 0.0005 \\ 0.0015 \\ 0.0005 \\ 0.0015 \\ 0.0005 \\ 0.0015 \\ 0.0005 \\ 0.0$	$\begin{array}{c} \hline CAPKM++2.0\\ \hline 3.4485 \pm 0.0007\\ 0.5375 \pm 0.0014\\ \hline 0.0132 \pm 0.0002\\ 0.8589 \pm 0.0012\\ 0.0793 \pm 0.0008\\ \hline 0.3715 \pm 0.0008\\ \hline 0.3715 \pm 0.0008\\ \hline 0.3715 \pm 0.0048\\ \hline 0.2576 \pm 0.0002\\ \hline 0.115\\ \hline 0.0015\\ \hline 0.2575 \pm 0.0046\\ \hline 0.3275 \pm 0.0046\\ \hline 0.3275 \pm 0.0046\\ \hline 0.3275 \pm 0.0046\\ \hline 0.2284 \pm 0.0188\\ \hline 41.2249 \pm 0.0376\\ \hline 1.52649 \pm 0.1076\\ \hline 0.0156 \pm 0.0036\\ \hline 1.5912 \pm 0.0021\\ \hline 0.0327 \pm 0.0001\\ \hline 0.2827 \pm 0.0003\\ \hline 0.3448 \pm 0.0001\\ \hline 0.2827 \pm 0.0035\\ \hline 0.0932 \pm 0.0017\\ \hline CAFCM\\ \hline 3.4481 \pm 0.0000\\ \hline 0.8594 \pm 0.0000\\ \hline 0.8594 \pm 0.0000\\ \hline 0.8594 \pm 0.0000\\ \hline 0.0788 \pm 0.0000\\ \hline 0.0788 \pm 0.0000\\ \hline 0.8594 \pm 0.0000\\ \hline 0.0788 \pm 0.0000\\ \hline 0.0788 \pm 0.0000\\ \hline 0.0788 \pm 0.0000\\ \hline 0.8594 \pm 0.0000\\ \hline 0.0788 \pm 0.0000\\ \hline 0.0788 \pm 0.0000\\ \hline 0.0788 \pm 0.0000\\ \hline 0.0000\\ \hline 0.0788 \pm 0.0000\\ \hline 0.0000\\ \hline 0.0788 \pm 0.0000\\ \hline 0.0788 \pm 0.0000\\ \hline 0.0000\\ \hline 0.0788 \pm 0.0000\\ \hline 0.0000\\ \hline 0.0788 \pm 0.0000\\ \hline 0.0788 \pm 0.0000\\ \hline 0.0000\\ \hline$
$\label{eq:second} \hline \hline WarpPIE10P\\ \hline WGSS$\downarrow\\ \hline MRI$\downarrow$ GPI\downarrow GPI\downarrow GPI\downarrow GPI\downarrow GPI\downarrow GPI\downarrow GPI\downarrow CI\downarrow TI\uparrow DGI\uparrow CI\downarrow TI\uparrow DGI\uparrow CHI\uparrow RTI\downarrow WGI\uparrow DI\uparrow DBI\downarrow LSSRI\uparrow TWI\downarrow ACC\uparrow NMI\uparrow ARI\uparrow WarpPIE10P\\ \hline WGSS\downarrow \hline MRI\downarrow GPI\downarrow BHGI\uparrow CI\downarrow TI\uparrow TI\uparrow TI\uparrow TI\uparrow CI\downarrow CI$_1 CI$_1 CI$_1 CI$_1$	$\begin{array}{r} {\rm KM} \\ \hline \\ 3.6702 \pm 0.1250 \\ 0.5617 \pm 0.0153 \\ 0.0184 \pm 0.0038 \\ 0.8269 \pm 0.0287 \\ 0.0924 \pm 0.0127 \\ 0.3804 \pm 0.0224 \\ 0.0127 \\ 0.3804 \pm 0.0204 \\ 0.0183 \\ 0.2524 \pm 0.0789 \\ 0.2544 \pm 0.0030 \\ 2.0035 \pm 0.0120 \\ 1.1935 \pm 0.3724 \\ 0.3000 \pm 0.0168 \\ 0.1508 \pm 0.0278 \\ 41.1859 \pm 1.4855 \\ 14.8197 \pm 1.7981 \\ 0.0322 \pm 0.0136 \\ 1.6531 \pm 0.0813 \\ 0.06911 \pm 0.0509 \\ 0.3006 \pm 0.0125 \\ 0.2808 \pm 0.0238 \\ 0.3006 \pm 0.0324 \\ 0.00872 \pm 0.0209 \\ \hline {\rm FCM} \\ \hline \\ 4.0995 \pm 0.0781 \\ 0.0265 \pm 0.0012 \\ 0.0265 \pm 0.0012 \\ 0.07720 \pm 0.0045 \\ 0.17181 \pm 0.0020 \\ 0.3719 \pm 0.0054 \\ \hline \end{array}$	$\begin{array}{r} {\rm KM} ++ \\ 3.6396 \pm 0.1102 \\ 0.5549 \pm 0.0114 \\ 0.0168 \pm 0.0025 \\ 0.8398 \pm 0.0231 \\ 0.0867 \pm 0.0113 \\ 0.0867 \pm 0.0113 \\ 0.3849 \pm 0.0232 \\ 0.4596 \pm 0.0852 \\ 2.0236 \pm 0.00852 \\ 1.0997 \pm 0.1915 \\ 0.3023 \pm 0.0167 \\ 0.1571 \pm 0.0299 \\ 41.8175 \pm 1.4292 \\ 15.7846 \pm 1.8157 \\ 0.0311 \pm 0.0116 \\ 1.6543 \pm 0.0033 \\ 0.0167 \\ 1.8175 \\ 0.3024 \pm 0.0106 \\ 0.2849 \pm 0.0223 \\ 0.3024 \pm 0.0304 \\ 0.0893 \pm 0.0204 \\ \hline {\rm MEC} \\ \hline 5.7692 \pm 0.4605 \\ 0.6727 \pm 0.0235 \\ 0.0730 \pm 0.0137 \\ 0.0510 \\ 0.1350 \pm 0.0288 \\ 0.4709 \\ 0.0031 \\ 0.0304 \\ \hline {\rm KEC} \\ \hline \end{array}$	$\begin{tabular}{ c c c c c } \hline PKM \\ \hline 3.4673 \pm 0.0081 \\ 0.5519 \pm 0.0020 \\ 0.0152 \pm 0.0003 \\ 0.8334 \pm 0.0030 \\ 0.0938 \pm 0.0014 \\ 0.3555 \pm 0.0005 \\ 0.4318 \pm 0.0280 \\ 0.2575 \pm 0.0002 \\ 2.1704 \pm 0.0073 \\ 0.9863 \pm 0.0381 \\ 0.03032 \pm 0.0016 \\ 0.1619 \pm 0.0106 \\ 0.39.6807 \pm 0.5807 \\ 15.4603 \pm 0.1819 \\ 0.0301 \pm 0.0061 \\ 1.5892 \pm 0.0337 \\ 0.3740 \pm 0.0038 \\ 0.3467 \pm 0.0008 \\ 0.2726 \pm 0.0043 \\ 0.3062 \pm 0.0037 \\ 0.3062 \pm 0.0040 \\ \hline FSC \\ \hline 4.5079 \pm 0.2281 \\ 0.6437 \pm 0.0367 \\ 0.0667 \\ 0.1488 \pm 0.0297 \\ 0.3676 \pm 0.0401 \\ \hline \end{tabular}$	$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	$ \begin{array}{c} SC \\ \hline 5.4244 \pm 0.1375 \\ 1.0070 \pm 0.0072 \\ 0.2305 \pm 0.0077 \\ -0.0002 \pm 0.0140 \\ 0.4955 \pm 0.0101 \\ -0.0002 \pm 0.0097 \\ 0.6521 \pm 0.0102 \\ 0.1493 \pm 0.0052 \\ 0.3086 \pm 0.0273 \\ 3.2132 \pm 0.6500 \\ 0.1608 \pm 0.0138 \\ 0.1635 \pm 0.0000 \\ 29.1643 \pm 1.4002 \\ 7.4846 \pm 0.2832 \\ 0.0161 \pm 0.0094 \\ 1.6824 \pm 0.0650 \\ -1.1803 \pm 0.1009 \\ 0.8404 \pm 0.0185 \\ 0.2874 \pm 0.0135 \\ 0.0917 \pm 0.0162 \\ \hline BFC \\ \times \\ $	$\begin{array}{r} \label{eq:heat} HC \\ \hline HC \\ \hline 3.5330 \pm 0.0000 \\ 0.05548 \pm 0.0000 \\ 0.0168 \pm 0.0000 \\ 0.0255 \pm 0.0000 \\ 0.0925 \pm 0.0000 \\ 0.0255 \pm 0.0000 \\ 0.2550 \pm 0.0000 \\ 0.2550 \pm 0.0000 \\ 0.2550 \pm 0.0000 \\ 0.2550 \pm 0.0000 \\ 0.3058 \pm 0.0000 \\ 0.3058 \pm 0.0000 \\ 0.2625 \pm 0.0000 \\ 1.51854 \pm 0.0000 \\ 1.51854 \pm 0.0000 \\ 1.51854 \pm 0.0000 \\ 1.5338 \pm 0.0000 \\ 0.7080 \pm 0.0000 \\ 0.3614 \pm 0.0000 \\ 0.1117 \pm 0.0000 \\ HFCM \\ 4.9026 \pm 0.3384 \\ 0.6351 \pm 0.029 \\ 0.0506 \pm 0.0119 \\ 0.7501 \pm 0.0406 \\ 0.1118 \pm 0.0351 \\ 0.0371 \\ \end{array}$	$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$
$\begin{tabular}{lllllllllllllllllllllllllllllllllll$	$\begin{array}{r} {\rm KM} \\ \hline \\ 3.6702 \pm 0.1250 \\ 0.5617 \pm 0.0153 \\ 0.0184 \pm 0.0038 \\ 0.8269 \pm 0.0287 \\ 0.0924 \pm 0.0127 \\ 0.3804 \pm 0.0204 \\ 0.4522 \pm 0.0128 \\ 0.1508 \pm 0.0789 \\ 0.2544 \pm 0.0030 \\ 2.0035 \pm 0.1020 \\ 1.1935 \pm 0.3724 \\ 0.3000 \pm 0.0166 \\ 0.1508 \pm 0.0278 \\ 41.1859 \pm 1.4855 \\ 14.8197 \pm 1.7981 \\ 0.0322 \pm 0.0136 \\ 1.6531 \pm 0.0813 \\ 0.06911 \pm 0.0509 \\ 0.3670 \pm 0.0125 \\ 0.2808 \pm 0.0238 \\ 0.3006 \pm 0.0334 \\ 0.00872 \pm 0.0238 \\ 0.3006 \pm 0.0033 \\ 0.00872 \pm 0.0033 \\ 0.0265 \pm 0.0781 \\ 0.5964 \pm 0.0033 \\ 0.0265 \pm 0.0012 \\ 0.17120 \pm 0.0054 \\ 0.01181 \pm 0.0020 \\ 0.3719 \pm 0.0054 \\ 0.0150 \\ 0.3719 \pm 0.0054 \\ 0.0150 \\ \end{array}$	$\begin{array}{r} {\rm KM} ++ \\ 3.6396 \pm 0.1102 \\ 0.5549 \pm 0.0114 \\ 0.0168 \pm 0.0025 \\ 0.8398 \pm 0.0231 \\ 0.0867 \pm 0.0113 \\ 0.0867 \pm 0.0113 \\ 0.04596 \pm 0.0865 \\ 0.2548 \pm 0.0019 \\ 2.0236 \pm 0.0852 \\ 0.02548 \pm 0.0019 \\ 2.0236 \pm 0.0852 \\ 0.1571 \pm 0.0299 \\ 41.8175 \pm 1.4292 \\ 15.7846 \pm 1.8157 \\ 0.0311 \pm 0.0116 \\ 1.6543 \pm 0.0833 \\ 0.7040 \pm 0.0422 \\ 0.0369 \pm 0.0106 \\ 0.2849 \pm 0.0223 \\ 0.0369 \pm 0.0106 \\ 0.2849 \pm 0.0223 \\ 0.0304 \pm 0.0204 \\ {\rm MEC} \\ \hline {\rm 5.7692 \pm 0.4605} \\ 0.6727 \pm 0.0235 \\ 0.0730 \pm 0.0137 \\ 0.6944 \pm 0.0510 \\ 0.1530 \pm 0.0248 \\ {\rm 0.0317} \pm 0.0235 \\ 0.0730 \pm 0.0137 \\ 0.6944 \pm 0.0510 \\ 0.1350 \pm 0.0238 \\ {\rm 0.4790 \pm 0.0341 \\ 0.0341 \\ {\rm 0.0317} \\ 0.04223 \pm 0.1518 \\ \hline {\rm 0.4790 \pm 0.0341 \\ 0.0422 \pm 0.1518 \\ \hline {\rm 0.4790 \pm 0.0341 \\ 0.0422 \pm 0.1518 \\ \hline {\rm 0.4790 \pm 0.0341 \\ 0.4223 \pm 0.1518 \\ \hline {\rm 0.4790 \pm 0.0341 \\ 0.4223 \pm 0.1518 \\ \hline {\rm 0.4790 \pm 0.0341 \\ 0.4223 \pm 0.1518 \\ \hline {\rm 0.4790 \pm 0.0341 \\ 0.4223 \pm 0.1518 \\ \hline {\rm 0.4790 \pm 0.0341 \\ 0.4223 \pm 0.1518 \\ \hline {\rm 0.4790 \pm 0.0341 \\ 0.4223 \pm 0.1518 \\ \hline {\rm 0.4790 \pm 0.01518 \\$	$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	$\begin{array}{c} SC \\ \hline \\ 5.4244 \pm 0.1375 \\ 1.0070 \pm 0.0072 \\ 0.2305 \pm 0.0077 \\ -0.0002 \pm 0.0140 \\ 0.4955 \pm 0.0101 \\ -0.0002 \pm 0.0097 \\ 0.6521 \pm 0.0102 \\ 0.1493 \pm 0.0052 \\ 0.3086 \pm 0.0273 \\ 3.2132 \pm 0.6500 \\ 0.1608 \pm 0.0138 \\ 0.1633 \pm 0.0000 \\ 29.1643 \pm 1.4002 \\ 7.4846 \pm 0.2832 \\ 0.0161 \pm 0.0004 \\ 1.6824 \pm 0.0050 \\ -1.1803 \pm 0.1009 \\ 0.8404 \pm 0.0185 \\ 0.2874 \pm 0.0136 \\ 0.3835 \pm 0.0155 \\ 0.0917 \pm 0.0162 \\ \hline BFC \\ \times \\ $	$\begin{array}{r} \mbox{HC} & & \\ \hline \mbox{HC} & & \\ 3.5330 \pm 0.0000 & \\ 0.0168 \pm 0.0000 & \\ 0.0168 \pm 0.0000 & \\ 0.0025 \pm 0.0000 & \\ 0.0925 \pm 0.0000 & \\ 0.0925 \pm 0.0000 & \\ 0.2550 \pm 0.0000 & \\ 0.0982 \pm 0.0000 & \\ 0.0982 \pm 0.0000 & \\ 0.0982 \pm 0.0000 & \\ 0.0308 \pm 0.0000 & \\ 0.2652 \pm 0.0000 & \\ 0.1164 \pm 0.0000 & \\ 0.3628 \pm 0.0000 & \\ 0.368$	$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$
$\begin{tabular}{lllllllllllllllllllllllllllllllllll$	$\begin{array}{r} {\rm KM} \\ \hline \\ 3.6702 \pm 0.1250 \\ 0.5617 \pm 0.0153 \\ 0.0184 \pm 0.0038 \\ 0.8269 \pm 0.0287 \\ 0.0924 \pm 0.0127 \\ 0.3804 \pm 0.0204 \\ 0.4522 \pm 0.0789 \\ 0.2544 \pm 0.0030 \\ 2.0035 \pm 0.3724 \\ 0.3000 \pm 0.0166 \\ 0.1508 \pm 0.0278 \\ 41.1859 \pm 1.4855 \\ 14.8197 \pm 1.7981 \\ 0.0322 \pm 0.0136 \\ 1.6531 \pm 0.0813 \\ 0.6911 \pm 0.0509 \\ 0.3670 \pm 0.0125 \\ 0.2808 \pm 0.0238 \\ 0.3006 \pm 0.0238 \\ 0.00872 \pm 0.0298 \\ 0.00872 \pm 0.0037 \\ 0.00872 \pm 0.0031 \\ 0.07720 \pm 0.0045 \\ 0.1181 \pm 0.0020 \\ 0.3726 \pm 0.0150 \\ 0.3726 \pm 0.0150 \\ 0.3726 \pm 0.0150 \\ 0.2672 \pm 0.0069 \\ 1.9728 \pm 0.0123 \\ 0.2672 \pm 0.0069 \\ 1.9728 \pm 0.0143 \\ 0.9728 \pm 0.0143 \\ 0.0261 \pm 0.0150 \\ 0.2672 \pm 0.0069 \\ 0.0721 \pm 0.0054 \\ 0.0272 \pm 0.0069 \\ 0.0721 \pm 0.0150 \\ 0.2672 \pm 0.0069 \\ 0.0722 \pm 0.0059 \\ 0.0722 \pm 0.0069 \\ 0.072 \pm 0.0150 \\ 0.2672 \pm 0.0069 \\ 0.072 \pm 0.0169 \\ 0.072 \pm 0.0169 \\ 0.072 \pm 0.0169 \\ 0.072 \pm 0.0069 \\ 0.005 \pm 0.005 \\ 0.005 \pm 0.00$	$\begin{array}{r} {\rm KM} ++ \\ 3.6396 \pm 0.1102 \\ 0.5549 \pm 0.0114 \\ 0.0168 \pm 0.0025 \\ 0.8398 \pm 0.0231 \\ 0.0867 \pm 0.0113 \\ 0.0867 \pm 0.0113 \\ 0.04596 \pm 0.0865 \\ 0.2548 \pm 0.0019 \\ 2.0236 \pm 0.0852 \\ 1.0997 \pm 0.1915 \\ 0.3023 \pm 0.0167 \\ 0.1571 \pm 0.0299 \\ 41.8175 \pm 1.4292 \\ 15.7846 \pm 1.8157 \\ 0.0311 \pm 0.0116 \\ 1.6543 \pm 0.0136 \\ 0.03639 \pm 0.0106 \\ 0.2849 \pm 0.0223 \\ 0.3639 \pm 0.0106 \\ 0.2849 \pm 0.0223 \\ 0.0324 \pm 0.0314 \\ 0.0893 \pm 0.0204 \\ \hline {\rm MEC} \\ \hline 5.7692 \pm 0.4605 \\ 0.6727 \pm 0.0235 \\ 0.0730 \pm 0.0341 \\ 0.4923 \pm 0.01518 \\ 0.3029 \pm 0.0253 \\ 0.0703 \pm 0.0053 \\ \hline {\rm 0.0753} \pm 0.0053 \\ \hline {\rm 0.0753} \pm 0.0253 \\ 0.0732 \pm 0.4007 \\ \hline {\rm 0.0753} \pm 0.0053 \\ 0.0734 \pm 0.0516 \\ \hline {\rm 0.0253} \\ 0.0753 \pm 0.4007 \\ \hline {\rm 0.0253} \\ 0.0753 \pm 0.0005 \\ \hline {\rm 0.011} \\ \hline {\rm 0.012} \\ \hline {\rm 0.0253} \\ 0.0753 \pm 0.0005 \\ \hline {\rm 0.0253} \\ 0.0753 \pm 0.0005 \\ \hline {\rm 0.012} \\ \hline {\rm 0.011} \\ \hline {\rm 0.012} \\ \hline {\rm 0.0253} \\ 0.0753 \pm 0.0005 \\ \hline {\rm 0.012} \\ \hline {\rm 0.011} \\ \hline {\rm 0.011} \\ \hline {\rm 0.012} $	$\begin{tabular}{ c c c c c } \hline PKM \\ \hline 3.4673 \pm 0.0081 \\ 0.5519 \pm 0.0020 \\ 0.0152 \pm 0.0003 \\ 0.8334 \pm 0.0030 \\ 0.0938 \pm 0.0014 \\ 0.3555 \pm 0.0005 \\ 0.4318 \pm 0.0280 \\ 0.2575 \pm 0.0002 \\ 2.1704 \pm 0.0073 \\ 0.9863 \pm 0.0381 \\ 0.0302 \pm 0.0016 \\ 0.1619 \pm 0.0106 \\ 39.6807 \pm 0.5807 \\ 15.4603 \pm 0.1819 \\ 0.0301 \pm 0.0061 \\ 1.5809 \pm 0.0034 \\ 0.0347 \pm 0.0034 \\ 0.03467 \pm 0.0034 \\ 0.03467 \pm 0.0034 \\ 0.0361 \pm 0.0008 \\ 0.2726 \pm 0.0034 \\ 0.0361 \pm 0.0008 \\ 0.2726 \pm 0.0034 \\ 0.0361 \pm 0.0008 \\ 0.2726 \pm 0.0037 \\ 0.0927 \pm 0.0040 \\ 0.9977 \pm 0.0281 \\ 0.6857 \pm 0.0657 \\ 0.1488 \pm 0.0297 \\ 0.3584 \pm 0.0614 \\ 0.2321 \pm 0.0951 \\ 1.2087 \pm 0.1801 \\ 0.1801 \\ 0.1801 \\ 0.1801 \\ 0.1801 \\ 0.011 \\ 0.0011 \\ 0.011 \\ 0.011 \\ 0.011 \\ 0.011 \\ 0.011 \\ 0.011 \\ 0.011 \\ 0.0011 \\ 0.0011 \\ 0.0011 \\ 0.0011 \\ 0.0011 \\ 0.0011 \\ 0.0011 \\ 0.00001 \\ 0.0001 \\ 0.00001 \\ 0.0001 $	$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	$ \begin{array}{c} & SC \\ \hline \\ & 5.4244 \pm 0.1375 \\ & 1.0070 \pm 0.0072 \\ & 0.0305 \pm 0.0077 \\ & -0.0002 \pm 0.0097 \\ & -0.0002 \pm 0.0097 \\ & 0.6521 \pm 0.0101 \\ & -0.0002 \pm 0.0097 \\ & 0.6521 \pm 0.0502 \\ & 0.1608 \pm 0.0138 \\ & 0.1653 \pm 0.0002 \\ & 0.1613 \pm 0.0002 \\ & 0.1613 \pm 0.0002 \\ & 0.1614 \pm 1.4002 \\ & 7.4846 \pm 0.2832 \\ & 0.0161 \pm 0.0090 \\ & -1.1803 \pm 0.1099 \\ & 0.8404 \pm 0.0185 \\ & 0.2874 \pm 0.0136 \\ & 0.3835 \pm 0.0155 \\ & 0.0917 \pm 0.0162 \\ \hline BFC \\ & \times \\ &$	$\begin{array}{r} \label{eq:heat} HC \\ \hline 3.5330 \pm 0.0000 \\ 0.5548 \pm 0.0000 \\ 0.0168 \pm 0.0000 \\ 0.025 \pm 0.0000 \\ 0.0925 \pm 0.0000 \\ 0.0925 \pm 0.0000 \\ 0.2550 \pm 0.0000 \\ 0.2550 \pm 0.0000 \\ 0.2550 \pm 0.0000 \\ 0.0982 \pm 0.0000 \\ 0.0982 \pm 0.0000 \\ 0.0982 \pm 0.0000 \\ 0.0308 \pm 0.0000 \\ 0.0308 \pm 0.0000 \\ 0.0308 \pm 0.0000 \\ 0.0303 \pm 0.0000 \\ 0.0328 \pm 0.0000 \\ 0.0362 \pm 0.0000 \\ 0.3628 \pm 0.0000 \\ 0.0000 \\ 0.3628 \pm 0.0000 \\ 0.368 \pm 0.0000 \\ 0.368 \pm 0.0000 \\ 0.368 \pm 0.00$	$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$
$\label{eq:second} \hline \hline WarpPIE10P\\ WGSSJ\\ \hline WGSSJ\\ \hline MRIJ\\ GPIJ\\ BHGIT\\ CIJ\\ TTT\\ DGIT\\ RLIT\\ CIJ\\ RLIT\\ CIJ\\ RLIT\\ RTIJ\\ WGIT\\ RTIJ\\ WGIT\\ DBIJ\\ LSSRIT\\ TWIJ\\ ACCT\\ NMIT\\ ARIT\\ \hline WGSSJ\\ \hline WGSSJ\\ \hline WGSSJ\\ \hline MRIJ\\ GPIJ\\ BHGIT\\ CIJ\\ TTT\\ RLIT\\ CHIT\\ RLIT\\ CHIT\\ RTIJ\\ \hline WTIJ\\ \hline MRIJ\\ GPIJ\\ RLIT\\ RTIJ\\ \hline MRIJ\\ CHIT\\ RTIJ\\ \hline MRIJ\\ CHIT\\ RTIJ\\ \hline MRIJ\\ CHIT\\ RTIJ\\ \hline MRIJ\\ CHIT\\ CHI$	$\begin{array}{r} {\rm KM} \\ \hline \\ 3.6702 \pm 0.1250 \\ 0.5617 \pm 0.0153 \\ 0.0184 \pm 0.0038 \\ 0.8269 \pm 0.0287 \\ 0.0924 \pm 0.0127 \\ 0.0924 \pm 0.0127 \\ 0.0924 \pm 0.0127 \\ 0.3004 \pm 0.0204 \\ 0.4522 \pm 0.0789 \\ 0.2544 \pm 0.0030 \\ 2.0035 \pm 0.1020 \\ 1.1935 \pm 0.0724 \\ 1.1935 \pm 0.0724 \\ 1.1935 \pm 0.0278 \\ 41.1859 \pm 1.4855 \\ 14.8197 \pm 1.7981 \\ 0.0322 \pm 0.0136 \\ 1.6531 \pm 0.0813 \\ 0.6911 \pm 0.0509 \\ 0.3670 \pm 0.0125 \\ 0.2808 \pm 0.0238 \\ 0.00872 \pm 0.0299 \\ \hline {\rm FCM} \\ \hline \\ 4.0995 \pm 0.0781 \\ 0.3726 \pm 0.0125 \\ 0.7720 \pm 0.0045 \\ 0.0125 \pm 0.0054 \\ 0.03726 \pm 0.0154 \\ 0.0054 \\ 0.03726 \pm 0.0159 \\ 0.2672 \pm 0.0069 \\ 1.9278 \pm 0.1043 \\ 1.8281 \pm 0.1085 \\ \hline \end{array}$	$\begin{array}{r} {\rm KM} ++ \\ 3.6396 \pm 0.1102 \\ 0.5549 \pm 0.0114 \\ 0.0168 \pm 0.0025 \\ 0.8398 \pm 0.0231 \\ 0.0867 \pm 0.0113 \\ 0.3849 \pm 0.0232 \\ 0.4596 \pm 0.0865 \\ 0.2548 \pm 0.0019 \\ 2.0236 \pm 0.0852 \\ 1.0997 \pm 0.1915 \\ 0.3023 \pm 0.0167 \\ 0.1571 \pm 0.0299 \\ 1.8175 \pm 1.4292 \\ 15.7846 \pm 1.8157 \\ 0.0311 \pm 0.0116 \\ 1.6543 \pm 0.0833 \\ 0.7040 \pm 0.0432 \\ 0.3639 \pm 0.0106 \\ 0.2849 \pm 0.0223 \\ 0.3024 \pm 0.0304 \\ 0.0893 \pm 0.0204 \\ \hline {\rm MEC} \\ 5.7692 \pm 0.4605 \\ 0.6727 \pm 0.0235 \\ 0.0730 \pm 0.0137 \\ 0.6944 \pm 0.0510 \\ 0.0137 \\ 0.6944 \pm 0.0518 \\ 0.0258 \\ 0.4790 \pm 0.0258 \\ 0.4790 \pm 0.0253 \\ 2.0753 \pm 0.4907 \\ 1.1546 \pm 0.6850 \\ \hline \end{array}$	$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	$ \begin{array}{c} & SC \\ \hline \\ & 5.4244 \pm 0.1375 \\ & 1.0070 \pm 0.0072 \\ & 0.2305 \pm 0.0077 \\ & -0.0002 \pm 0.0097 \\ & -0.0002 \pm 0.0097 \\ & 0.6521 \pm 0.0101 \\ & -0.0002 \pm 0.0097 \\ & 0.6521 \pm 0.0102 \\ & 0.1493 \pm 0.0052 \\ & 0.3086 \pm 0.0273 \\ & 3.2132 \pm 0.6500 \\ & 0.1608 \pm 0.0138 \\ & 0.1653 \pm 0.0000 \\ & 29.1643 \pm 1.4002 \\ & 7.4846 \pm 0.2832 \\ & 0.0161 \pm 0.0004 \\ & 29.1643 \pm 1.4002 \\ & 7.4846 \pm 0.0155 \\ & 0.0161 \pm 0.0136 \\ & 0.3835 \pm 0.0155 \\ & 0.0917 \pm 0.0162 \\ \hline \\ BFC \\ & \times \\ & $	$\begin{array}{r} \hline \text{HC} \\ \hline \text{3.5330} \pm 0.0000 \\ 0.5548 \pm 0.0000 \\ 0.0168 \pm 0.0000 \\ 0.02554 \pm 0.0000 \\ 0.0925 \pm 0.0000 \\ 0.0925 \pm 0.0000 \\ 0.0925 \pm 0.0000 \\ 0.2550 \pm 0.0000 \\ 0.2550 \pm 0.0000 \\ 0.0982 \pm 0.0000 \\ 0.0982 \pm 0.0000 \\ 0.03638 \pm 0.0000 \\ 0.03638 \pm 0.0000 \\ 0.03628 \pm 0.0000 \\ 0.151854 \pm 0.0000 \\ 0.1618 \pm 0.0000 \\ 0.3628 \pm 0.0000 \\ 0.3628 \pm 0.0000 \\ 0.3628 \pm 0.0000 \\ 0.3628 \pm 0.0000 \\ 0.3614 \pm 0.0000 \\ 0.3614 \pm 0.0000 \\ 0.3614 \pm 0.0000 \\ 0.3614 \pm 0.0000 \\ 0.1175 \\ 0.0000 \\ 0.1118 \pm 0.0209 \\ 0.0506 \pm 0.0119 \\ 0.0506 \pm 0.019 \\ 0.0405 \\ 0.1118 \pm 0.0185 \\ 0.4743 \pm 0.0371 \\ 0.4407 \pm 0.0981 \\ 0.2742 \pm 0.0215 \\ 1.7966 \pm 0.3492 \\ 0.2266 \pm 1.4066 \\ \end{array}$	$\begin{tabular}{ c c c c c c c } \hline CAPKM++2.0 \\ \hline 3.4485 \pm 0.0007 \\ \hline 0.5375 \pm 0.0014 \\ \hline 0.0132 \pm 0.0002 \\ \hline 0.0793 \pm 0.0008 \\ \hline 0.0793 \pm 0.0008 \\ \hline 0.0793 \pm 0.0008 \\ \hline 0.0795 \pm 0.0005 \\ \hline 0.0175 \pm 0.0009 \\ \hline 0.0175 \pm 0.0006 \\ \hline 0.2576 \pm 0.0002 \\ \hline 0.2576 \pm 0.0006 \\ \hline 0.2284 \pm 0.0176 \\ \hline 0.0284 \pm 0.0176 \\ \hline 0.0156 \pm 0.0036 \\ \hline 1.52649 \pm 0.0216 \\ \hline 0.0156 \pm 0.0037 \\ \hline 0.3448 \pm 0.0001 \\ \hline 0.2827 \pm 0.0037 \\ \hline 0.3448 \pm 0.0001 \\ \hline 0.2827 \pm 0.0037 \\ \hline 0.3448 \pm 0.0001 \\ \hline 0.05368 \pm 0.0000 \\ \hline 0.0788 \pm 0.0000 \\ \hline 0.0788 \pm 0.0000 \\ \hline 0.0712 \pm 0.0001 \\ \hline 0.0788 \pm 0.0000 \\ \hline 0.01712 \pm 0.0000 \\ \hline 0.01712 \pm 0.0000 \\ \hline 0.01712 \pm 0.0000 \\ \hline 0.2575 \pm 0.0000 \\ \hline 2.1881 \pm 0.0000 \\ \hline 0.9166 \pm 0.0000 \\ \hline 0.0000 \\ \hline 0.9166 \pm 0.0000 \\ \hline 0.0000 \\ \hline 0.9166 \pm 0.0000 \\ \hline 0.0188 1 \pm 0.0000 \\ \hline 0.0000 \\ \hline 0.0168 1 \pm 0.0000 \\ \hline 0.0166 \pm 0.0000 \\ \hline 0.0166 \pm 0.0000 \\ \hline 0.0000 \\ \hline 0.0166 \pm 0.0000 \\ \hline 0.0156 \pm 0.0000 \\ \hline 0.0157 \pm 0.0000 \\ \hline 0.0000 \\ \hline 0.0158 \pm 0.0000 \\ \hline 0.0151 \pm 0.0000 \\ \hline 0.0000 \\ \hline 0.00000 \\ \hline 0.0000 \\ $
$\label{eq:second} \hline \hline WarpPIE10P\\ \hline WGSS\downarrow $$ MRI\downarrow $$ GPI\downarrow $$ BHGI\uparrow CI\downarrow $$ TI\uparrow $$ DGI\uparrow $$ RLI\uparrow $$ CHI\uparrow $$ RTI\downarrow $$ WGI\uparrow $$ DI\uparrow $$ BHI\uparrow $$ PBMI\uparrow $$ TWI\downarrow $$ DBI\downarrow $$ LSSRI\uparrow $$ TWI\downarrow $$ ACC\uparrow $$ NMI\uparrow $$ ARI\uparrow $$ WarpPIE10P$ $$ WGSS\downarrow $$ MRI\downarrow $$ GPI\downarrow $$ BHGI\uparrow CI\downarrow $$ TI\uparrow $$ TG\uparrow $$ RLI\uparrow $$ CHI\uparrow $$ RTI\downarrow $$ WGI\uparrow $$ CI\downarrow $$ CI\downarrow $$ TI\uparrow $$ CI\downarrow $	$\begin{array}{r} {\rm KM} \\ \hline \\ 3.6702 \pm 0.1250 \\ 0.5617 \pm 0.0153 \\ 0.0184 \pm 0.0038 \\ 0.8269 \pm 0.0287 \\ 0.0924 \pm 0.0127 \\ 0.3804 \pm 0.0204 \\ 0.4522 \pm 0.0789 \\ 0.2544 \pm 0.0030 \\ 2.0035 \pm 0.1020 \\ 1.1935 \pm 0.3724 \\ 0.3000 \pm 0.0166 \\ 0.1508 \pm 0.0278 \\ 4.11859 \pm 1.4855 \\ 14.8197 \pm 1.7981 \\ 0.0322 \pm 0.0136 \\ 1.6531 \pm 0.0813 \\ 0.6911 \pm 0.0509 \\ 0.3670 \pm 0.0125 \\ 0.2808 \pm 0.0238 \\ 0.0032 \pm 0.0038 \\ 0.0036 \pm 0.00334 \\ 0.0872 \pm 0.0039 \\ \hline {\rm FCM} \\ \hline {\rm H}.095 \pm 0.0781 \\ 0.0781 \\ 0.03726 \pm 0.0012 \\ 0.7720 \pm 0.0054 \\ 0.37726 \pm 0.0150 \\ 0.37726 \pm 0.0150 \\ 0.37726 \pm 0.0059 \\ 0.2672 \pm 0.0059 \\ 1.9728 \pm 0.1043 \\ 1.8281 \pm 0.1085 \\ 0.2094 \\ 0.0058 \\ \hline \end{array}$	$\begin{array}{r} {\rm KM} ++ \\ 3.6396 \pm 0.1102 \\ 0.5549 \pm 0.0114 \\ 0.0168 \pm 0.0025 \\ 0.8398 \pm 0.0231 \\ 0.0867 \pm 0.0113 \\ 0.0867 \pm 0.0113 \\ 0.3849 \pm 0.0232 \\ 0.4596 \pm 0.0865 \\ 0.2548 \pm 0.0019 \\ 2.0236 \pm 0.0852 \\ 1.0997 \pm 0.1915 \\ 0.3023 \pm 0.0167 \\ 0.1571 \pm 0.0299 \\ 1.8175 \pm 1.4292 \\ 15.7846 \pm 1.8157 \\ 0.0311 \pm 0.0116 \\ 1.6543 \pm 0.0833 \\ 0.7040 \pm 0.0432 \\ 0.3639 \pm 0.0106 \\ 0.2849 \pm 0.0223 \\ 0.3024 \pm 0.0304 \\ 0.0893 \pm 0.0204 \\ \hline {\rm MEC} \\ \hline 5.7692 \pm 0.4605 \\ 0.6727 \pm 0.0235 \\ 0.6727 \pm 0.0235 \\ 0.0730 \pm 0.0137 \\ 0.6924 \pm 0.0235 \\ 0.4790 \pm 0.0235 \\ 0.4790 \pm 0.0238 \\ 0.4790 \pm 0.0238 \\ 0.4790 \pm 0.0238 \\ 2.0753 \pm 0.4907 \\ 1.1546 \pm 0.6850 \\ 0.2998 \pm 0.0599 \\ 0.2998 \pm 0.0599 \\ \end{array}$	$\begin{tabular}{ c c c c c } \hline PKM \\ \hline 3.4673 \pm 0.0081 \\ 0.5519 \pm 0.0020 \\ 0.0152 \pm 0.0003 \\ 0.8334 \pm 0.0030 \\ 0.0938 \pm 0.0014 \\ 0.3555 \pm 0.0005 \\ 0.4318 \pm 0.0280 \\ 0.2575 \pm 0.0002 \\ 2.1704 \pm 0.0073 \\ 0.9863 \pm 0.0381 \\ 0.0303 \pm 0.0016 \\ 0.1619 \pm 0.0106 \\ 0.1619 \pm 0.0106 \\ 0.3012 \pm 0.0031 \\ 0.0301 \pm 0.0061 \\ 1.5892 \pm 0.0337 \\ 0.3467 \pm 0.0034 \\ 0.3467 \pm 0.0034 \\ 0.3467 \pm 0.0043 \\ 0.3062 \pm 0.0043 \\ 0.0457 \pm 0.0130 \\ 0.0457 \pm 0.0040 \\ 0.3584 \pm 0.0614 \\ 0.0231 \pm 0.0095 \\ 1.2087 \pm 0.1801 \\ 2.9239 \pm 1.1012 \\ 0.1626 \pm 0.0444 \\ 0.1626 \pm 0.044 \\ 0.1626 \pm 0.0444 \\ 0.1626 \pm 0.0444 \\ 0.1626 \pm 0.044 \\ 0$	$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	$\begin{array}{c} SC \\ \hline \\ 5.4244 \pm 0.1375 \\ 1.0070 \pm 0.0072 \\ 0.2305 \pm 0.0077 \\ -0.0002 \pm 0.0077 \\ -0.0002 \pm 0.0097 \\ 0.4955 \pm 0.0101 \\ -0.0002 \pm 0.0097 \\ 0.6521 \pm 0.0102 \\ 0.1493 \pm 0.0052 \\ 0.3086 \pm 0.0273 \\ 3.2132 \pm 0.6500 \\ 0.1608 \pm 0.0138 \\ 0.1653 \pm 0.0000 \\ 29.1643 \pm 1.4002 \\ 7.4846 \pm 0.2832 \\ 0.0161 \pm 0.0004 \\ 1.6824 \pm 0.0650 \\ -1.1803 \pm 0.1055 \\ 0.0917 \pm 0.0136 \\ 0.3835 \pm 0.0155 \\ 0.0917 \pm 0.0162 \\ \hline BFC \\ \times \\ $	$\begin{array}{r} \label{eq:heat} HC \\ \hline HC \\ \hline 3.5330 \pm 0.0000 \\ 0.5548 \pm 0.0000 \\ 0.0168 \pm 0.0000 \\ 0.0255 \pm 0.0000 \\ 0.0255 \pm 0.0000 \\ 0.2550 \pm 0.0000 \\ 0.2550 \pm 0.0000 \\ 0.2550 \pm 0.0000 \\ 0.2029 \pm 0.0000 \\ 0.3058 \pm 0.0000 \\ 0.151854 \pm 0.0000 \\ 1.513854 \pm 0.0000 \\ 0.0146 \pm 0.0000 \\ 1.5338 \pm 0.0000 \\ 0.3628 \pm 0.0000 \\ 0.3614 \pm 0.0000 \\ 0.3614 \pm 0.0000 \\ 0.1117 \pm 0.0000 \\ 0.1118 \pm 0.0209 \\ 0.0506 \pm 0.0119 \\ 0.7501 \pm 0.0468 \\ 0.02742 \pm 0.0215 \\ 1.7966 \pm 0.3432 \\ 2.2566 \pm 1.4066 \\ 0.0438 \\ 0.0280 \pm 0.0438 \\ \end{array}$	$\begin{array}{c} \hline CAPKM++2.0\\ \hline 3.4485 \pm 0.0007\\ \hline 0.5375 \pm 0.0014\\ \hline 0.0132 \pm 0.0002\\ \hline 0.8589 \pm 0.0012\\ \hline 0.0793 \pm 0.0008\\ \hline 0.3715 \pm 0.0008\\ \hline 0.3715 \pm 0.0009\\ \hline 0.0793 \pm 0.0008\\ \hline 0.3715 \pm 0.0006\\ \hline 0.2576 \pm 0.0002\\ \hline 0.8275 \pm 0.0046\\ \hline 0.2228 \pm 0.0115\\ \hline 0.3275 \pm 0.0046\\ \hline 0.2228 \pm 0.0188\\ \hline 41.2249 \pm 0.0376\\ \hline 1.5912 \pm 0.0216\\ \hline 0.0156 \pm 0.0036\\ \hline 1.5912 \pm 0.0216\\ \hline 0.7829 \pm 0.0003\\ \hline 0.3448 \pm 0.0001\\ \hline 0.2827 \pm 0.0037\\ \hline 0.3112 \pm 0.0037\\ \hline 0.3112 \pm 0.0017\\ \hline CAFCM\\ \hline 3.4481 \pm 0.0000\\ \hline 0.8594 \pm 0.0000\\ \hline 0.3712 \pm 0.0000\\ \hline 0.3712 \pm 0.0000\\ \hline 0.3712 \pm 0.0000\\ \hline 0.3712 \pm 0.0000\\ \hline 0.2575 \pm 0.0000\\ \hline 0.2575 \pm 0.0000\\ \hline 0.3281 \pm 0.0000\\ \hline 0.3281 \pm 0.0000\\ \hline 0.328 \pm 0.0000\\ \hline $
$\begin{tabular}{lllllllllllllllllllllllllllllllllll$	$\begin{array}{r} {\rm KM} \\ \hline \\ 3.6702 \pm 0.1250 \\ 0.5617 \pm 0.0153 \\ 0.0184 \pm 0.0038 \\ 0.8269 \pm 0.0287 \\ 0.0924 \pm 0.0127 \\ 0.3804 \pm 0.0204 \\ 0.0127 \\ 0.3804 \pm 0.0204 \\ 0.0180 \\ 0.1508 \pm 0.0204 \\ 0.0180 \\ 0.1508 \pm 0.0204 \\ 0.0000 \pm 0.0168 \\ 0.1508 \pm 0.0278 \\ 0.1508 \pm 0.0278 \\ 0.1508 \pm 0.0278 \\ 1.48197 \pm 1.7981 \\ 0.0322 \pm 0.0136 \\ 1.6531 \pm 0.0813 \\ 0.06911 \pm 0.0509 \\ 0.3670 \pm 0.0125 \\ 0.2808 \pm 0.0238 \\ 0.3006 \pm 0.0324 \\ 0.0326 \pm 0.0209 \\ \hline {\rm FCM} \\ \hline \\ 4.0995 \pm 0.0781 \\ 0.0265 \pm 0.0012 \\ 0.7720 \pm 0.0045 \\ 0.1726 \pm 0.0125 \\ 0.0265 \pm 0.0012 \\ 0.7720 \pm 0.0045 \\ 0.3719 \pm 0.0045 \\ 0.3719 \pm 0.0045 \\ 0.3719 \pm 0.0045 \\ 0.3726 \pm 0.0125 \\ 0.2672 \pm 0.0069 \\ 1.9728 \pm 0.1043 \\ 1.8281 \pm 0.1085 \\ 0.2094 \pm 0.0055 \\ 0.2004 \pm 0.0055 \\ 0$	$\begin{array}{r} {\rm KM} ++ \\ 3.6396 \pm 0.1102 \\ 0.5549 \pm 0.0114 \\ 0.0168 \pm 0.0025 \\ 0.8398 \pm 0.0231 \\ 0.0867 \pm 0.0113 \\ 0.0867 \pm 0.0113 \\ 0.04596 \pm 0.0852 \\ 0.2548 \pm 0.0019 \\ 2.0236 \pm 0.0852 \\ 1.0997 \pm 0.1915 \\ 0.3023 \pm 0.0167 \\ 0.1571 \pm 0.0299 \\ 41.8175 \pm 1.4292 \\ 15.7846 \pm 1.8157 \\ 0.0311 \pm 0.0116 \\ 1.6543 \pm 0.0033 \\ 0.0167 \\ 1.8769 \pm 0.0323 \\ 0.03639 \pm 0.0106 \\ 0.2849 \pm 0.0223 \\ 0.3024 \pm 0.0304 \\ 0.0893 \pm 0.0204 \\ \hline {\rm MEC} \\ \hline {\rm 5.7692 \pm 0.4605} \\ 0.6727 \pm 0.0235 \\ 0.0730 \pm 0.0131 \\ 0.0130 \pm 0.024 \\ 0.0510 \\ 0.0510 \\ 0.0593 \pm 0.0204 \\ \hline {\rm MEC} \\ \hline {\rm 5.7692 \pm 0.4605} \\ 0.6727 \pm 0.0235 \\ 0.0730 \pm 0.0137 \\ 0.0302 \pm 0.0248 \\ 0.04700 \pm 0.0238 \\ 0.4790 \pm 0.0258 \\ 0.0470 \pm 0.0258 \\ 0.04907 \\ 1.1546 \pm 0.6850 \\ 0.2988 \\ 0.0599 \\ 0.152 \pm 0.0347 \\ 56 \\ 26 \\ 1.049 \\ 9.4757 \\ 0.4977 \\ 0.2988 \\ 0.0599 \\ 0.152 \pm 0.0347 \\ 0.4947 \\ 0.4947 \\ 0.4947 \\ 0.4977 \\ 0.2988 \\ 0.0599 \\ 0.152 \\ 0.0347 \\ 0.4977 \\ 0.4947 \\ 0.4977 \\ 0.2988 \\ 0.0599 \\ 0.152 \\ 0.0347 \\ 0.4977 \\ 0.4977 \\ 0.4977 \\ 0.2988 \\ 0.0599 \\ 0.152 \\ 0.0347 \\ 0.4977 \\ 0.4977 \\ 0.2988 \\ 0.0599 \\ 0.152 \\ 0.0347 \\ 0.4977 \\ 0.4977 \\ 0.2988 \\ 0.0599 \\ 0.152 \\ 0.0347 \\ 0.4977 \\ 0.4977 \\ 0.2988 \\ 0.0599 \\ 0.152 \\ 0.0347 \\ 0.4978 \\ 0.497$	$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	$\begin{array}{c} SC \\ \hline \\ 5.4244 \pm 0.1375 \\ 1.0070 \pm 0.0072 \\ 0.2305 \pm 0.0077 \\ -0.0002 \pm 0.0101 \\ -0.0002 \pm 0.0097 \\ 0.4955 \pm 0.0101 \\ -0.0002 \pm 0.0097 \\ 0.6521 \pm 0.0102 \\ 0.1493 \pm 0.0052 \\ 0.3086 \pm 0.0273 \\ 3.2132 \pm 0.6500 \\ 0.1608 \pm 0.0138 \\ 0.1633 \pm 0.0000 \\ 29.1643 \pm 1.4002 \\ 7.4846 \pm 0.2832 \\ 0.0161 \pm 0.0004 \\ 1.6824 \pm 0.0650 \\ -1.1803 \pm 0.0109 \\ 0.8404 \pm 0.0185 \\ 0.2874 \pm 0.0135 \\ 0.0917 \pm 0.0162 \\ \hline BFC \\ \times \\ $	HC 3.5330 ± 0.0000 0.5548 ± 0.0000 0.0168 ± 0.0000 0.0255 ± 0.0000 0.0255 ± 0.0000 0.0255 ± 0.0000 0.0255 ± 0.0000 0.2550 ± 0.0000 0.2550 ± 0.0000 0.2550 ± 0.0000 0.0982 ± 0.0000 0.0982 ± 0.0000 0.0982 ± 0.0000 0.2052 ± 0.0000 0.2052 ± 0.0000 0.2052 ± 0.0000 1.5338 ± 0.0000 1.5338 ± 0.0000 0.7080 ± 0.0000 0.3614 ± 0.0000 0.3612 ± 0.0000 0.3614 ± 0.0000 0.3614 ± 0.0000 0.3614 ± 0.0000 0.3614 ± 0.0000 0.1117 ± 0.0000 KFCM 4.9026 ± 0.3384 0.6351 ± 0.0209 0.0506 ± 0.0319 0.7708 ± 0.0215 0.7966 ± 0.3492 2.2566 ± 1.4066 0.2742 ± 0.0215 1.7966 ± 0.3492 2.2566 ± 0.0438 0.0470	$\begin{array}{c} \hline CAPKM++2.0\\ \hline 3.4485 \pm 0.0007\\ \hline 0.5375 \pm 0.0014\\ \hline 0.0132 \pm 0.0002\\ \hline 0.8589 \pm 0.0012\\ \hline 0.0793 \pm 0.0008\\ \hline 0.3715 \pm 0.0009\\ \hline 0.0793 \pm 0.0008\\ \hline 0.3715 \pm 0.0009\\ \hline 0.017 \pm 0.0483\\ \hline 0.2576 \pm 0.0002\\ \hline 0.157 \pm 0.0046\\ \hline 0.2275 \pm 0.0046\\ \hline 0.2284 \pm 0.0188\\ \hline 41.2249 \pm 0.0376\\ \hline 1.52649 \pm 0.0376\\ \hline 1.52649 \pm 0.036\\ \hline 1.5912 \pm 0.0216\\ \hline 0.0156 \pm 0.0036\\ \hline 1.5912 \pm 0.0011\\ \hline 0.0375 \pm 0.0001\\ \hline 0.2827 \pm 0.0003\\ \hline 0.3448 \pm 0.0001\\ \hline 0.2827 \pm 0.0037\\ \hline 0.0311 \pm 0.0001\\ \hline 0.0311 \pm 0.0000\\ \hline 0.8594 \pm 0.0000\\ \hline 0.0371 \pm 0.0000\\ \hline 0.6128 \pm 0.0000\\ \hline 0.0788 \pm 0.0000\\ \hline 0.2575 \pm 0.0000\\ \hline 0.2575 \pm 0.0000\\ \hline 0.3281 \pm 0.0000\\ \hline 0.3295 \pm 0.0000\\ \hline 0.3295 \pm 0.0000\\ \hline 0.3295 \pm 0.0000\\ \hline 0.3298 \pm $
$\begin{tabular}{lllllllllllllllllllllllllllllllllll$	$\begin{array}{c} {\rm KM} \\ \hline \\ 3.6702 \pm 0.1250 \\ 0.5617 \pm 0.0153 \\ 0.0184 \pm 0.0038 \\ 0.8269 \pm 0.0287 \\ 0.0924 \pm 0.0127 \\ 0.3804 \pm 0.0204 \\ 0.0267 \\ 0.0924 \pm 0.0127 \\ 0.3804 \pm 0.0204 \\ 0.0170 \\ 0.1508 \pm 0.0204 \\ 0.01508 \pm 0.0208 \\ 0.1508 \pm 0.0208 \\ 1.1859 \pm 1.4855 \\ 14.8197 \pm 1.7981 \\ 0.0322 \pm 0.0136 \\ 1.6531 \pm 0.0813 \\ 0.06911 \pm 0.0509 \\ 0.3670 \pm 0.0125 \\ 0.2808 \pm 0.0238 \\ 0.3006 \pm 0.0334 \\ 0.00872 \pm 0.0299 \\ \hline \\ FCM \\ \hline \\ 4.0995 \pm 0.0781 \\ 0.095 \pm 0.0781 \\ 0.5964 \pm 0.0033 \\ 0.0265 \pm 0.0012 \\ 0.7720 \pm 0.0045 \\ 0.3716 \pm 0.0058 \\ 0.3716 \pm 0.0058 \\ 0.2672 \pm 0.0058 \\ 0.2694 \pm 0.0058 \\ 0.2694 \pm 0.0058 \\ 0.2694 \pm 0.0058 \\ 0.2694 \pm 0.0058 \\ 0.2094 \pm 0.0055 \\ 0.2094 \pm 0.0055 \\ 0.2004 \pm 0.0055 \\ 0.1200 \pm 0.0055 \\ 41.0305 \\ 1.83786 \pm 1.6131 \\ 0.3705 \\ 1.6315 \\ 0.2094 \pm 0.0058 \\ 0.1200 \pm 1.6131 \\ 0.3705 \\ 1.6315 \\ 0.2094 \pm 0.0058 \\ 0.1200 \pm 1.6131 \\ 0.3705 \\ 1.6315 \\ 0.2094 \pm 0.0058 \\ 0.1200 \pm 0.0055 \\ 1.6131 \\ 0.3705 \\ 1.6315 \\ 0.3705 \\ 1.6315 \\ 0.3705 \\ 1.6315 \\ 0.3705 \\ 1.6315 \\ 0.3705 \\ 1.6315 \\ 0.3705 \\ 1.6315 \\ 0.3705 \\ 1.6315 \\ 0.3705 \\ 1.6315 \\ 0.3705 \\ 1.6315 \\ 0.3705 \\ 1.6315 \\ 0.3705 \\ 1.6315 \\ 0.3705 \\ 1.6315 \\ 0.3705 \\ 1.6315 \\ 0.595$	$\begin{array}{r} {\rm KM} ++ \\ \hline 3.6396 \pm 0.1102 \\ 0.5549 \pm 0.0114 \\ 0.0168 \pm 0.0025 \\ 0.8398 \pm 0.0231 \\ 0.0867 \pm 0.0113 \\ 0.0867 \pm 0.0113 \\ 0.0867 \pm 0.0132 \\ 0.2548 \pm 0.0019 \\ 2.0236 \pm 0.0852 \\ 1.0997 \pm 0.1915 \\ 0.3023 \pm 0.0167 \\ 0.1571 \pm 0.0299 \\ 1.8175 \pm 1.4292 \\ 15.7846 \pm 1.8157 \\ 0.0311 \pm 0.0116 \\ 1.6543 \pm 0.0833 \\ 0.7040 \pm 0.0432 \\ 0.3639 \pm 0.0106 \\ 0.2849 \pm 0.0223 \\ 0.3024 \pm 0.0304 \\ 0.0893 \pm 0.0204 \\ \hline {\rm MEC} \\ \hline 5.7692 \pm 0.4605 \\ 0.6727 \pm 0.0235 \\ 0.0730 \pm 0.0137 \\ 0.0313 0 \pm 0.0137 \\ 0.1530 \pm 0.0235 \\ 0.0730 \pm 0.0137 \\ 0.6944 \pm 0.0510 \\ 0.1530 \pm 0.0235 \\ 0.0730 \pm 0.0432 \\ 0.0233 \pm 0.0599 \\ 0.0152 \pm 0.0347 \\ 56.2621 \pm 8.4753 \\ 35.9067 \pm 10.628 \\ 0.6721 \pm 0.0247 \\ 56.2621 \pm 8.4753 \\ 35.9067 \pm 10.628 \\ 0.0281 \pm 0.0241 \\ 0.0281 \pm 0.0518 \\ 0.2988 \\ 0.0599 \\ 0.0298 \\ 0.0599 \\ 0.0598 \\ 0.0598 \\ 0.0599 \\ 0.0598 \\ 0.0599 \\ 0.0598 \\ 0.0599 \\ 0.0598 \\ 0.0599 \\ 0.0598 \\ 0.0599 \\ 0.0598 \\ 0.0599 \\ 0.0598 \\ 0.0599 \\ 0.0598 \\ 0.0599 \\ 0.0598 \\ 0.0599 \\ 0.0598 \\ 0.0599 \\ 0.0598 \\ 0.0599 \\ 0.0598 \\ 0.0599 \\ 0.0598 \\ 0.0599 \\ 0.0598 \\ 0.0599 \\ 0.0598 \\ 0.0599 \\ 0.0598 \\ 0.0599 \\ 0.0598 \\ 0.0599 \\ 0.0598 \\ 0.0599 \\ 0.0598 \\ 0.0598 \\ 0.0599 \\ 0.0598 \\ 0.0599 \\ 0.0598 \\ 0.0599 \\ 0.0598 \\ 0.0599 \\ 0.0598 \\ 0.0599 \\ 0.0598 \\ 0.0599 \\ 0.0598 \\ 0.0599 \\ 0.0598 \\ 0.0599 \\ 0.0598 \\ 0.0599 \\ 0.0598 \\ 0.0599 \\ 0.0598 \\ 0.0599 \\ 0.0598$	$\begin{tabular}{ c c c c c } \hline PKM \\ \hline 3.4673 \pm 0.0081 \\ 0.5519 \pm 0.0020 \\ 0.0152 \pm 0.0003 \\ 0.8334 \pm 0.0030 \\ 0.0385 \pm 0.0014 \\ 0.3555 \pm 0.0005 \\ 0.4318 \pm 0.0280 \\ 0.2575 \pm 0.0002 \\ 2.1704 \pm 0.0073 \\ 0.9863 \pm 0.0381 \\ 0.3032 \pm 0.0016 \\ 0.1619 \pm 0.0106 \\ 39.6807 \pm 0.5807 \\ 15.4603 \pm 0.1819 \\ 0.0301 \pm 0.0061 \\ 1.5892 \pm 0.0337 \\ 0.7749 \pm 0.0038 \\ 0.3467 \pm 0.0008 \\ 0.2726 \pm 0.0043 \\ 0.3467 \pm 0.0008 \\ 0.2726 \pm 0.0043 \\ 0.3062 \pm 0.0037 \\ 0.0927 \pm 0.0043 \\ 0.3687 \pm 0.0040 \\ 0.0577 \pm 0.0160 \\ 0.0457 \pm 0.0160 \\ 0.0457 \pm 0.0040 \\ 0.3584 \pm 0.0614 \\ 0.2321 \pm 0.0401 \\ 0.3584 \pm 0.0614 \\ 0.2321 \pm 0.0166 \\ 5.0150 \pm 5.3088 \\ 8.6801 \pm 1.8138 \\ \end{tabular}$	$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	$\begin{array}{c} & SC \\ \hline \\ & 5.4244 \pm 0.1375 \\ 1.0070 \pm 0.0072 \\ 0.2305 \pm 0.0077 \\ -0.0002 \pm 0.0140 \\ 0.04955 \pm 0.0101 \\ -0.0002 \pm 0.0097 \\ 0.6521 \pm 0.0102 \\ 0.1493 \pm 0.0052 \\ 0.3086 \pm 0.0273 \\ 3.2132 \pm 0.6500 \\ 0.1608 \pm 0.0138 \\ 0.0163 \pm 0.0000 \\ 29.1643 \pm 1.4002 \\ 7.4846 \pm 0.2832 \\ 0.0161 \pm 0.0004 \\ 1.6824 \pm 0.0050 \\ -1.1803 \pm 0.1009 \\ 0.8404 \pm 0.0185 \\ 0.2874 \pm 0.0136 \\ 0.3835 \pm 0.0155 \\ 0.0917 \pm 0.0162 \\ BFC \\ \times \\ $	$\begin{array}{r} \label{eq:hermitediate} HC \\ 3.5330 \pm 0.0000 \\ 0.0168 \pm 0.0000 \\ 0.0168 \pm 0.0000 \\ 0.025 \pm 0.0000 \\ 0.0925 \pm 0.0000 \\ 0.0925 \pm 0.0000 \\ 0.0925 \pm 0.0000 \\ 0.0925 \pm 0.0000 \\ 0.0938 \pm 0.0000 \\ 0.0938 \pm 0.0000 \\ 0.0308 \pm 0.0000 \\ 0.0000 \\ 0.2062 \pm 0.0000 \\ 0.2053 \pm 0.0000 \\ 0.0146 \pm 0.0000 \\ 0.0146 \pm 0.0000 \\ 0.0146 \pm 0.0000 \\ 0.0146 \pm 0.0000 \\ 0.3628 \pm 0.0000 \\ 0.36$	$\begin{array}{c} \hline CAPKM++2.0\\ \hline 3.4485 \pm 0.0007\\ \hline 0.5375 \pm 0.0014\\ \hline 0.0132 \pm 0.0002\\ \hline 0.8589 \pm 0.0012\\ \hline 0.0793 \pm 0.0008\\ \hline 0.079109 \pm 0.0115\\ \hline 0.02109 \pm 0.0115\\ \hline 0.02284 \pm 0.0006\\ \hline 0.0156 \pm 0.0036\\ \hline 1.52649 \pm 0.0376\\ \hline 1.52649 \pm 0.0376\\ \hline 1.52649 \pm 0.0076\\ \hline 0.0156 \pm 0.0003\\ \hline 0.0156 \pm 0.0003\\ \hline 0.0156 \pm 0.0003\\ \hline 0.0152 \pm 0.0003\\ \hline 0.03448 \pm 0.0000\\ \hline 0.3448 \pm 0.0001\\ \hline 0.03448 \pm 0.0001\\ \hline 0.3448 \pm 0.0000\\ \hline 0.3448 \pm 0.0000\\ \hline 0.312 \pm 0.0000\\ \hline 0.3712 \pm 0.0000\\ \hline 0.3712 \pm 0.0000\\ \hline 0.2188 \pm 0.0000\\ \hline 0.2575 \pm 0.0000\\ \hline 0.2575 \pm 0.0000\\ \hline 0.2357 \pm 0.0000\\ \hline 0.2357 \pm 0.0000\\ \hline 1.2014 \pm 0.0000\\ \hline 0.2357 \pm 0.0000\\ \hline 1.2014 \pm 0.0000\\ \hline 0.2000 \\ \hline 0.2057 \pm 0.0000\\ \hline 1.2014 \pm 0.0000\\ \hline 0.2000 \\ \hline 0.$
$\begin{tabular}{lllllllllllllllllllllllllllllllllll$	$\begin{array}{c} {\rm KM} \\ \hline \\ 3.6702 \pm 0.1250 \\ 0.5617 \pm 0.0153 \\ 0.0184 \pm 0.0038 \\ 0.8269 \pm 0.0287 \\ 0.0924 \pm 0.0127 \\ 0.3804 \pm 0.0204 \\ 0.4522 \pm 0.0789 \\ 0.2544 \pm 0.0030 \\ 2.0035 \pm 0.1020 \\ 1.1935 \pm 0.3724 \\ 0.3000 \pm 0.0166 \\ 0.1508 \pm 0.0278 \\ 41.1859 \pm 1.4855 \\ 14.8197 \pm 1.7981 \\ 0.0322 \pm 0.0136 \\ 1.6531 \pm 0.0813 \\ 0.6911 \pm 0.0509 \\ 0.3670 \pm 0.0125 \\ 0.2808 \pm 0.0238 \\ 0.3006 \pm 0.0238 \\ 0.3006 \pm 0.0238 \\ 0.3006 \pm 0.0334 \\ 0.00872 \pm 0.0033 \\ 0.00872 \pm 0.0033 \\ 0.0265 \pm 0.0781 \\ 0.5964 \pm 0.0033 \\ 0.0272 \pm 0.0126 \\ 0.3719 \pm 0.0054 \\ 0.1720 \pm 0.0054 \\ 0.1720 \pm 0.0054 \\ 0.1200 \pm 0.0055 \\ 0.2009 \pm 0.0054 \\ 0.0209 \pm 0.0058 \\ 0.1200 \pm 0.0058 \\ 0.1200 \pm 0.0058 \\ 0.0424 \pm 0.0056 \\ \end{array}$	$\begin{array}{r} {\rm KM} ++ \\ \hline 3.6396 \pm 0.1102 \\ 0.5549 \pm 0.0114 \\ 0.0168 \pm 0.0025 \\ 0.8398 \pm 0.0231 \\ 0.0867 \pm 0.0113 \\ 0.0867 \pm 0.0113 \\ 0.04596 \pm 0.0865 \\ 0.2548 \pm 0.0019 \\ 2.0236 \pm 0.0852 \\ 1.0997 \pm 0.1915 \\ 0.3023 \pm 0.0167 \\ 0.1571 \pm 0.0299 \\ 41.8175 \pm 1.4292 \\ 15.7846 \pm 1.8157 \\ 0.0311 \pm 0.0116 \\ 1.6543 \pm 0.0130 \\ 0.3639 \pm 0.0106 \\ 0.2849 \pm 0.0223 \\ 0.3639 \pm 0.0106 \\ 0.2849 \pm 0.0223 \\ 0.3024 \pm 0.0341 \\ 0.0332 \pm 0.0106 \\ 0.2849 \pm 0.0223 \\ 0.0324 \pm 0.0304 \\ 0.0893 \pm 0.0204 \\ \hline {\rm MEC} \\ \hline 5.7692 \pm 0.4605 \\ 0.6727 \pm 0.0235 \\ 0.0730 \pm 0.0341 \\ 0.4923 \pm 0.1518 \\ 0.3029 \pm 0.0233 \\ 0.4790 \pm 0.0341 \\ 0.4923 \pm 0.1518 \\ 0.3029 \pm 0.0233 \\ 2.0753 \pm 0.4907 \\ 1.1546 \pm 0.6850 \\ 0.2998 \pm 0.0299 \\ 0.0253 \\ 1.55907 \pm 10.626 \\ 0.0478 \pm 0.0260 \\ \hline \end{array}$	$\begin{tabular}{ c c c c c } \hline PKM \\ \hline 3.4673 \pm 0.0081 \\ 0.5519 \pm 0.0020 \\ 0.0152 \pm 0.0003 \\ 0.8334 \pm 0.0030 \\ 0.0938 \pm 0.0014 \\ 0.3555 \pm 0.0005 \\ 0.4318 \pm 0.0280 \\ 0.2575 \pm 0.0002 \\ 2.1704 \pm 0.0073 \\ 0.9863 \pm 0.0381 \\ 0.3032 \pm 0.0016 \\ 0.1619 \pm 0.0106 \\ 39.6807 \pm 0.5807 \\ 15.4603 \pm 0.1819 \\ 0.0301 \pm 0.0061 \\ 1.5802 \pm 0.0038 \\ 0.3467 \pm 0.0008 \\ 0.2726 \pm 0.0034 \\ 0.0301 \pm 0.0061 \\ 0.3467 \pm 0.0008 \\ 0.2726 \pm 0.0034 \\ 0.0302 \pm 0.0030 \\ 0.3467 \pm 0.0008 \\ 0.2726 \pm 0.0037 \\ 0.0097 \pm 0.0043 \\ 0.06877 \pm 0.0030 \\ 0.0927 \pm 0.0040 \\ FSC \\ \hline 4.5079 \pm 0.2281 \\ 0.6437 \pm 0.0320 \\ 0.0457 \pm 0.0617 \\ 0.1488 \pm 0.0297 \\ 0.3584 \pm 0.0614 \\ 0.2321 \pm 0.0614 \\ 0.2321 \pm 0.0164 \\ 0.1021 \pm 0.0166 \\ 56.0150 \pm 5.3085 \\ 86801 \pm 1.8138 \\ 0.0513 \pm 0.0168 \\ \hline \end{tabular}$	$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	$ \begin{array}{c} & SC \\ \hline \\ & 5.4244 \pm 0.1375 \\ 1.0070 \pm 0.0072 \\ 0.2305 \pm 0.0077 \\ -0.0002 \pm 0.0077 \\ -0.0002 \pm 0.0097 \\ 0.4955 \pm 0.0101 \\ -0.0002 \pm 0.0097 \\ 0.6521 \pm 0.0102 \\ 0.1493 \pm 0.0052 \\ 0.3086 \pm 0.0273 \\ 3.2132 \pm 0.6500 \\ 0.1634 \pm 0.0000 \\ 0.0161 \pm 0.0004 \\ 1.6824 \pm 0.0050 \\ -1.1803 \pm 0.1009 \\ 0.8404 \pm 0.0185 \\ 0.2874 \pm 0.0136 \\ 0.3835 \pm 0.0155 \\ 0.0917 \pm 0.0162 \\ \hline BFC \\ \times \\ $	$\begin{array}{r} \label{eq:heat} HC \\ \hline 3.5330 \pm 0.0000 \\ 0.5548 \pm 0.0000 \\ 0.0168 \pm 0.0000 \\ 0.025 \pm 0.0000 \\ 0.0925 \pm 0.0000 \\ 0.0925 \pm 0.0000 \\ 0.2550 \pm 0.0000 \\ 0.2550 \pm 0.0000 \\ 0.2550 \pm 0.0000 \\ 0.0982 \pm 0.0000 \\ 0.0982 \pm 0.0000 \\ 0.0982 \pm 0.0000 \\ 0.0308 \pm 0.0000 \\ 0.0308 \pm 0.0000 \\ 0.3038 \pm 0.0000 \\ 0.3028 \pm 0.0000 \\ 0.3028 \pm 0.0000 \\ 0.3028 \pm 0.0000 \\ 0.3028 \pm 0.0000 \\ 0.3628 \pm 0.0000 \\ 0$	$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$
$\begin{tabular}{lllllllllllllllllllllllllllllllllll$	$\begin{array}{r} {\rm KM} \\ \hline \\ 3.6702 \pm 0.1250 \\ 0.5617 \pm 0.0153 \\ 0.0184 \pm 0.0038 \\ 0.8269 \pm 0.0287 \\ 0.0924 \pm 0.0127 \\ 0.3804 \pm 0.0204 \\ 0.4522 \pm 0.0189 \\ 0.2544 \pm 0.0030 \\ 2.0035 \pm 0.1020 \\ 1.1935 \pm 0.3724 \\ 0.3000 \pm 0.0166 \\ 0.1508 \pm 0.0278 \\ 41.1859 \pm 1.4855 \\ 14.8197 \pm 1.7981 \\ 0.0322 \pm 0.0136 \\ 1.6531 \pm 0.0813 \\ 0.6911 \pm 0.0509 \\ 0.3670 \pm 0.0125 \\ 0.2808 \pm 0.0238 \\ 0.3006 \pm 0.0125 \\ 0.2808 \pm 0.0238 \\ 0.3006 \pm 0.0125 \\ 0.2808 \pm 0.0238 \\ 0.3006 \pm 0.0125 \\ 0.2808 \pm 0.0238 \\ 0.00872 \pm 0.0781 \\ 0.5964 \pm 0.0033 \\ 0.0265 \pm 0.0781 \\ 0.5702 \pm 0.0045 \\ 0.1181 \pm 0.0020 \\ 0.3719 \pm 0.0054 \\ 0.1272 \pm 0.0045 \\ 0.1200 \pm 0.0055 \\ 47.7023 \pm 1.7305 \\ 18.3786 \pm 1.6131 \\ 0.00454 \pm 0.0056 \\ 2.0949 \pm 0.0766 \\ 0.4750 \pm 0.024 \\ 0.0760 \\ 0.4750 \pm 0.024 \\ 0.0766 \\ 0.0760 \\ 0.4750 \pm 0.024 \\ 0.0055 \\ 0.094 \pm 0.0056 \\ 0.094 \pm 0.0056 \\ 0.094 \pm 0.0058 \\ 0.0454 \pm 0.0056 \\ 0.094 \pm 0.0058 \\ 0.0454 \pm 0.0056 \\ 0.094 \pm 0.0056 \\ 0.004 \pm$	$\begin{array}{r} {\rm KM} ++ \\ 3.6396 \pm 0.1102 \\ 0.5549 \pm 0.0114 \\ 0.0168 \pm 0.0025 \\ 0.8398 \pm 0.0231 \\ 0.0867 \pm 0.0113 \\ 0.3894 \pm 0.0232 \\ 0.4596 \pm 0.0865 \\ 0.2548 \pm 0.0019 \\ 2.0236 \pm 0.0852 \\ 1.0997 \pm 0.1915 \\ 0.3023 \pm 0.0167 \\ 0.1571 \pm 0.0299 \\ 41.8175 \pm 1.4292 \\ 15.7846 \pm 1.8157 \\ 0.0311 \pm 0.0116 \\ 1.6543 \pm 0.0043 \\ 0.0363 \pm 0.0106 \\ 0.2849 \pm 0.0223 \\ 0.3639 \pm 0.0204 \\ 0.0893 \pm 0.0204 \\ 0.0893 \pm 0.0204 \\ 0.0893 \pm 0.0204 \\ 0.0258 \\ 0.0772 \pm 0.0235 \\ 0.0730 \pm 0.0314 \\ 0.0258 \\ 0.0730 \pm 0.0258 \\ 0.0730 \pm 0.0258 \\ 0.4790 \pm 0.0258 \\ 0.4790 \pm 0.0258 \\ 0.0793 \pm 0.0298 \\ 0.0298 \pm 0.0258 \\ 0.0793 \pm 0.0298 \\ 0.0298 \pm 0.0258 \\ 0.0799 \pm 0.0253 \\ 2.0753 \pm 0.4907 \\ 1.1546 \pm 0.0831 \\ 0.0298 \pm 0.0258 \\ 0.02998 \pm 0.0299 \\ 0.0258 \\ 0.02998 \pm 0.0299 \\ 0.0258 \\ 0.02998 \pm 0.0259 \\ 0.0478 \pm 0.0261 \\ 1.1528 \pm 0.2782 \\ 0.3174 \pm 0.0260 \\ 1.4158 \pm 0.2782 \\ 0.3174 \pm 0.0261 \\ 1.4158$	$\begin{array}{c} \hline PKM \\ \hline \\ 3.4673 \pm 0.0081 \\ 0.5519 \pm 0.0020 \\ 0.0152 \pm 0.0003 \\ 0.8334 \pm 0.0030 \\ 0.0938 \pm 0.0014 \\ 0.3555 \pm 0.0005 \\ 0.4318 \pm 0.0280 \\ 0.2575 \pm 0.0002 \\ 2.1704 \pm 0.0073 \\ 0.9863 \pm 0.0381 \\ 0.3032 \pm 0.0016 \\ 0.1619 \pm 0.0106 \\ 3.6807 \pm 0.5807 \\ 15.4603 \pm 0.1381 \\ 0.0301 \pm 0.0061 \\ 1.5892 \pm 0.0034 \\ 0.0301 \pm 0.0063 \\ 0.3467 \pm 0.0003 \\ 0.0304 \pm 0.0034 \\ 0.0304 \pm 0.0034 \\ 0.0304 \pm 0.0034 \\ 0.0304 \pm 0.0034 \\ 0.03467 \pm 0.0034 \\ 0.0367 \pm 0.0034 \\ 0.0367 \pm 0.0034 \\ 0.0377 \pm 0.0034 \\ 0.0377 \pm 0.0034 \\ 0.0347 \pm 0.0034 \\ 0.0457 \pm 0.0034 \\ 0.0457 \pm 0.0043 \\ 0.0927 \pm 0.0040 \\ \hline FSC \\ \hline 4.5079 \pm 0.2281 \\ 0.6437 \pm 0.0320 \\ 0.0457 \pm 0.0410 \\ 0.3584 \pm 0.0617 \\ 0.0358 \pm 0.0618 \\ 0.0297 \\ 0.16857 \pm 0.0401 \\ 0.3584 \pm 0.0614 \\ 0.2321 \pm 0.0095 \\ 1.2087 \pm 0.1801 \\ 2.9239 \pm 1.1012 \\ 0.1626 \pm 0.0444 \\ 0.1021 \pm 0.0166 \\ 56.0150 \pm 5.3085 \\ 8.6801 \pm 1.18138 \\ 0.0513 \pm 0.0168 \\ 2.4521 \pm 0.2813 \\ 0.1495 \pm 0.1428 \\ 0.1495 \pm 0.1428 \\ 0.1495 \pm 0.1492 \\ 0.1495 \pm 0.0148 \\ 0.1495 \pm 0.0148 \\ 0.1495 \pm 0.0148 \\ 0.1495 \pm 0.0149 \\ 0.1495 \pm 0.0148 \\ 0.1495 \pm 0.0149 \\ 0.149$	$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	$ \begin{array}{c} & SC \\ \hline \\ & 5.4244 \pm 0.1375 \\ & 1.0070 \pm 0.0072 \\ & 0.2305 \pm 0.0077 \\ & -0.0002 \pm 0.0097 \\ & -0.0002 \pm 0.0097 \\ & 0.6521 \pm 0.0101 \\ & -0.0002 \pm 0.0097 \\ & 0.6521 \pm 0.0102 \\ & 0.1493 \pm 0.0052 \\ & 0.3086 \pm 0.0273 \\ & 3.2132 \pm 0.6500 \\ & 0.1608 \pm 0.0138 \\ & 0.1653 \pm 0.0000 \\ & 2.1643 \pm 1.4002 \\ & 2.9.1643 \pm 1.4002 \\ & 7.4846 \pm 0.2832 \\ & 0.0161 \pm 0.0094 \\ & 1.6824 \pm 0.0156 \\ & 0.1835 \pm 0.0155 \\ & 0.0917 \pm 0.0162 \\ \hline \\ \hline \\ BFC \\ & \times \\ $	$\begin{array}{c} \mbox{HC} \\ \hline \mbox{HC} \\ 3.5330 \pm 0.0000 \\ 0.5548 \pm 0.0000 \\ 0.0168 \pm 0.0000 \\ 0.8260 \pm 0.0000 \\ 0.0925 \pm 0.0000 \\ 0.0925 \pm 0.0000 \\ 0.2550 \pm 0.0000 \\ 0.2550 \pm 0.0000 \\ 0.2550 \pm 0.0000 \\ 0.0982 \pm 0.0000 \\ 0.0982 \pm 0.0000 \\ 0.0982 \pm 0.0000 \\ 0.0308 \pm 0.0000 \\ 0.0362 \pm 0.0000 \\ 0.146 \pm 0.0000 \\ 0.151854 \pm 0.0000 \\ 0.0146 \pm 0.0000 \\ 0.3628 \pm 0.0000 \\ 0.1117 \pm 0.0000 \\ 0.1118 \pm 0.0185 \\ 0.4743 \pm 0.0371 \\ 0.4407 \pm 0.0081 \\ 0.02742 \pm 0.0215 \\ 1.7966 \pm 0.3384 \\ 0.2580 \pm 0.0438 \\ 0.179 \pm 0.0261 \\ 44.7456 \pm 6.3442 \\ 15.8542 \pm 4.2921 \\ 0.0459 \pm 0.0199 \\ 1.6098 \pm 0.3075 \\ 0.0826 \pm 0.159 \\ 0.0364 \pm 0.1595 \\ 0.0365 \pm 0.0199 \\ 0.0364 \pm 0.1595 \\ 0.0365 \pm 0.0199 \\ 0.0365 \pm 0.01$	$\begin{array}{c} \hline CAPKM++2.0\\ \hline 3.4485 \pm 0.0007\\ \hline 0.5375 \pm 0.0014\\ \hline 0.0132 \pm 0.0002\\ \hline 0.8589 \pm 0.0002\\ \hline 0.0793 \pm 0.0008\\ \hline 0.0793 \pm 0.0008\\ \hline 0.0793 \pm 0.0008\\ \hline 0.0793 \pm 0.0008\\ \hline 0.0795 \pm 0.0006\\ \hline 0.0175 \pm 0.0006\\ \hline 0.0175 \pm 0.0006\\ \hline 0.0175 \pm 0.0015\\ \hline 0.02284 \pm 0.0176\\ \hline 0.0284 \pm 0.0076\\ \hline 1.52649 \pm 0.0376\\ \hline 1.52649 \pm 0.0376\\ \hline 1.52649 \pm 0.0037\\ \hline 0.0156 \pm 0.0003\\ \hline 0.0348 \pm 0.0001\\ \hline 0.2827 \pm 0.0037\\ \hline 0.3448 \pm 0.0001\\ \hline 0.2827 \pm 0.0037\\ \hline 0.3448 \pm 0.0001\\ \hline 0.2827 \pm 0.0017\\ \hline CAFCM\\ \hline 3.4481 \pm 0.0000\\ \hline 0.05368 \pm 0.0000\\ \hline 0.01512 \pm 0.0001\\ \hline 0.2575 \pm 0.0000\\ \hline 0.5128 \pm 0.0000\\ \hline 0.0131 \pm 0.0000\\ \hline 0.5275 \pm 0.0000\\ \hline 0.2575 \pm 0.0000\\ \hline 0.2575 \pm 0.0000\\ \hline 0.2288 \pm 0.0000\\ \hline 0.2287 \pm 0.0000\\ \hline 0.2283 \pm 0.0000\\ \hline 0.2375 \pm 0.0000\\ \hline 0.2284 \pm 0.0000\\ \hline 0.2284 \pm 0.0000\\ \hline 0.2275 \pm 0.0000\\ \hline 0.2284 \pm 0.0000\\ \hline 0.0237 \pm 0.0000\\ \hline 0.2284 \pm 0.0000\\ \hline 0.0237 \pm 0.0000\\ \hline 0.2204 \pm 0.0000\\ \hline 0.0248 \pm 0.00$
$\begin{tabular}{lllllllllllllllllllllllllllllllllll$	$\begin{array}{r} {\rm KM} \\ \hline {\rm 3.6702 \pm 0.1250} \\ 0.5617 \pm 0.0153 \\ 0.0184 \pm 0.0038 \\ 0.8269 \pm 0.0287 \\ 0.0924 \pm 0.0127 \\ 0.0924 \pm 0.0127 \\ 0.0924 \pm 0.0127 \\ 0.0324 \pm 0.0030 \\ 2.0035 \pm 0.1020 \\ 1.1935 \pm 0.0724 \\ 1.1935 \pm 0.0728 \\ 1.1859 \pm 1.4855 \\ 14.8197 \pm 1.7981 \\ 0.0322 \pm 0.0136 \\ 1.6531 \pm 0.0813 \\ 0.0322 \pm 0.0136 \\ 1.6531 \pm 0.0125 \\ 0.2808 \pm 0.0238 \\ 0.0370 \pm 0.0125 \\ 0.2808 \pm 0.0238 \\ 0.00781 \\ 0.0372 \pm 0.0299 \\ \hline {\rm FCM} \\ 1.8281 \pm 0.0055 \\ 0.2672 \pm 0.0069 \\ 1.9728 \pm 0.0125 \\ 0.2672 \pm 0.0069 \\ 1.9728 \pm 0.0055 \\ 0.1200 \pm 0.0055 \\ 0.1200 \pm 0.0055 \\ 0.00454 \pm 0.0033 \\ 0.0454 \pm 0.0058 \\ 0.1200 \pm 0.0058 \\ 0.1200 \pm 0.0761 \\ 0.0454 \pm 0.0058 \\ 0.0294 \pm 0.0766 \\ 0.0475 \pm 0.0761 \\ 0.0454 \pm 0.0056 \\ 2.0949 \pm 0.0766 \\ 0.0475 \pm 0.0076 \\ 0.4750 \pm 0.0242 \\ 0.0421 \pm 0.0065 \\ \end{array}$	$\begin{array}{r} {\rm KM} ++ \\ 3.6396 \pm 0.1102 \\ 0.5549 \pm 0.0114 \\ 0.0168 \pm 0.0025 \\ 0.8398 \pm 0.0231 \\ 0.0867 \pm 0.0113 \\ 0.3849 \pm 0.0232 \\ 0.4596 \pm 0.0865 \\ 0.2548 \pm 0.0019 \\ 2.0236 \pm 0.0852 \\ 1.0997 \pm 0.1915 \\ 0.3023 \pm 0.0167 \\ 0.1571 \pm 0.0299 \\ 1.8175 \pm 1.4292 \\ 15.7846 \pm 1.8157 \\ 0.0311 \pm 0.0116 \\ 1.6543 \pm 0.0833 \\ 0.7040 \pm 0.0432 \\ 0.3639 \pm 0.0104 \\ 0.0234 \pm 0.0234 \\ 0.03639 \pm 0.0204 \\ \hline {\rm MEC} \\ \hline 5.7692 \pm 0.4605 \\ 0.6727 \pm 0.0235 \\ 0.0730 \pm 0.0137 \\ 0.6944 \pm 0.0510 \\ 0.0329 \pm 0.0253 \\ 0.0730 \pm 0.0137 \\ 0.6944 \pm 0.0510 \\ 0.3029 \pm 0.0253 \\ 0.2998 \pm 0.0253 \\ 0.2998 \pm 0.0341 \\ 0.4923 \pm 0.0347 \\ 0.56.2621 \pm 8.4753 \\ 35.9067 \pm 10.626 \\ 0.0478 \pm 0.0281 \\ 0.0535 \pm 0.0551 \\ \hline \end{array}$	$\begin{array}{r} \hline PKM \\ \hline \\ 3.4673 \pm 0.0081 \\ 0.5519 \pm 0.0020 \\ 0.0152 \pm 0.0003 \\ 0.8334 \pm 0.0030 \\ 0.0938 \pm 0.0014 \\ 0.3555 \pm 0.0005 \\ 0.4318 \pm 0.0280 \\ 0.2575 \pm 0.0002 \\ 2.1704 \pm 0.0073 \\ 0.9863 \pm 0.0381 \\ 0.3032 \pm 0.0016 \\ 0.1619 \pm 0.0106 \\ 3.6807 \pm 0.5807 \\ 15.4603 \pm 0.1819 \\ 0.0301 \pm 0.0061 \\ 1.5892 \pm 0.0337 \\ 0.7749 \pm 0.0034 \\ 0.3467 \pm 0.0008 \\ 0.2726 \pm 0.0043 \\ 0.3062 \pm 0.0043 \\ 0.3062 \pm 0.0043 \\ 0.06437 \pm 0.0320 \\ 0.6437 \pm 0.0320 \\ 0.0457 \pm 0.0040 \\ 0.5874 \pm 0.0614 \\ 0.0271 \pm 0.0095 \\ 1.2887 \pm 0.1801 \\ 2.9239 \pm 1.1012 \\ 0.1626 \pm 0.0044 \\ 0.1021 \pm 0.0106 \\ 5.0150 \pm 5.3085 \\ 8.6801 \pm 1.8138 \\ 0.0513 \pm 0.0168 \\ 0.4831 \pm 0.0281 \\ 0.0433 \pm 0.0168 \\ 0.591 \pm 0.0443 \\ 0.591 \pm 0.0443 \\ 0.591 \pm 0.0404 \\ 0.0501 \pm 0.0404 \\ 0.050$	$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	$ \begin{array}{c} & SC \\ \hline \\ & 5.4244 \pm 0.1375 \\ & 1.0070 \pm 0.0072 \\ & 0.2305 \pm 0.0077 \\ & -0.0002 \pm 0.0097 \\ & -0.0002 \pm 0.0097 \\ & 0.6521 \pm 0.0101 \\ & -0.0002 \pm 0.0097 \\ & 0.6521 \pm 0.0102 \\ & 0.1493 \pm 0.0052 \\ & 0.3086 \pm 0.0273 \\ & 3.2132 \pm 0.6500 \\ & 0.1608 \pm 0.0138 \\ & 0.1653 \pm 0.0000 \\ & 29.1643 \pm 1.4002 \\ & 7.4846 \pm 0.2832 \\ & 0.0161 \pm 0.0004 \\ & -1.1803 \pm 0.1050 \\ & -1.1803 \pm 0.1050 \\ & -1.1803 \pm 0.1055 \\ & 0.0917 \pm 0.0162 \\ \hline \\ BFC \\ \times \\ $	$\begin{array}{r} \label{eq:heat} HC \\ \hline 3.5330 \pm 0.0000 \\ 0.5548 \pm 0.0000 \\ 0.0168 \pm 0.0000 \\ 0.025 \pm 0.0000 \\ 0.0925 \pm 0.0000 \\ 0.0255 \pm 0.0000 \\ 0.2550 \pm 0.0000 \\ 0.2550 \pm 0.0000 \\ 0.2550 \pm 0.0000 \\ 0.0982 \pm 0.0000 \\ 0.0982 \pm 0.0000 \\ 0.0363 \pm 0.0000 \\ 0.0363 \pm 0.0000 \\ 0.0362 \pm 0.0000 \\ 0.151854 \pm 0.0000 \\ 0.1614 \pm 0.0000 \\ 1.5338 \pm 0.0000 \\ 0.3628 \pm 0.0000 \\ 0.3614 \pm 0.0000 \\ 0.3614 \pm 0.0000 \\ 0.117 \pm 0.0000 \\ 0.1118 \pm 0.0209 \\ 0.0506 \pm 0.0119 \\ 0.0506 \pm 0.0019 \\ 0.0506 \pm 0.0019 \\ 0.0506 \pm 0.0019 \\ 0.02742 \pm 0.0215 \\ 1.7966 \pm 0.3381 \\ 0.0274 \pm 0.0215 \\ 1.7966 \pm 0.3492 \\ 2.2566 \pm 1.4066 \\ 0.2580 \pm 0.0438 \\ 0.1179 \pm 0.0261 \\ 1.4407 \pm 0.0981 \\ 0.0261 \\ 1.4407 \pm 0.0215 \\ 1.7966 \pm 0.3492 \\ 2.2566 \pm 1.4066 \\ 0.2580 \pm 0.0438 \\ 0.179 \pm 0.0261 \\ 1.44745 \pm 6.3442 \\ 15.8542 \pm 4.2921 \\ 0.0459 \pm 0.0199 \\ 1.6098 \pm 0.0375 \\ 0.0836 \pm 0.0438 \\ 0.0556 \pm 0.0434 \\ 0.556 \pm 0.0434 \\ 0.0556 \\ 0.056 \\ 0.056 \\ 0.056 \\ 0.0199 \\ 0.0000 \\ 0.0100 \\ 0.0100 \\ 0.0100 \\ 0.0100 \\ 0.0100 \\ 0.0100 \\ 0.0100 \\ 0.0100 \\ 0.0100 \\ 0.0100 \\ 0.0100 \\ 0.0100 \\ 0.0100 \\$	$\begin{array}{c} \hline CAPKM++2.0\\ \hline 3.4485 \pm 0.0007\\ \hline 0.5375 \pm 0.0014\\ \hline 0.0132 \pm 0.0002\\ \hline 0.8589 \pm 0.0012\\ \hline 0.0793 \pm 0.0008\\ \hline 0.3715 \pm 0.0009\\ \hline 0.0793 \pm 0.0008\\ \hline 0.3715 \pm 0.0009\\ \hline 0.0115\\ \hline 0.2576 \pm 0.0002\\ \hline 0.9109 \pm 0.0115\\ \hline 0.3275 \pm 0.0046\\ \hline 0.2284 \pm 0.0188\\ \hline 41.2249 \pm 0.0376\\ \hline 15.2649 \pm 0.0176\\ \hline 0.0156 \pm 0.0036\\ \hline 1.5912 \pm 0.0216\\ \hline 0.3484 \pm 0.0001\\ \hline 0.2827 \pm 0.0037\\ \hline 0.3112 \pm 0.0037\\ \hline 0.3112 \pm 0.0017\\ \hline CAFCM\\ \hline 3.4481 \pm 0.0000\\ \hline 0.0788 \pm 0.0000\\ \hline 0.3712 \pm 0.0000\\ \hline 0.3712 \pm 0.0000\\ \hline 0.3275 \pm 0.0000\\ \hline 0.3712 \pm 0.0000\\ \hline 0.3275 \pm 0.0000\\ \hline 0.3275 \pm 0.0000\\ \hline 0.3284 \pm 0.0000\\ \hline 0.3275 \pm 0.0000\\ \hline 0.3275 \pm 0.0000\\ \hline 0.3275 \pm 0.0000\\ \hline 0.2575 \pm 0.0000\\ \hline 0.2575 \pm 0.0000\\ \hline 0.2327 \pm 0.0000\\ \hline 0.2327 \pm 0.0000\\ \hline 0.2327 \pm 0.0000\\ \hline 0.2357 \pm 0.0000\\ \hline 1.2014 \pm 0.0000\\ \hline 0.2357 \pm 0.0000\\ \hline 1.2014 \pm 0.0000\\ \hline 0.0348 \pm 0.0000\\ \hline 0.330 \pm 0.0000\\ \hline 0.3408 \pm 0.0000\\ \hline 0.330 \pm 0.0000\\ \hline 0.3408 \pm $
$\begin{tabular}{lllllllllllllllllllllllllllllllllll$	$\begin{array}{r} {\rm KM} \\ \hline {\rm 3.6702 \pm 0.1250} \\ 3.6702 \pm 0.1250 \\ 0.5617 \pm 0.0153 \\ 0.0184 \pm 0.0038 \\ 0.8269 \pm 0.0287 \\ 0.0924 \pm 0.0127 \\ 0.3804 \pm 0.0204 \\ 0.0170 \\ 0.3804 \pm 0.0204 \\ 0.0180 \\ 0.1508 \pm 0.020 \\ 1.1935 \pm 0.3724 \\ 0.3000 \pm 0.0166 \\ 0.1508 \pm 0.0278 \\ 1.1859 \pm 1.4855 \\ 14.8197 \pm 1.7981 \\ 0.0322 \pm 0.0136 \\ 1.6531 \pm 0.0813 \\ 0.06911 \pm 0.0509 \\ 0.3670 \pm 0.0125 \\ 0.2028 \\ \pm 0.0288 \\ 0.0288 \\ \pm 0.0278 \\ 1.0322 \\ \pm 0.0136 \\ 1.6531 \\ \pm 0.0813 \\ 0.0872 \\ \pm 0.0299 \\ \hline {\rm FCM} \\ \hline {\rm 4.0995 \pm 0.0781} \\ 0.0265 \\ \pm 0.0012 \\ 0.7720 \\ \pm 0.0045 \\ 0.181 \\ \pm 0.0020 \\ 0.3719 \\ \pm 0.0045 \\ 0.0143 \\ 1.8281 \\ \pm 0.1043 \\ 1.2026 \\ \pm 0.0056 \\ 2.0949 \\ \pm 0.0766 \\ 1.7702 \\ \pm 0.0069 \\ 1.9728 \\ \pm 0.1043 \\ 1.8281 \\ \pm 0.1043 \\ 1.8281 \\ \pm 0.1043 \\ 1.8281 \\ \pm 0.1043 \\ 1.2024 \\ 0.0056 \\ 2.0949 \\ \pm 0.0766 \\ 0.4750 \\ \pm 0.0761 \\ 0.4215 \\ \pm 0.0063 \\ 0.1201 \\ \pm 0.0045 \\ 0.191 \\ \pm 0.0045 \\ 0.0045 \\ 0.191 \\ \pm 0.0045 \\ 0.191 \\ \pm 0.0045 \\ 0.0045$	$\begin{array}{r} {\rm KM} ++ \\ \hline 3.6396 \pm 0.1102 \\ 0.5549 \pm 0.0114 \\ 0.0168 \pm 0.0025 \\ 0.8398 \pm 0.0231 \\ 0.08398 \pm 0.0231 \\ 0.0867 \pm 0.0113 \\ 0.0867 \pm 0.0113 \\ 0.3849 \pm 0.0232 \\ 0.4596 \pm 0.0852 \\ 1.0997 \pm 0.1915 \\ 0.3023 \pm 0.0167 \\ 0.1571 \pm 0.0299 \\ 1.8175 \pm 1.4292 \\ 15.7846 \pm 1.8157 \\ 0.0311 \pm 0.0116 \\ 1.6543 \pm 0.0033 \\ 0.0167 \\ 1.633 \pm 0.0106 \\ 0.2849 \pm 0.0223 \\ 0.3639 \pm 0.0106 \\ 0.2849 \pm 0.0223 \\ 0.3024 \pm 0.0304 \\ 0.0893 \pm 0.0204 \\ \hline {\rm MEC} \\ \hline 5.7692 \pm 0.4605 \\ 0.6727 \pm 0.0235 \\ 0.0730 \pm 0.0234 \\ 0.0235 \\ 0.0730 \pm 0.0248 \\ 0.0235 \\ 0.0730 \pm 0.0235 \\ 0.0730 \pm 0.0235 \\ 0.0730 \pm 0.0238 \\ 0.4790 \pm 0.0238 \\ 0.04790 \pm 0.0258 \\ 0.4790 \pm 0.0258 \\ 0.4790 \pm 0.0258 \\ 0.0479 \pm 0.0258 \\ 0.0298 \pm 0.0599 \\ 0.1152 \pm 0.0347 \\ 556.2621 \pm 8.4753 \\ 35.9067 \pm 110.626 \\ 0.0478 \pm 0.2708 \\ 1.1544 \pm 0.0250 \\ 1.4158 \pm 0.2782 \\ -0.3174 \pm 0.2081 \\ 0.6353 \pm 0.0555 \\ 0.1374 \pm 0.0164 \\ \hline \end{array}$	$\begin{array}{r} \mbox{PKM} \\ \hline 3.4673 ± 0.0081 \\ 0.5519 \pm 0.0020$ \\ 0.0152 \pm 0.0003$ \\ 0.8334 \pm 0.0030$ \\ 0.0038 \pm 0.0014$ \\ 0.3555 \pm 0.0005$ \\ 0.4318 \pm 0.0280$ \\ 0.2575 \pm 0.0002$ \\ 2.1704 \pm 0.0073$ \\ 0.9863 \pm 0.0381$ \\ 0.0301 \pm 0.0166$ \\ 0.1619 \pm 0.0106$ \\ 0.36107$ \\ 0.9863 \pm 0.0381$ \\ 0.0301 \pm 0.0061$ \\ 1.5892 \pm 0.0337$ \\ 0.0301 \pm 0.0061$ \\ 1.5892 \pm 0.0337$ \\ 0.0301 \pm 0.0061$ \\ 1.5892 \pm 0.0337$ \\ 0.3467 \pm 0.0034$ \\ 0.3467 \pm 0.0008$ \\ 0.2726 \pm 0.0043$ \\ 0.3667 \pm 0.0043$ \\ 0.3667 \pm 0.0043$ \\ 0.0457 \pm 0.0030$ \\ 0.0457 \pm 0.0130$ \\ 0.0457 \pm 0.0130$ \\ 0.0457 \pm 0.0130$ \\ 0.0457 \pm 0.0320$ \\ 0.0457 \pm 0.0320$ \\ 0.0457 \pm 0.0320$ \\ 0.0457 \pm 0.0320$ \\ 0.0457 \pm 0.0040$ \\ 0.2321 \pm 0.0095$ \\ 1.2087 \pm 0.1801$ \\ 2.9239 \pm 1.1012$ \\ 0.1626 \pm 0.0444$ \\ 0.1021 \pm 0.0166$ \\ 5.0150 \pm 5.3085$ \\ 8.6801 \pm 1.8138$ \\ 0.0513 \pm 0.0168$ \\ 2.4521 \pm 0.2813$ \\ 0.0491$ \\ 0.2634 \pm 0.0291$ \\ \hline \end{tabular}$	$\begin{array}{c} \hline {\rm EWPKM} \\ \hline 3.4660 \pm 0.0053 \\ 0.5528 \pm 0.0011 \\ 0.0154 \pm 0.0021 \\ 0.0945 \pm 0.0012 \\ 0.0945 \pm 0.0012 \\ 0.0945 \pm 0.0015 \\ 0.4442 \pm 0.0285 \\ 0.0015 \\ 0.4442 \pm 0.0285 \\ 0.0015 \\ 0.4442 \pm 0.0285 \\ 0.0079 \\ 39.4854 \pm 0.0021 \\ 0.0079 \\ 39.4854 \pm 0.0079 \\ 39.4854 \pm 0.0391 \\ 0.00281 \pm 0.0079 \\ 39.4854 \pm 0.0020 \\ 1.5787 \pm 0.0106 \\ 0.7755 \pm 0.0022 \\ 0.3466 \pm 0.0005 \\ 0.7725 \pm 0.0022 \\ 0.3466 \pm 0.0005 \\ 0.2720 \pm 0.0042 \\ 0.3140 \pm 0.0054 \\ 0.0962 \pm 0.0044 \\ 0.0962 \pm 0.0044 \\ \hline 2PFCM \\ 4.1417 \pm 0.0000 \\ 0.3753 \pm 0.0000 \\ 0.2772 \pm 0.0000 \\ 0.2737 \pm 0.0000 \\ 0.2108 \pm 0.0000 \\ 0.2108 \pm 0.0000 \\ 0.2108 \pm 0.0000 \\ 0.4229 \pm 0.0000 \\ 0.2000 \pm 0$	$\begin{array}{c} & SC \\ \hline \\ & 5.4244 \pm 0.1375 \\ & 1.0070 \pm 0.0072 \\ & 0.2305 \pm 0.0077 \\ & -0.0002 \pm 0.0097 \\ & 0.4955 \pm 0.0101 \\ & -0.0002 \pm 0.0097 \\ & 0.6521 \pm 0.0102 \\ & 0.1493 \pm 0.0052 \\ & 0.1493 \pm 0.0052 \\ & 0.1635 \pm 0.01038 \\ & 0.1635 \pm 0.0138 \\ & 0.1635 \pm 0.0000 \\ & 29.1643 \pm 1.4002 \\ & 7.4846 \pm 0.2832 \\ & 0.0161 \pm 0.0004 \\ & 1.6824 \pm 0.0650 \\ & -1.1803 \pm 0.1055 \\ & 0.0161 \pm 0.0136 \\ & 0.3835 \pm 0.0155 \\ & 0.0917 \pm 0.0162 \\ \hline \\ BFC \\ \times \\ $	$\begin{array}{r} \mbox{HC} \\ \hline HC \\ 3.5330 \pm 0.0000 \\ 0.5548 \pm 0.0000 \\ 0.0168 \pm 0.0000 \\ 0.0255 \pm 0.0000 \\ 0.0255 \pm 0.0000 \\ 0.2550 \pm 0.0000 \\ 0.2550 \pm 0.0000 \\ 0.2550 \pm 0.0000 \\ 0.2550 \pm 0.0000 \\ 0.2029 \pm 0.0000 \\ 0.3058 \pm 0.0000 \\ 0.2062 \pm 0.0000 \\ 0.3058 \pm 0.0000 \\ 0.1175 \pm 0.0000 \\ 0.3628 \pm 0.0000 \\ 0.1117 \pm 0.0000 \\ 0.1117 \pm 0.0000 \\ 0.1118 \pm 0.0209 \\ 0.0506 \pm 0.0119 \\ 0.0506 \pm 0.0119 \\ 0.0506 \pm 0.0119 \\ 0.0504 \pm 0.0215 \\ 1.7966 \pm 0.3384 \\ 0.02742 \pm 0.0215 \\ 1.7966 \pm 0.3492 \\ 2.2566 \pm 1.4066 \\ 0.2580 \pm 0.0438 \\ 0.1179 \pm 0.0261 \\ 4.47455 \pm 6.5342 \\ \pm 4.2921 \\ 0.0459 \pm 0.0199 \\ 1.6098 \pm 0.3075 \\ 0.0363 \pm 0.1595 \\ 0.5268 \pm 0.0434 \\ 0.1675 \pm 0.0196 \\ \end{array}$	$\begin{array}{c} \hline CAPKM++2.0\\ \hline 3.4485 \pm 0.0007\\ \hline 0.5375 \pm 0.0014\\ \hline 0.0132 \pm 0.0002\\ \hline 0.8589 \pm 0.0012\\ \hline 0.0793 \pm 0.0008\\ \hline 0.3715 \pm 0.0008\\ \hline 0.3715 \pm 0.0008\\ \hline 0.3715 \pm 0.0009\\ \hline 0.0793 \pm 0.0018\\ \hline 0.2576 \pm 0.0002\\ \hline 0.115\\ \hline 0.3275 \pm 0.0046\\ \hline 0.2284 \pm 0.0188\\ \hline 41.2249 \pm 0.0376\\ \hline 15.2649 \pm 0.036\\ \hline 1.5912 \pm 0.0216\\ \hline 0.0156 \pm 0.0036\\ \hline 1.5912 \pm 0.0216\\ \hline 0.7829 \pm 0.0003\\ \hline 0.3448 \pm 0.0001\\ \hline 0.2827 \pm 0.0037\\ \hline 0.3112 \pm 0.0017\\ \hline 0.0358 \pm 0.0000\\ \hline 0.3712 \pm 0.0000\\ \hline 0.3757 \pm 0.0000\\ \hline 0.3275 \pm 0.0000\\ \hline 1.2837 \pm 0.0000\\ \hline 0.3275 \pm 0.0000\\ \hline 1.281 \pm 0.0000\\ \hline 0.3275 \pm 0.0000\\ \hline 1.281 \pm 0.0000\\ \hline 1.281 \pm 0.0000\\ \hline 1.237 \pm 0.0000\\ \hline 1.2014 \pm 0.0000\\ \hline 1.6021 \pm 0.0000\\ \hline 0.348 \pm 0.0000\\ \hline 0.348 \pm 0.0000\\ \hline 0.348 \pm 0.0000\\ \hline 0.348 \pm 0.0000\\ \hline 0.2375 \pm 0.0000\\ \hline 0.2375 \pm 0.0000\\ \hline 0.2184 \pm 0.0000\\ \hline 0.2375 \pm 0.0000\\ \hline 0.2375 \pm 0.0000\\ \hline 0.2381 \pm 0.0000\\ \hline 0.2381 \pm 0.0000\\ \hline 0.2398 \pm 0.0000\\ \hline 0.2308 \pm 0.0000\\ \hline 0.2410 $
$\begin{tabular}{lllllllllllllllllllllllllllllllllll$	$\begin{array}{c} {\rm KM} \\ \hline {\rm 3.6702 \pm 0.1250} \\ 3.6702 \pm 0.1250 \\ 0.5617 \pm 0.0153 \\ 0.0184 \pm 0.0038 \\ 0.8269 \pm 0.0287 \\ 0.0924 \pm 0.0127 \\ 0.3804 \pm 0.0224 \\ 0.0187 \\ 0.0924 \pm 0.0189 \\ 0.4522 \pm 0.0789 \\ 0.4522 \pm 0.0789 \\ 0.2544 \pm 0.0030 \\ 2.0035 \pm 0.0120 \\ 1.1935 \pm 0.3724 \\ 0.3000 \pm 0.0168 \\ 0.1508 \pm 0.0278 \\ 41.1859 \pm 1.4855 \\ 14.8197 \pm 1.7981 \\ 0.0322 \pm 0.0136 \\ 1.6531 \pm 0.0813 \\ 0.06911 \pm 0.0509 \\ 0.3670 \pm 0.0125 \\ 0.2808 \pm 0.0238 \\ 0.3006 \pm 0.0238 \\ 0.3006 \pm 0.0238 \\ 0.3006 \pm 0.0029 \\ \hline {\rm FCM} \\ \hline {\rm 4.0995 \pm 0.0781} \\ 0.5964 \pm 0.0012 \\ 0.0720 \pm 0.0045 \\ 0.3719 \pm 0.0045 \\ 0.2672 \pm 0.0169 \\ 0.2672 \pm 0.0058 \\ 0.2694 \pm 0.0033 \\ 0.2672 \pm 0.0045 \\ 0.1781 \pm 0.0054 \\ 0.2094 \pm 0.0055 \\ 47.7023 \pm 1.7305 \\ 18.3786 \pm 1.6131 \\ 0.0456 \pm 0.0042 \\ 0.4750 \pm 0.0763 \\ 0.1475 \pm 0.0043 \\ 0.1378 \pm 0.0103 \\ \hline {\rm 0.1378 \pm 0.0103} \\ \hline {\rm 0.1378 \pm 0.0103} \\ \hline {\rm 0.0045} \\ 0.1378 \pm 0.0103 \\ \hline {\rm 0.0045} \\ 0.1378 \pm 0.0103 \\ \hline {\rm 0.0045} \\ 0.1378 \pm 0.0103 \\ \hline {\rm 0.0045} \\ 0.0045 \\ 0.1378 \pm 0.0103 \\ \hline {\rm 0.0045} \\ 0.0045 \\ 0.0045 \\ 0.0045 \\ 0.0045 \\ 0.0137 \pm 0.0045 \\ 0.0045$	$\begin{array}{r} {\rm KM} ++ \\ 3.6396 \pm 0.1102 \\ 0.5549 \pm 0.0114 \\ 0.0168 \pm 0.0025 \\ 0.8398 \pm 0.0231 \\ 0.0867 \pm 0.0113 \\ 0.0867 \pm 0.0113 \\ 0.0867 \pm 0.013 \\ 0.2548 \pm 0.0019 \\ 2.0236 \pm 0.0852 \\ 1.0997 \pm 0.1915 \\ 0.3023 \pm 0.0167 \\ 0.1571 \pm 0.0299 \\ 1.8175 \pm 1.4292 \\ 15.7846 \pm 1.8157 \\ 0.0311 \pm 0.0116 \\ 1.6543 \pm 0.033 \\ 0.0106 \\ 0.2849 \pm 0.023 \\ 0.03639 \pm 0.0106 \\ 0.2849 \pm 0.0223 \\ 0.3024 \pm 0.0304 \\ 0.0893 \pm 0.0204 \\ \hline {\rm MEC} \\ \hline {\rm 5}.7692 \pm 0.4605 \\ 0.6727 \pm 0.0235 \\ 0.0730 \pm 0.0137 \\ 0.0313 \pm 0.0116 \\ 0.1350 \pm 0.0234 \\ 0.0283 \pm 0.0204 \\ \hline {\rm MEC} \\ \hline {\rm 5}.7692 \pm 0.4605 \\ 0.6727 \pm 0.0235 \\ 0.0730 \pm 0.0137 \\ 0.0302 \pm 0.0233 \\ 0.0302 \pm 0.0510 \\ 0.1350 \pm 0.0253 \\ 2.0753 \pm 0.4907 \\ 1.1546 \pm 0.6850 \\ 0.2988 \pm 0.0599 \\ 0.1152 \pm 0.0347 \\ {\rm 5}.26021 \pm 8.4753 \\ {\rm 3}.59067 \pm 10.626 \\ 1.4158 \pm 0.2782 \\ -0.3174 \pm 0.2081 \\ 0.6353 \pm 0.0255 \\ 0.1373 \pm 0.0164 \\ 0.0587 \pm 0.0249 \\ \hline \end{array}$	$\begin{tabular}{ c c c c c } \hline PKM \\ \hline 3.4673 \pm 0.0081 \\ 0.5519 \pm 0.0020 \\ 0.0152 \pm 0.0003 \\ 0.8334 \pm 0.0030 \\ 0.0938 \pm 0.0014 \\ 0.3555 \pm 0.0005 \\ 0.4318 \pm 0.0280 \\ 0.2575 \pm 0.0002 \\ 2.1704 \pm 0.0073 \\ 0.9863 \pm 0.0381 \\ 0.03031 \pm 0.0016 \\ 0.1619 \pm 0.0106 \\ 39.6807 \pm 0.5807 \\ 15.4603 \pm 0.1819 \\ 0.0301 \pm 0.0061 \\ 1.5892 \pm 0.0337 \\ 0.3467 \pm 0.0038 \\ 0.3467 \pm 0.0008 \\ 0.2726 \pm 0.0043 \\ 0.3467 \pm 0.0030 \\ 0.0927 \pm 0.0043 \\ 0.3627 \pm 0.0040 \\ 0.0927 \pm 0.0040 \\ 0.0457 \pm 0.0667 \\ 0.1488 \pm 0.0297 \\ 0.3676 \pm 0.0401 \\ 0.3584 \pm 0.0401 \\ 0.3231 \pm 0.0095 \\ 1.2087 \pm 0.0414 \\ 0.1021 \pm 0.0166 \\ 5.0.150 \pm 5.3085 \\ 8.6801 \pm 1.8138 \\ 0.0513 \pm 0.1483 \\ 0.0513 \pm 0.1483 \\ 0.0513 \pm 0.0441 \\ 0.2673 \pm 0.0445 \\ 0.2673 \pm 0.0445 \\ 0.2673 \pm 0.0445 \\ 0.0281 \\ 0.0281 \\ 0.0485 \\ 0.0281 \\ 0.0485 \\ 0.0281 \\ 0.0445 \\ 0.0281 \\ 0.0045 \\ 0.0281 \\ 0.0445 \\ 0.0281 \\ 0.0445 \\ 0.0281 \\ 0.0445 \\ 0.0281 \\ 0.0445 \\ 0.0281 \\ 0.0445 \\ 0.0281 \\ 0.0445 \\ 0.0281 \\ 0.0455 \\ 0.0281 \\ 0.0445 \\ 0.0281 \\ 0.0445 \\ 0.0281 \\ 0.0445 \\ 0.0281 \\ 0.0445 \\ 0.0281 \\ 0.0445 \\ 0.0281 \\ 0.0445 \\ 0.0281 \\ 0.0445 \\ 0.0281 \\ 0.0445 \\ 0.0281 \\ 0.0281 \\ 0.0445 \\ 0.0281 \\ 0.0281 \\ 0.0445 \\ 0.0281 \\ 0.0281 \\ 0.0445 \\ 0.0281 \\ 0.0445 \\ 0.0281 \\ 0.0281 \\ 0.0445 \\ 0.0281 \\ 0.0445 \\ 0.0281 \\ 0.0281 \\ 0.0445 \\ 0.0281 \\ 0.0445 \\ 0.0281 \\ 0.0445 \\ 0.0281 \\ 0.0281 \\ 0.0445 \\ 0.0281 \\ 0.0281 \\ 0.0445 \\ 0.0281 \\ 0.0445 \\ 0.0281 \\ 0.0445 \\ 0.0281 \\ 0.0445 \\ 0.0281 \\ 0.0445 \\ 0.0281 \\ 0.0445 \\ 0.0281 \\ 0.0281 \\ 0.0445 \\ 0.0281 \\ 0.0445 \\ 0.0281 \\ 0.0445 \\ 0.0281 \\ 0.0445 \\ 0.0281 \\ 0.0455 \\ 0.0281 \\ 0.0455 \\ 0.0481 \\ 0.0281 \\ 0.0445 \\ 0.0281 \\ 0.0445 \\ 0.0281 \\ 0.0445 \\ 0.0281 \\ 0.0445 \\ 0.0281 \\ 0.0445 \\ 0.0281 \\ 0.0445 \\ 0.0281 \\ 0.0445 \\ 0.0445 \\ 0.0445 \\ 0.0281 \\ 0.0445 \\ 0.0445 \\ 0.0281 \\ 0.0445 \\ 0.0281 \\ 0.0445 \\ 0.0$	$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	$\begin{array}{c} & SC \\ \hline SC \\ \hline 5.4244 \pm 0.1375 \\ 1.0070 \pm 0.0072 \\ 0.2305 \pm 0.0077 \\ -0.0002 \pm 0.0140 \\ 0.4955 \pm 0.0101 \\ -0.0002 \pm 0.0097 \\ 0.6521 \pm 0.0102 \\ 0.1493 \pm 0.0052 \\ 0.3086 \pm 0.0273 \\ 3.2132 \pm 0.6500 \\ 0.1608 \pm 0.0138 \\ 0.0163 \pm 0.0000 \\ 29.1643 \pm 1.4002 \\ 7.4846 \pm 0.2832 \\ 0.0161 \pm 0.0004 \\ 1.6824 \pm 0.0650 \\ -1.1803 \pm 0.1005 \\ 0.8404 \pm 0.0185 \\ 0.2874 \pm 0.0136 \\ 0.3835 \pm 0.0155 \\ 0.0917 \pm 0.0162 \\ \hline BFC \\ \times \\ $	$\begin{array}{r} \mbox{HC} & \\ \hline HC & \\ 3.5330 \pm 0.0000 & \\ 0.0168 \pm 0.0000 & \\ 0.0168 \pm 0.0000 & \\ 0.8260 \pm 0.0000 & \\ 0.8260 \pm 0.0000 & \\ 0.0255 \pm 0.0000 & \\ 0.02550 \pm 0.0000 & \\ 0.0303 \pm 0.0000 & \\ 0.046 \pm 0.0000 & \\ 0.0146 \pm 0.0000 & \\ 0.1513 \pm 0.0000 & \\ 0.3628 \pm 0.0000 & \\ 0.3614 \pm 0.0000 & \\ 0.1117 \pm 0.0000 & \\ 0.1117 \pm 0.0000 & \\ 0.1117 \pm 0.0000 & \\ 0.1179 \pm 0.0261 & \\ 0.4743 \pm 0.03492 & \\ 0.2580 \pm 0.0438 & \\ 0.1179 \pm 0.0261 & \\ 44.7456 \pm 6.3442 & \\ 1.58542 \pm 4.2921 & \\ 0.0459 \pm 0.0199 & \\ 1.6098 \pm 0.3075 & \\ 0.0836 \pm 0.1595 & \\ 0.0846 \pm 0.0325 & \\ \end{array}$	$\begin{array}{c} \hline CAPKM++2.0\\ \hline 3.4485 \pm 0.0007\\ \hline 0.5375 \pm 0.0014\\ \hline 0.0132 \pm 0.0002\\ \hline 0.8589 \pm 0.0012\\ \hline 0.0793 \pm 0.0008\\ \hline 0.3715 \pm 0.0008\\ \hline 0.3715 \pm 0.0008\\ \hline 0.3715 \pm 0.0008\\ \hline 0.3715 \pm 0.0048\\ \hline 0.0115\\ \hline 0.0002\\ \hline 1.577 \pm 0.0046\\ \hline 0.02284 \pm 0.0138\\ \hline 41.2249 \pm 0.0376\\ \hline 1.52649 \pm 0.0176\\ \hline 0.0156 \pm 0.0036\\ \hline 1.5912 \pm 0.0026\\ \hline 1.5912 \pm 0.0026\\ \hline 0.348 \pm 0.0001\\ \hline 0.2827 \pm 0.0037\\ \hline 0.3112 \pm 0.0031\\ \hline 0.0325 \pm 0.0001\\ \hline 0.3284 \pm 0.0000\\ \hline 0.3284 \pm 0.0000\\ \hline 0.3284 \pm 0.0000\\ \hline 0.3112 \pm 0.0031\\ \hline 0.0371 \pm 0.0000\\ \hline 0.8594 \pm 0.0000\\ \hline 0.03712 \pm 0.0000\\ \hline 0.03712 \pm 0.0000\\ \hline 0.3257 \pm 0.0000\\ \hline 0.2575 \pm 0.0000\\ \hline 0.2575 \pm 0.0000\\ \hline 0.3257 \pm 0.0000\\ \hline 0.3257 \pm 0.0000\\ \hline 0.3257 \pm 0.0000\\ \hline 0.328 \pm 0.0000\\ \hline 0.3293 \pm 0.0000\\ \hline 0.3293 \pm 0.0000\\ \hline 0.3294 \pm 0.0000\\ \hline 0.3448 \pm 0.0000\\ \hline 0.310 \pm 0.0000\\ \hline 0.310$

 TABLE III

 MEAN VALUES AND STANDARD DEVIATIONS OF INTERNAL AND EXTERNAL CLUSTER VALIDITY INDICES RESULTING FROM CAFCM, AND THIRTEEN BASELINES

 ON WQ-WHITE AND PAGEBLOCKS, WHERE N = 2 and M = 15 in CAPKM++2.0 and CAFCM on WQ-WHITE, and N = 2 and M = 5 in

 CAPKM++2.0 AND CAFCM ON PAGEBLOCKS

WQ-White	КМ	KM++	PKM	EWPKM	SC	НС	CAPKM++2.0
WGSS↓	24.1112 ± 0.2265	24.0518 ± 0.2140	24.1402 ± 0.0557	31.1401 ± 0.5426	26.7792 ± 0.5784	24.7211 ± 0.0000	$\underline{23.7983 \pm 0.0003}$
$\begin{array}{c} \text{MRI} \downarrow \\ \text{GPI} \downarrow \\ \text{BHGI} \uparrow \\ \text{CI} \downarrow \\ \text{TI} \uparrow \\ \text{DGI} \uparrow \\ \text{RI} \uparrow \\ \text{CHI} \uparrow \\ \text{RII} \uparrow \\ \text{WGI} \uparrow \\ \text{DI} \uparrow \\ \text{BHI} \uparrow \\ \text{PBMI} \uparrow \\ \text{DBI} \downarrow \\ \text{LSSRI} \uparrow \end{array}$	$\begin{array}{l} 0.6234 \pm 0.0049 \\ 0.0268 \pm 0.0011 \\ 0.7087 \pm 0.0111 \\ 0.1318 \pm 0.0048 \\ 0.3042 \pm 0.0100 \\ 0.0985 \pm 0.0304 \\ 0.1982 \pm 0.0045 \\ 1.2958 \pm 0.0215 \\ 1.2338 \pm 0.1081 \\ 0.2339 \pm 0.0061 \\ 0.0107 \pm 0.0032 \\ 0.0580 \pm 0.0017 \\ 0.0900 \pm 0.0008 \\ 1.7215 \pm 0.0582 \\ 1.7215 \pm 0.0582 \\ 0.2590 \pm 0.0166 \end{array}$	$\begin{array}{l} 0.6210 \pm 0.0041 \\ 0.0266 \pm 0.0010 \\ 0.7137 \pm 0.0095 \\ 0.1295 \pm 0.0041 \\ 0.3077 \pm 0.0090 \\ 0.0925 \pm 0.0236 \\ 0.0911 \pm 0.0040 \\ 1.3019 \pm 0.0180 \\ 1.2356 \pm 0.1258 \\ 0.0155 \pm 0.0052 \\ 0.0105 \pm 0.0051 \\ 0.0581 \pm 0.0010 \\ 0.0097 \pm 0.0051 \\ 0.0491 \pm 0.0283 \\ 1.7092 \pm 0.0605 \\ 0.2637 \pm 0.0146 \\ \end{array}$	$\begin{array}{l} 0.6218 \pm 0.0023 \\ 0.0261 \pm 0.0004 \\ 0.7091 \pm 0.0044 \\ 0.314 \pm 0.0019 \\ 0.3002 \pm 0.0021 \\ 0.0857 \pm 0.0294 \\ 0.1936 \pm 0.0005 \\ 1.2927 \pm 0.0054 \\ 1.2730 \pm 0.0420 \\ 0.2313 \pm 0.0012 \\ 0.0101 \pm 0.0029 \\ 0.0577 \pm 0.00044 \\ 0.0088 \pm 0.0003 \\ 0.0008 \pm 0.0033 \\ 0.0001 \pm 0.0726 \\ 1.7443 \pm 0.0134 \\ 0.2567 \pm 0.0042 \\ \end{array}$	$\begin{array}{l} 0.7862 \pm 0.0086 \\ 0.0568 \pm 0.0010 \\ 0.3820 \pm 0.0164 \\ 0.2658 \pm 0.0070 \\ 0.1639 \pm 0.0082 \\ 0.0788 \pm 0.0117 \\ 0.1918 \pm 0.0043 \\ 0.5167 \pm 0.0211 \\ 4.6374 \pm 0.6606 \\ 0.0372 \pm 0.0044 \\ 0.0105 \pm 0.0015 \\ 0.0822 \pm 0.0007 \\ 0.0043 \pm 0.0001 \\ 0.0642 \pm 0.0277 \\ 3.3640 \pm 0.2439 \\ -0.6611 \pm 0.0406 \end{array}$	$\begin{array}{l} 0.6990 \pm 0.0118 \\ 0.0684 \pm 0.0094 \\ 0.5778 \pm 0.0217 \\ 0.1825 \pm 0.0103 \\ 0.3277 \pm 0.0061 \\ 0.0724 \pm 0.0287 \\ 0.0187 \pm 0.0032 \\ 0.9218 \pm 0.0532 \\ 1.7116 \pm 0.6944 \\ 0.2095 \pm 0.0123 \\ 0.0079 \pm 0.0031 \\ 0.0501 \pm 0.0017 \\ \textbf{0.0187} \pm 0.0005 \\ 0.1812 \pm 0.4440 \\ 1.5007 \pm 0.0831 \\ -0.0832 \pm 0.0609 \end{array}$	$\begin{array}{l} 0.6672 \pm 0.0000 \\ 0.0409 \pm 0.0000 \\ 0.6272 \pm 0.0000 \\ 0.1638 \pm 0.0000 \\ 0.2339 \pm 0.0000 \\ 0.3741 \pm 0.0000 \\ 1.921 \pm 0.0000 \\ 1.0443 \pm 0.0000 \\ 0.1669 \pm 0.0000 \\ 0.01669 \pm 0.0000 \\ 0.0642 \pm 0.0000 \\ 0.0077 \pm 0.0000 \\ 0.0027 \pm 0.0000 \\ 0.0274 \pm 0.0000 \\ 0.0423 \pm 0.0000 \\ 0.0433 \pm 0.0000 \end{array}$	$\begin{array}{c} 0.6134 \pm 0.0003 \\ 0.0259 \pm 0.0001 \\ 0.7315 \pm 0.0007 \\ 0.1218 \pm 0.0003 \\ 0.3213 \pm 0.0003 \\ 0.0897 \pm 0.0177 \\ 0.2020 \pm 0.0001 \\ 1.3258 \pm 0.0000 \\ 1.0232 \pm 0.0355 \\ 0.2432 \pm 0.0001 \\ 0.0108 \pm 0.0021 \\ 0.0089 \pm 0.0001 \\ 0.0385 \pm 0.0001 \\ 0.0385 \pm 0.0001 \\ 0.0385 \pm 0.0000 \\ 0.0385 \pm 0.0000 \\ 0.0385 \pm 0.0000 \\ 0.0385 \pm 0.0040 \\ 0.2820 \pm 0.0000 \end{array}$
ACC↑ NMI↑ ARI↑	$\begin{array}{c} 2.1919 \pm 0.0206 \\ 0.1911 \pm 0.0110 \\ 0.0828 \pm 0.0026 \\ 0.0314 \pm 0.0014 \end{array}$	$\begin{array}{c} 2.1860 \pm 0.0181 \\ 0.1943 \pm 0.0110 \\ 0.0825 \pm 0.0022 \\ 0.0315 \pm 0.0014 \end{array}$	$\begin{array}{c} 2.1947 \pm 0.0052 \\ 0.1883 \pm 0.0028 \\ \underline{0.0833 \pm 0.0012} \\ 0.0314 \pm 0.0007 \end{array}$	$\begin{array}{c} 3.3182 \pm 0.0439 \\ 0.1778 \pm 0.0082 \\ 0.0531 \pm 0.0045 \\ 0.0173 \pm 0.0018 \end{array}$	$\begin{array}{c} 2.6203 \pm 0.0762 \\ 0.3136 \pm 0.0223 \\ 0.0762 \pm 0.0042 \\ 0.0411 \pm 0.0038 \end{array}$	$\begin{array}{c} 2.4613 \pm 0.0000 \\ 0.2201 \pm 0.0000 \\ 0.0695 \pm 0.0000 \\ 0.0315 \pm 0.0000 \end{array}$	$\frac{2.1635 \pm 0.0000}{0.2034 \pm 0.0009}$ $\frac{0.0809 \pm 0.0004}{0.0314 \pm 0.0002}$
WQ-White	FCM	MEC	FSC	2PFCM	BFC	KFCM	CAFCM
WGSS↓	30.3011 ± 0.2196	30.5183 ± 1.0614	34.1901 ± 0.8792	30.5788 ± 0.0000	39.0307 ± 0.8555	29.1012 ± 0.9733	23.7979 ± 0.0000
$\begin{array}{c} MRL\\ GPL\\ GPL\\ GPL\\ BHGI\\ CL\\ CL\\ CL\\ TL\\ CL\\ CL\\ RLI\\ RL$	$\begin{array}{l} 0.7324\pm 0.0012\\ 0.0651\pm 0.0031\\ 0.5026\pm 0.0019\\ 0.2174\pm 0.0004\\ 0.0447\pm 0.0271\\ 0.6882\pm 0.0054\\ 0.0682\pm 0.0023\\ 0.6882\pm 0.0227\\ 28.4805\pm 11.1635\\ 0.0526\pm 0.0040\\ 0.0046\pm 0.0027\\ 0.004\pm 0.0025\\ 0.004\pm 0.$	$\begin{array}{l} 0.7389 \pm 0.0080\\ 0.1110 \pm 0.0097\\ 0.5192 \pm 0.0151\\ 0.2180 \pm 0.0087\\ 0.3524 \pm 0.0087\\ 0.3524 \pm 0.0166\\ 0.0844 \pm 0.0662\\ 0.0688 \pm 0.0123\\ 6.2702 \pm 4.4866\\ 0.0678 \pm 0.0339\\ 0.0089 \pm 0.0070\\ 0.0561 \pm 0.0026\\ 0.0056 \pm 0.0026\\ 0.0564 \pm 0.028\\ 0.0664 \pm 0.3380\\ 0.3604 \pm 0.1396\\ 2.3661 \pm 0.3880\\ 0.6364 \pm 0.1396\\ 3.2871 \pm 0.1599 \end{array}$	$\begin{array}{l} 0.9225 \pm 0.0082 \\ 0.0857 \pm 0.0044 \\ 0.1354 \pm 0.0146 \\ 0.3760 \pm 0.0063 \\ 0.0603 \pm 0.0063 \\ 0.0476 \pm 0.0099 \\ 0.1106 \pm 0.0071 \\ 0.1728 \pm 0.0301 \\ 61.0821 \pm 18.5534 \\ 0.0067 \pm 0.0014 \\ 0.0067 \pm 0.0014 \\ 0.0067 \pm 0.0016 \\ 0.0072 \pm 0.0046 \\ 1.0825 \pm 0.0874 \\ 9.5955 \pm 0.9188 \\ -1.7714 \pm 0.1821 \\ 4.2932 \pm 0.1104 \\ \end{array}$	$\begin{array}{l} 0.7323 \pm 0.0000\\ 0.0661 \pm 0.0000\\ 0.532 \pm 0.0000\\ 0.2171 \pm 0.0000\\ 0.2597 \pm 0.0000\\ 0.2597 \pm 0.0000\\ 0.1658 \pm 0.0000\\ 0.7568 \pm 0.0000\\ 0.7568 \pm 0.0000\\ 0.0756 \pm 0.0000\\ 0.0066 \pm 0.0000\\ 0.0065 \pm 0.0000\\ 0.0057 \pm 0.0000\\ 0.0947 \pm 0.0000\\ 5.8677 \pm 0.0000\\ 2.9934 \pm 0.0000\\ 2.9934 \pm 0.0000 \end{array}$	$\begin{array}{l} 0.9606 \pm 0.0060 \\ 0.0773 \pm 0.0011 \\ 0.0703 \pm 0.0113 \\ 0.0703 \pm 0.0113 \\ 0.0703 \pm 0.0146 \\ 0.0004 \\ 0.0000 \pm 0.0047 \\ 0.0287 \pm 0.0046 \\ 0.0000 \pm 0.0049 \\ 0.0724 \pm 0.0118 \\ 303.0457 \pm 124.7866 \\ 0.0005 \pm 0.0020 \\ 0.0000 \pm 0.0000 \\ 0.0000 \pm 0.0000 \\ 0.0000 \pm 0.0002 \\ \infty \pm NaN \\ 22.1934 \pm 3.0747 \\ -2.6392 \pm 0.1691 \\ 4.6927 \pm 0.0516 \end{array}$	$\begin{array}{l} 0.7322\pm 0.0125\\ 0.0954\pm 0.0121\\ 0.5217\pm 0.0268\\ 0.2114\pm 0.0127\\ 0.3291\pm 0.0264\\ 0.0914\pm 0.0583\\ 0.1616\pm 0.0071\\ 0.7021\pm 0.0790\\ 3.4390\pm 1.3883\\ 0.038\pm 0.0228\\ 0.0100\pm 0.0064\\ 0.0590\pm 0.0054\\ 0.0037\pm 0.0014\\ 0.2875\pm 0.5703\\ 2.2322\pm 0.1841\\ 0.4159\pm 0.1070\\ 3.0302\pm 0.1278\\ \end{array}$	$\begin{array}{cccc} 0.6130 \pm 0.0000 \\ 0.0258 \pm 0.0000 \\ 0.7323 \pm 0.0000 \\ 0.7323 \pm 0.0000 \\ 0.1215 \pm 0.0000 \\ 0.3216 \pm 0.0000 \\ 0.2019 \pm 0.0000 \\ 1.0290 \pm 0.0000 \\ 1.0290 \pm 0.0000 \\ 1.0290 \pm 0.0000 \\ 0.0793 \pm 0.0000 \\ 0.0793 \pm 0.0000 \\ 0.0393 \pm 0.0000 \\ 0.0393 \pm 0.0000 \\ 1.6294 \pm 0.0000 \\ 1.6294 \pm 0.0000 \\ 2.454 \pm 0.0000 \\ 2.454 \pm 0.0000 \end{array}$
ACC↑ NMI↑	$\begin{array}{c} 0.2750 \pm 0.0082 \\ 0.0791 \pm 0.0006 \end{array}$	$\begin{array}{c} 0.4071 \pm 0.0319 \\ 0.0843 \pm 0.0064 \end{array}$	$\begin{array}{c} 0.1794 \pm 0.0078 \\ 0.0302 \pm 0.0036 \end{array}$	$\begin{array}{c} 0.2799 \pm 0.0000 \\ 0.0796 \pm 0.0000 \end{array}$	$\begin{array}{c} 0.1216 \pm 0.0034 \\ 0.0144 \pm 0.0016 \end{array}$	$\frac{0.3585\pm0.0366}{0.0789\pm0.0053}$	$\begin{array}{c} 0.2023 \pm 0.0000 \\ 0.0806 \pm 0.0000 \end{array}$
ARI↑	0.0452 ± 0.0023	0.0697 ± 0.0108	0.0098 ± 0.0016	0.0464 ± 0.0000	0.0042 ± 0.0008	0.0597 ± 0.0136	0.0311 ± 0.0000
ARI∱ PageBlocks	0.0452 ± 0.0023 KM	0.0697 ± 0.0108 KM++	0.0098 ± 0.0016 PKM	0.0464 ± 0.0000 EWPKM	0.0042 ± 0.0008 SC	$\frac{0.0597 \pm 0.0136}{\text{HC}}$	0.0311 ± 0.0000 CAPKM++2.0
ARI↑ PageBlocks WGSS↓	$\frac{0.0452 \pm 0.0023}{\text{KM}}$ 21.7169 \pm 0.3282	0.0697 ± 0.0108 KM++ 22.1370 ± 0.6964	$\frac{0.0098 \pm 0.0016}{\text{PKM}}$ $\frac{21.6463 \pm 0.0431}{\text{PKM}}$	0.0464 ± 0.0000 EWPKM 38.1295 ± 0.0053	$\frac{0.0042 \pm 0.0008}{\text{SC}}$ 24.9753 ± 0.0000	$\frac{0.0597 \pm 0.0136}{\text{HC}}$ $\frac{22.5422 \pm 0.0000}{\text{HC}}$	0.0311 ± 0.0000 CAPKM++2.0 21.5478 ± 0.0000
$\begin{array}{c} {\rm ARI}^{\uparrow} \\ \hline \\ \hline {\rm PageBlocks} \\ {\rm WGSS} \downarrow \\ \hline {\rm MRI} \downarrow \\ {\rm GPI} \downarrow \\ {\rm BHGI} \uparrow \\ {\rm CI} \downarrow \\ {\rm TI} \uparrow \\ {\rm DGI} \uparrow \\ {\rm RII} \uparrow \\ {\rm CHI} \uparrow \\ {\rm RTI} \downarrow \\ {\rm WGI} \uparrow \\ {\rm DI} \uparrow \\ {\rm BHI} \uparrow \\ {\rm BHI} \uparrow \\ {\rm DBI} \downarrow \\ {\rm LSSRI} \uparrow \\ {\rm TWI} \downarrow \\ \end{array}$	$\begin{array}{c} 0.0452 \pm 0.0023 \\ \hline \text{KM} \\ \hline 21.7169 \pm 0.3282 \\ 0.4072 \pm 0.0058 \\ 0.504 \pm 0.0019 \\ 0.7577 \pm 0.0172 \\ 0.0840 \pm 0.0055 \\ 0.4893 \pm 0.0231 \\ 0.0243 \pm 0.0068 \\ 0.2586 \pm 0.0086 \\ 0.2586 \pm 0.0086 \\ 0.2686 \pm 0.0043 \\ 0.6878 \pm 0.1753 \\ 0.404 \pm 0.0249 \\ 0.0025 \pm 0.0043 \\ 0.0025 \pm 0.0043 \\ 0.0025 \pm 0.0043 \\ 0.0025 \pm 0.0043 \\ 0.017 \pm 0.0125 \\ 0.118 \pm 0.0137 \\ 0.3369 \pm 0.1914 \\ 1.0248 \pm 0.0066 \\ 0.7359 \pm 0.0221 \\ 4.3434 \pm 0.0656 \\ \end{array}$	$\begin{array}{c} \textbf{0.0697} \pm \textbf{0.0108} \\ \hline \textbf{KM++} \\ \hline \textbf{22.1370} \pm 0.6964 \\ \textbf{0.4087} \pm 0.0072 \\ \textbf{0.0517} \pm 0.0033 \\ \textbf{0.0517} \pm 0.0033 \\ \textbf{0.0517} \pm 0.0054 \\ \textbf{0.0844} \pm 0.0055 \\ \textbf{0.0234} \pm 0.0221 \\ \textbf{0.0247} \pm 0.0068 \\ \textbf{0.2711} \pm 0.021 \\ \textbf{0.0247} \pm 0.0058 \\ \textbf{0.2714} \pm 0.0012 \\ \textbf{0.0744} \pm 0.0755 \\ \textbf{0.0034} \pm 0.0012 \\ \textbf{0.0794} \pm 0.0012 \\ \textbf{0.0794} \pm 0.0012 \\ \textbf{0.0794} \pm 0.0123 \\ \textbf{0.0794} \pm 0.0123 \\ \textbf{0.7077} \pm 0.1610 \\ \textbf{0.9943} \pm \textbf{0.1610} \\ \textbf{0.9943} \pm \textbf{0.0668} \\ \textbf{4.4274} \pm 0.1393 \\ \end{array}$	$\begin{array}{l} 0.0098 \pm 0.0016 \\ \hline \\ \hline PKM \\ \hline \\ 21.6463 \pm 0.0043 \\ 0.0504 \pm 0.0012 \\ 0.7533 \pm 0.0144 \\ 0.0852 \pm 0.0046 \\ 0.4821 \pm 0.0186 \\ 0.2565 \pm 0.0025 \\ 0.2073 \pm 0.0062 \\ 0.7428 \pm 0.1425 \\ 0.4821 \pm 0.0062 \\ 0.7428 \pm 0.1425 \\ 0.0025 \pm 0.0004 \\ 0.0025 \pm 0.0004 \\ 0.0025 \pm 0.0004 \\ 0.0281 \pm 0.0746 \\ 1.0267 \pm 0.0026 \\ 0.746 \pm 0.0029 \\ 0.746 \pm 0.0029 \\ 0.746 \pm 0.0029 \\ 0.746 \pm 0.0029 \\ 0.740 \pm 0.0029 \\ 0.0020 \\ 0.0000 \\ 0.0000 \\ 0.0000 \\ 0.0000 \\ 0.0000 \\ 0.0000 \\ 0.0000 \\ 0.0000 \\ 0.0000 \\ 0.0000 \\ 0.0000 \\ 0.00$	$\begin{array}{c} 0.0464 \pm 0.0000 \\ \hline {\rm EWPKM} \\ \hline 38.1295 \pm 0.0053 \\ 0.5264 \pm 0.0001 \\ 0.0892 \pm 0.0001 \\ 0.0198 \pm 0.0003 \\ 0.2051 \pm 0.0001 \\ 0.4247 \pm 0.0002 \\ 0.0098 \pm 0.0000 \\ 0.3121 \pm 0.0000 \\ 0.3121 \pm 0.0000 \\ 0.4247 \pm 0.0002 \\ 0.0258 \pm 0.0000 \\ 0.7824 \pm 0.0022 \\ 0.025 \pm 0.0000 \\ 0.0253 \pm 0.0000 \\ 0.0253 \pm 0.0000 \\ 0.173 \pm 0.0000 \\ 0.6293 \pm 0.0001 \\ 1.5361 \pm 0.0001 \\ 1.53517 \pm 0.0019 \\ \end{array}$	$\begin{array}{c} 0.0042 \pm 0.0008 \\ \hline \\ SC \\ \hline \\ 24.9753 \pm 0.0000 \\ 0.0797 \pm 0.0000 \\ 0.0797 \pm 0.0000 \\ 0.0327 \pm 0.0000 \\ 0.1327 \pm 0.0000 \\ 0.4545 \pm 0.0000 \\ 0.0456 \pm 0.0000 \\ 0.2491 \pm 0.0000 \\ 1.3952 \pm 0.0000 \\ 1.4506 \pm 0.0000 \\ 0.4250 \pm 0.0000 \\ 0.4250 \pm 0.0000 \\ 0.010 \pm 0.0000 \\ 0.010 \pm 0.0000 \\ 0.1108 \pm 0.0000 \\ 0.1108 \pm 0.0000 \\ 1.7756 \pm 0.0000 \\ 1.17756 \pm 0.0000 \\ 1.0918 \pm 0.0000 \\ 5.5982 \pm 0.0000 \\ \hline \end{array}$	$\begin{array}{l} \underline{0.0597 \pm 0.0136} \\ \hline \textbf{HC} \\ \hline 22.5422 \pm 0.0000 \\ 0.0547 \pm 0.0000 \\ 0.0547 \pm 0.0000 \\ 0.0583 \pm 0.0000 \\ 0.0588 \pm 0.0000 \\ 0.5102 \pm 0.0000 \\ 0.2541 \pm 0.0000 \\ 0.2541 \pm 0.0000 \\ 0.2541 \pm 0.0000 \\ 0.4269 \pm 0.0000 \\ 0.0057 \pm 0.0000 \\ 0.0058 \pm 0.0000 \\ 0.0058 \pm 0.0000 \\ 0.0058 \pm 0.0000 \\ 0.0072 \pm 0.0000 \\ 0.0073 \pm 0.0000 \\ 0.0478 \pm 0.0000 \\ 1.0082 \pm 0.0000 \\ 4.7475 \pm 0.0000 \\ 4.7475 \pm 0.0000 \end{array}$	$\begin{array}{c} 0.0311 \pm 0.0000 \\ \hline 0.0311 \pm 0.0000 \\ \hline CAPKM++2.0 \\ \hline \textbf{21.5478} \pm 0.0001 \\ \hline 0.0374 \pm 0.0001 \\ \hline 0.0476 \pm 0.0002 \\ \hline 0.07867 \pm 0.0002 \\ \hline 0.07857 \pm 0.0000 \\ \hline 0.0327 \pm 0.0000 \\ \hline 0.0327 \pm 0.0000 \\ \hline 0.1324 \pm 0.0000 \\ \hline 0.034 \pm 0.0000 \\ \hline 0.034 \pm 0.0000 \\ \hline 0.0324 \pm 0.0000 \\ \hline 0.0324 \pm 0.0000 \\ \hline 0.078 \pm 0.0000 \\ \hline 0.1324 \pm 0.0000 \\ \hline 0.1324 \pm 0.0000 \\ \hline 0.1790 \pm 0.0000 \\ \hline 0.0774 \pm 0.0000 \\ \hline 0.0774 \pm 0.0000 \\ \hline 0.0774 \pm 0.0000 \\ \hline 0.074 \pm 0.0000 \\ \hline 0.0000 \\ \hline 0.074 \pm 0.0000 \\ \hline 0.0000 \\ \hline 0.074 \pm 0.0000 \\ \hline 0.000 $
ARI↑ PageBlocks WGSS↓ MRI↓ GPI↓ BHGI↑ CI↓ DGI↑ RLI↑ DGI↑ RTI↓ WGI↑ DI↑ BHI↓ PBMI↑ XBI↓ DBI↓ LSSRI↑ TWI↓ ACC↑	$\begin{array}{c} 0.0452 \pm 0.0023 \\ \hline \text{KM} \\ \hline 21.7169 \pm 0.3282 \\ 0.4072 \pm 0.0058 \\ 0.0504 \pm 0.0019 \\ 0.577 \pm 0.0172 \\ 0.0840 \pm 0.0055 \\ 0.2586 \pm 0.0086 \\ 0.2586 \pm 0.0086 \\ 0.2586 \pm 0.0086 \\ 0.2687 \pm 0.0243 \\ 0.0025 \pm 0.0043 \\ 0.0025 \pm 0.0008 \\ 0.0017 \pm 0.0125 \\ 0.0025 \pm 0.0038 \\ 0.0118 \pm 0.0137 \\ 0.3369 \pm 0.1914 \\ 1.0248 \pm 0.0060 \\ 0.7359 \pm 0.0221 \\ 4.3434 \pm 0.0656 \\ 0.4152 \pm 0.0038 \\ 0.452 \pm 0.0038 \\ 0.454 \pm 0.0038 \\ 0$	$\begin{array}{r} \textbf{0.0697} \pm \textbf{0.0108} \\ \hline \textbf{KM++} \\ \hline \textbf{22.1370} \pm 0.6964 \\ \textbf{0.4087} \pm 0.0072 \\ \textbf{0.0517} \pm 0.0033 \\ \textbf{0.0517} \pm 0.0054 \\ \textbf{0.0840} \pm 0.0055 \\ \textbf{0.0241} \pm 0.0021 \\ \textbf{0.0247} \pm 0.0021 \\ \textbf{0.0247} \pm 0.0028 \\ \textbf{0.0211} \pm 0.021 \\ \textbf{0.0124} \pm 0.0012 \\ \textbf{0.0124} \pm 0.0012 \\ \textbf{0.0134} \pm 0.0012 \\ \textbf{0.0134} \pm 0.0012 \\ \textbf{0.0134} \pm 0.0012 \\ \textbf{0.0134} \pm 0.00275 \\ \textbf{0.1583} \pm 0.0829 \\ \textbf{0.2714} \pm 0.0488 \\ \textbf{4.274} \pm 0.1393 \\ \textbf{0.4822} \pm 0.0648 \\ \textbf{4.4274} \pm 0.0056 \\ \textbf{0.1545} \pm 0.0056 \\ \textbf{0.155} \pm 0.0056 \\ 0.155$	$\begin{array}{l} 0.0098 \pm 0.0016 \\ \hline \\ \hline PKM \\ \hline \\ \hline 21.6463 \pm 0.0431 \\ 0.4080 \pm 0.0046 \\ 0.0504 \pm 0.0012 \\ 0.7533 \pm 0.0144 \\ 0.0852 \pm 0.0046 \\ 0.2565 \pm 0.0025 \\ 0.2565 \pm 0.0025 \\ 0.20973 \pm 0.0062 \\ 0.7428 \pm 0.1425 \\ 0.4523 \pm 0.0197 \\ 0.0025 \pm 0.0004 \\ 0.0255 \pm 0.0004 \\ 0.0252 \pm 0.0046 \\ 0.029 \\ 4.3293 \pm 0.0086 \\ 0.4522 \pm 0.0463 \\ 0.4514 \pm 0.0007 \\ \hline \end{array}$	$\begin{array}{l} 0.0464 \pm 0.0000 \\ \hline {\rm EWPKM} \\ 38.1295 \pm 0.0053 \\ 0.5264 \pm 0.0001 \\ 0.6198 \pm 0.0001 \\ 0.6198 \pm 0.0003 \\ 0.2051 \pm 0.0001 \\ 0.4247 \pm 0.0002 \\ 0.0098 \pm 0.0000 \\ 0.3121 \pm 0.0000 \\ 0.3121 \pm 0.0000 \\ 0.4247 \pm 0.0002 \\ 0.4247 \pm 0.0002 \\ 0.4247 \pm 0.0002 \\ 0.5680 \pm 0.0000 \\ 0.3121 \pm 0.0000 \\ 0.3561 \pm 0.0000 \\ 0.0252 \pm 0.0000 \\ 0.2173 \pm 0.0000 \\ 0.2023 \pm 0.0000 \\ 0.5203 \pm 0.0001 \\ 0.5561 \pm 0.0001 \\ 0.55517 \pm 0.0019 \\ 0.5103 \pm 0.0001 \\ 0.1003 \pm 0.0001 \\ 0.1003 \pm 0.0001 \\ \end{array}$	$\begin{array}{c} 0.0042 \pm 0.0008 \\ \hline \\ SC \\ \hline \\ 24.9753 \pm 0.0000 \\ 0.4738 \pm 0.0000 \\ 0.0797 \pm 0.0000 \\ 0.6547 \pm 0.0000 \\ 0.1327 \pm 0.0000 \\ 0.4450 \pm 0.0000 \\ 0.2491 \pm 0.0000 \\ 0.2491 \pm 0.0000 \\ 0.4450 \pm 0.0000 \\ 0.4450 \pm 0.0000 \\ 0.13952 \pm 0.0000 \\ 0.4505 \pm 0.0000 \\ 0.108 \pm 0.0000 \\ 0.0010 \pm 0.0000 \\ 0.0554 \pm 0.0000 \\ 0.01108 \pm 0.0000 \\ 0.0331 \pm 0.0000 \\ 5.5982 \pm 0.0000 \\ 5.5982 \pm 0.0000 \\ 0.4733 \pm 0.0000 \\ 0.4733 \pm 0.0000 \\ 0.1735 \pm 0.0000 \\ 0.4733 \pm 0.0000 \\ 0.4733 \pm 0.0000 \\ 0.1737 \pm 0.0000 \\ 0.1737 \pm 0.0000 \\ 0.0131 \pm 0.0000 \\ 0.0131 \pm 0.0000 \\ 0.0131 \pm 0.0000 \\ 0.0131 \pm 0.0000 \\ 0.0000 \\ 0.0137 \pm 0.0000 \\ 0.0131 \pm 0.0000 \\$	$\begin{array}{l} \underline{0.0597 \pm 0.0136} \\ \hline \text{HC} \\ \hline 22.5422 \pm 0.0000 \\ 0.4167 \pm 0.0000 \\ 0.0547 \pm 0.0000 \\ 0.0547 \pm 0.0000 \\ 0.0549 \pm 0.0000 \\ 0.5102 \pm 0.0000 \\ 0.2541 \pm 0.0000 \\ 0.2541 \pm 0.0000 \\ 0.4269 \pm 0.0000 \\ 0.4269 \pm 0.0000 \\ 0.0427 \pm 0.0000 \\ 0.0427 \pm 0.0000 \\ 0.062 \pm 0.0000 \\ 0.0631 \pm 0.0000 \\ 4.7475 \pm 0.0000 \\ 0.5187 \pm 0.0000 \\ 0.5187 \pm 0.0000 \end{array}$	$\begin{array}{c} 0.0311 \pm 0.0000 \\ \hline 0.0311 \pm 0.0000 \\ \hline CAPKM++2.0 \\ \hline \textbf{21.5478} \pm 0.0001 \\ \hline 0.0374 \pm 0.0001 \\ \hline 0.0476 \pm 0.0002 \\ \hline 0.0785 \pm 0.0002 \\ \hline 0.0785 \pm 0.0002 \\ \hline 0.0327 \pm 0.0000 \\ \hline 0.2523 \pm 0.0000 \\ \hline 0.0327 \pm 0.0000 \\ \hline 0.0327 \pm 0.0000 \\ \hline 0.0342 \pm 0.0000 \\ \hline 0.0344 \pm 0.0000 \\ \hline 0.0784 \pm 0.0000 \\ \hline 0.1324 \pm 0.0000 \\ \hline $
$\begin{array}{c} \text{ARI}^{\uparrow} \\ \hline \textbf{PageBlocks} \\ \hline \textbf{WGSS} \downarrow \\ \hline \textbf{WGSS} \downarrow \\ \hline \textbf{MRI} \downarrow \\ \text{GPI} \downarrow \\ \textbf{BHGI}^{\uparrow} \\ \textbf{CI} \downarrow \\ \hline \textbf{DGI}^{\uparrow} \\ \textbf{CII}^{\uparrow} \\ \hline \textbf{DGI}^{\uparrow} \\ \textbf{RII}^{\uparrow} \\ \hline \textbf{DGI}^{\uparrow} \\ \textbf{BHI}^{\uparrow} \\ \hline \textbf{BHI}^{\uparrow} \\ \textbf{BHI}^{\uparrow} \\ \hline \textbf{BHI}^{\uparrow} \\ \textbf{DBI}^{\downarrow} \\ \textbf{LSSRI}^{\uparrow} \\ \hline \textbf{TWI} \downarrow \\ \hline \textbf{ACC}^{\uparrow} \\ \hline \textbf{NMI}^{\uparrow} \\ \textbf{ARI}^{\uparrow} \\ \end{array}$	$\begin{array}{c} 0.0452 \pm 0.0023 \\ \hline \text{KM} \\ \hline 21.7169 \pm 0.3282 \\ 0.4072 \pm 0.0058 \\ 0.0504 \pm 0.0019 \\ 0.577 \pm 0.0172 \\ 0.0840 \pm 0.0055 \\ 0.2586 \pm 0.0086 \\ 0.2586 \pm 0.0086 \\ 0.2586 \pm 0.0086 \\ 0.2687 \pm 0.0443 \\ 0.0678 \pm 0.1753 \\ 0.0678 \pm 0.0175 \\ 0.0025 \pm 0.0008 \\ 0.0617 \pm 0.0125 \\ 0.0118 \pm 0.0137 \\ 0.3369 \pm 0.0121 \\ 4.3434 \pm 0.0656 \\ 0.452 \pm 0.0039 \\ 0.0452 \pm 0.0039 \\ 0.0952 \pm 0.0096 \\ \hline \end{array}$	$\begin{array}{l} \textbf{0.0697} \pm \textbf{0.0108} \\ \hline \textbf{KM++} \\ \hline \textbf{22.1370} \pm 0.6964 \\ \textbf{0.4087} \pm 0.0072 \\ \textbf{0.0517} \pm 0.0033 \\ \textbf{0.7617} \pm 0.0154 \\ \textbf{0.0840} \pm 0.0055 \\ \textbf{0.0211} \pm 0.021 \\ \textbf{0.0247} \pm 0.0021 \\ \textbf{0.0247} \pm 0.0021 \\ \textbf{0.0247} \pm 0.021 \\ \textbf{0.034} \pm 0.021 \\ \textbf{0.034} \pm 0.021 \\ \textbf{0.034} \pm 0.021 \\ \textbf{0.034} \pm 0.0212 \\ \textbf{0.034} \pm 0.0212 \\ \textbf{0.034} \pm 0.0255 \\ \textbf{0.034} \pm 0.0255 \\ \textbf{0.0334} \pm 0.0458 \\ \textbf{0.2711} \pm 0.0275 \\ \textbf{0.034} \pm 0.0458 \\ \textbf{0.0258} \pm 0.1610 \\ \textbf{0.9943} \pm \textbf{0.0669} \\ \textbf{0.7077} \pm 0.0468 \\ \textbf{4.4274} \pm 0.1393 \\ \textbf{0.4822} \pm 0.0625 \\ \textbf{0.1545} \pm 0.0050 \\ \textbf{0.1545} \pm 0.0050 \\ \textbf{0.1629} \pm 0.0110 \\ \end{array}$	$\begin{array}{c} 0.0098 \pm 0.0016 \\ \hline \\ \hline PKM \\ \hline \\ \hline 21.6463 \pm 0.0431 \\ 0.4080 \pm 0.0046 \\ 0.0504 \pm 0.0012 \\ 0.7533 \pm 0.0144 \\ 0.0852 \pm 0.0046 \\ 0.2565 \pm 0.0025 \\ 0.2565 \pm 0.0025 \\ 0.2421 \pm 0.0186 \\ 0.2474 \pm 0.0186 \\ 0.2474 \pm 0.0186 \\ 0.0247 \pm 0.0025 \\ 0.04821 \pm 0.0197 \\ 0.0025 \pm 0.0004 \\ 0.0582 \pm 0.0041 \\ 0.0582 \pm 0.0041 \\ 0.0190 \pm 0.0100 \\ 0.2881 \pm 0.0746 \\ 1.0267 \pm 0.0021 \\ 0.7406 \pm 0.0029 \\ 4.3293 \pm 0.0086 \\ 0.4524 \pm 0.0047 \\ 0.0584 \\ 0.0254 \\ 0.0025 \\ 0.0010 \\ 0.0010 \\ 0.0010 \\ 0.0021 \\ 0.0025 \\ 0.0021 \\ 0.0005 \\ 0.0021 \\ 0.0154 \\ 0.0007 \\ 0.0914 \\ 0.0007 \\ \end{array}$	$\begin{array}{l} 0.0464 \pm 0.0000 \\ \hline {\rm EWPKM} \\ 38.1295 \pm 0.0053 \\ 0.5264 \pm 0.0001 \\ 0.6198 \pm 0.0001 \\ 0.6198 \pm 0.0003 \\ 0.2051 \pm 0.0001 \\ 0.4247 \pm 0.0002 \\ 0.0098 \pm 0.0000 \\ 0.3121 \pm 0.0000 \\ 0.3121 \pm 0.0000 \\ 0.4247 \pm 0.0002 \\ 0.0025 \pm 0.0000 \\ 0.3121 \pm 0.0000 \\ 0.3121 \pm 0.0000 \\ 0.5680 \pm 0.0000 \\ 0.3121 \pm 0.0000 \\ 0.5680 \pm 0.0000 \\ 0.5680 \pm 0.0000 \\ 0.2173 \pm 0.0000 \\ 0.0225 \pm 0.0000 \\ 0.5557 \pm 0.0019 \\ 0.7193 \pm 0.0001 \\ 0.1003 \pm 0.0001 \\ 0.0025 \pm 0.0000 \\ 0.0528 \pm 0.0001 \\ \end{array}$	$\begin{array}{c} 0.0042 \pm 0.0008 \\ \hline \\ SC \\ \hline \\ 24.9753 \pm 0.0000 \\ 0.4738 \pm 0.0000 \\ 0.0797 \pm 0.0000 \\ 0.6547 \pm 0.0000 \\ 0.1327 \pm 0.0000 \\ 0.4450 \pm 0.0000 \\ 0.2491 \pm 0.0000 \\ 0.2491 \pm 0.0000 \\ 1.3952 \pm 0.0000 \\ 0.4550 \pm 0.0000 \\ 0.010 \pm 0.0000 \\ 0.0010 \pm 0.0000 \\ 0.0554 \pm 0.0000 \\ 0.01108 \pm 0.0000 \\ 0.0331 \pm 0.0000 \\ 1.0918 \pm 0.0000 \\ 5.5982 \pm 0.0000 \\ 0.4733 \pm 0.0000 \\ 0.1737 \pm 0.0000 \\ 0.0386 \pm 0.0000 \\ \hline \end{array}$	$\begin{array}{l} \underline{0.0597 \pm 0.0136} \\ \hline \text{HC} \\ \hline 22.5422 \pm 0.0000 \\ 0.4167 \pm 0.0000 \\ 0.0547 \pm 0.0000 \\ 0.0547 \pm 0.0000 \\ 0.0899 \pm 0.0000 \\ 0.5102 \pm 0.0000 \\ 0.5102 \pm 0.0000 \\ 0.2541 \pm 0.0000 \\ 0.2541 \pm 0.0000 \\ 0.4269 \pm 0.0000 \\ 0.0426 \pm 0.0000 \\ 0.0578 \pm 0.0000 \\ 0.5178 \pm 0.0000 \\ 0.1578 \pm 0.0000 \\ 0.1578 \pm 0.0000 \\ 0.1526 \pm 0.0000 \\ 0.1526 \pm 0.0000 \\ \end{array}$	$\begin{array}{c} 0.0311 \pm 0.0000 \\ \hline 0.0311 \pm 0.0000 \\ \hline \text{CAPKM++2.0} \\ \hline \textbf{21.5478} \pm 0.0001 \\ \hline 0.0476 \pm 0.0002 \\ \hline 0.07867 \pm 0.0002 \\ \hline 0.07857 \pm 0.0002 \\ \hline 0.07857 \pm 0.0000 \\ \hline 0.2523 \pm 0.0000 \\ \hline 0.2523 \pm 0.0000 \\ \hline 0.2523 \pm 0.0000 \\ \hline 0.1114 \pm 0.0000 \\ \hline 0.4168 \pm 0.0003 \\ \hline 0.0786 \pm 0.0000 \\ \hline 0.0786 \pm 0.0000 \\ \hline 0.074 \pm 0.0000 \\ \hline 0.1324 \pm 0.0000$
ARI [↑] PageBlocks WGSS↓ MRI↓ GPI↓ BHGI↑ CI↓ TI↑ DGI↑ RLI↑ CHI↑ RTI↓ WGI↑ DI↑ BHI↑ PBMI↑ DBI↓ LSSRI↑ TWI↓ ARC↑ NMI↑ ARI↑ PageBlocks	$\begin{array}{c} 0.0452 \pm 0.0023 \\ \hline \text{KM} \\ \hline 21.7169 \pm 0.3282 \\ 0.4072 \pm 0.0058 \\ 0.504 \pm 0.0019 \\ 0.577 \pm 0.0172 \\ 0.0840 \pm 0.0055 \\ 0.2586 \pm 0.0086 \\ 0.2586 \pm 0.0086 \\ 0.2586 \pm 0.0086 \\ 0.2687 \pm 0.0443 \\ 0.0678 \pm 0.1753 \\ 0.6878 \pm 0.1753 \\ 0.6878 \pm 0.1753 \\ 0.6878 \pm 0.0249 \\ 0.0025 \pm 0.0008 \\ 0.0617 \pm 0.0125 \\ 0.0025 \pm 0.0008 \\ 0.0617 \pm 0.0125 \\ 0.0399 \pm 0.021 \\ 4.3434 \pm 0.0656 \\ 0.4116 \pm 0.0588 \\ 0.1529 \pm 0.0039 \\ 0.0952 \pm 0.0039 \\ 0.0952 \pm 0.0039 \\ 0.0952 \pm 0.0039 \\ \hline \end{array}$	$\begin{array}{c} \textbf{0.0697} \pm \textbf{0.0108} \\ \hline \textbf{KM++} \\ \hline \textbf{22.1370} \pm 0.6964 \\ \textbf{0.4087} \pm 0.0072 \\ \textbf{0.0517} \pm 0.0033 \\ \textbf{0.7617} \pm 0.0154 \\ \textbf{0.0840} \pm 0.0055 \\ \textbf{0.0221} \pm 0.0221 \\ \textbf{0.0247} \pm 0.0021 \\ \textbf{0.0247} \pm 0.0021 \\ \textbf{0.0247} \pm 0.021 \\ \textbf{0.034} \pm 0.021 \\ \textbf{0.034} \pm 0.0212 \\ \textbf{0.1583} \pm 0.0829 \\ \textbf{0.285} \pm 0.1610 \\ \textbf{0.9943} \pm 0.0669 \\ \textbf{0.7077} \pm 0.0468 \\ \textbf{4.4274} \pm 0.1393 \\ \textbf{0.4822} \pm 0.0665 \\ \textbf{0.1545} \pm 0.0050 \\ \textbf{0.155} \pm 0.0050 \\ $	$\begin{array}{l} 0.0098 \pm 0.0016 \\ \hline 0.0098 \pm 0.0016 \\ \hline PKM \\ \hline 21.6463 \pm 0.0431 \\ 0.4080 \pm 0.0042 \\ 0.0504 \pm 0.0012 \\ 0.7533 \pm 0.0144 \\ 0.0832 \pm 0.0046 \\ 0.0247 \pm 0.0036 \\ 0.2565 \pm 0.0025 \\ 0.2073 \pm 0.0062 \\ 0.7428 \pm 0.1425 \\ 0.0255 \pm 0.0004 \\ 0.4523 \pm 0.0197 \\ 0.0025 \pm 0.0004 \\ 0.0582 \pm 0.0041 \\ 0.0582 \pm 0.0041 \\ 0.0746 \pm 0.0029 \\ 4.3293 \pm 0.0086 \\ 0.4222 \pm 0.0463 \\ 0.4514 \pm 0.0007 \\ 0.0914 \pm 0.0067 \\ \hline FSC \\ \hline \end{array}$	$\begin{array}{l} 0.0464 \pm 0.0000 \\ \hline {\rm EWPKM} \\ 38.1295 \pm 0.0053 \\ 0.5264 \pm 0.0001 \\ 0.6198 \pm 0.0001 \\ 0.6198 \pm 0.0003 \\ 0.2051 \pm 0.0001 \\ 0.4247 \pm 0.0002 \\ 0.0098 \pm 0.0000 \\ 0.3121 \pm 0.0000 \\ 0.3121 \pm 0.0000 \\ 0.4247 \pm 0.0002 \\ 0.0025 \pm 0.0000 \\ 0.3123 \pm 0.0000 \\ 0.3123 \pm 0.0000 \\ 0.3123 \pm 0.0000 \\ 0.2173 \pm 0.0000 \\ 0.2173 \pm 0.0000 \\ 0.0225 \pm 0.0000 \\ 0.5657 \pm 0.0000 \\ 0.5557 \pm 0.0019 \\ 0.7193 \pm 0.0001 \\ 0.1003 \pm 0.0001 \\ 0.0528 \pm 0.0001 \\ 2PFCM \\ \hline \end{array}$	$\begin{array}{c} 0.0042 \pm 0.0008 \\ \hline \\ SC \\ \hline \\ 24.9753 \pm 0.0000 \\ 0.4738 \pm 0.0000 \\ 0.0797 \pm 0.0000 \\ 0.6547 \pm 0.0000 \\ 0.1327 \pm 0.0000 \\ 0.4450 \pm 0.0000 \\ 0.2491 \pm 0.0000 \\ 0.2491 \pm 0.0000 \\ 0.4505 \pm 0.0000 \\ 0.4505 \pm 0.0000 \\ 0.010 \pm 0.0000 \\ 0.01054 \pm 0.0000 \\ 0.0554 \pm 0.0000 \\ 0.01108 \pm 0.0000 \\ 0.01108 \pm 0.0000 \\ 0.0331 \pm 0.0000 \\ 5.5982 \pm 0.0000 \\ 5.5982 \pm 0.0000 \\ 0.4733 \pm 0.0000 \\ 0.1737 \pm 0.0000 \\ 0.03866 \pm 0.0000 \\ \hline \end{array}$	$\begin{array}{l} 0.0597 \pm 0.0136 \\ \hline \text{HC} \\ \hline 22.5422 \pm 0.0000 \\ 0.4167 \pm 0.0000 \\ 0.0547 \pm 0.0000 \\ 0.0547 \pm 0.0000 \\ 0.0899 \pm 0.0000 \\ 0.5102 \pm 0.0000 \\ 0.5102 \pm 0.0000 \\ 0.2541 \pm 0.0000 \\ 0.2541 \pm 0.0000 \\ 0.4269 \pm 0.0000 \\ 0.4269 \pm 0.0000 \\ 0.086 \pm 0.0000 \\ 0.086 \pm 0.0000 \\ 0.086 \pm 0.0000 \\ 0.0623 \pm 0.0000 \\ 0.0673 \pm 0.0000 \\ 0.0623 \pm 0.0000 \\ 0.0578 \pm 0.0000 \\ 0.5178 \pm 0.0000 \\ 0.1578 \pm 0.0000 \\ 0.1578 \pm 0.0000 \\ 0.1578 \pm 0.0000 \\ 0.1526 \pm 0.0000 \\ 0.00$	$\begin{array}{c} 0.0311 \pm 0.0000 \\ \hline 0.0311 \pm 0.0000 \\ \hline CAPKM++2.0 \\ \hline \textbf{21.5478} \pm 0.0001 \\ \hline 0.374 \pm 0.0001 \\ \hline 0.0476 \pm 0.0002 \\ \hline 0.0787 \pm 0.0002 \\ \hline 0.0787 \pm 0.0002 \\ \hline 0.0232 \pm 0.0000 \\ \hline 0.2523 \pm 0.0000 \\ \hline 0.2523 \pm 0.0000 \\ \hline 0.2622 \pm 0.0000 \\ \hline 0.2622 \pm 0.0000 \\ \hline 0.114 \pm 0.0000 \\ \hline 0.4168 \pm 0.0003 \\ \hline 0.078 \pm 0.0000 \\ \hline 0.0774 \pm 0.0000 \\ \hline 0.1324 \pm 0.0000 \\ \hline 0.1$
ARI↑ PageBlocks WGSS↓ MRI↓ GPI↓ BHGI↑ CI↓ TI↑ CI↓ TI↑ CHI↑ CHI↑ RTI↓ WGI↑ DG↑ BHI↑ PBHI↑ XBI↓ DBI↓ LSSRI↑ TWI↓ ARI↑ PageBlocks WGSS↓ MRU	$\begin{array}{r} 0.0452 \pm 0.0023 \\ \hline \text{KM} \\ \hline 21.7169 \pm 0.3282 \\ 0.4072 \pm 0.0058 \\ 0.504 \pm 0.0019 \\ 0.7577 \pm 0.0172 \\ 0.0840 \pm 0.0055 \\ 0.2840 \pm 0.0055 \\ 0.2840 \pm 0.0031 \\ 0.0489 \pm 0.0231 \\ 0.0489 \pm 0.0231 \\ 0.0489 \pm 0.0443 \\ 0.6878 \pm 0.1753 \\ 0.6878 \pm 0.1753 \\ 0.0678 \pm 0.0125 \\ 0.0025 \pm 0.0008 \\ 0.0617 \pm 0.0125 \\ 0.0125 \pm 0.0008 \\ 0.0617 \pm 0.0125 \\ 0.0137 \\ 0.3369 \pm 0.1914 \\ 1.0248 \pm 0.0600 \\ 0.7359 \pm 0.0221 \\ 4.3434 \pm 0.0658 \\ 0.4416 \pm 0.0588 \\ 0.1529 \pm 0.0039 \\ 0.0952 \pm 0.0096 \\ \hline \text{FCM} \\ 21.8530 \pm 0.0000 \\ \hline 0.4022 \pm 0.0000 \\ \hline \end{array}$	$\begin{array}{l} \textbf{0.0697} \pm \textbf{0.0108} \\ \hline \textbf{KM} ++ \\ \hline \textbf{22.1370} \pm 0.6964 \\ \textbf{0.4087} \pm 0.0072 \\ \textbf{0.0517} \pm 0.0033 \\ \textbf{0.7617} \pm 0.0154 \\ \textbf{0.0814} \pm 0.0055 \\ \textbf{0.0221} \pm 0.0221 \\ \textbf{0.0247} \pm 0.0021 \\ \textbf{0.0247} \pm 0.0021 \\ \textbf{0.0247} \pm 0.0021 \\ \textbf{0.0231} \pm 0.0231 \\ \textbf{0.0231} \pm 0.0231 \\ \textbf{0.0334} \pm 0.0012 \\ \textbf{0.0734} \pm 0.0275 \\ \textbf{0.01583} \pm 0.0689 \\ \textbf{0.7077} \pm 0.0468 \\ \textbf{4.4274} \pm 0.1393 \\ \textbf{0.4582} \pm 0.0669 \\ \textbf{0.1545} \pm 0.0050 \\ \textbf{0.1545} \pm 0.0050 \\ \textbf{0.1545} \pm 0.0050 \\ \textbf{0.1522} \pm 0.0050 \\ \textbf{0.1529} \pm 0.0110 \\ \textbf{MEC} \\ \hline \textbf{34.2909} \pm 2.9662 \\ \textbf{0.0777} \\ \textbf{0.0933} \\ \textbf{0.0777} \\ \textbf{0.0933} \\ \textbf{0.0994} \\ \textbf{0.0050} \\ \textbf{0.1545} \\ \textbf{0.0050} \\ \textbf{0.0129} \\ \textbf{0.0110} \\ \textbf{MEC} \\ \hline \textbf{0.0777} \\ \textbf{0.0950} \\ \textbf{0.0050} \\ 0.$	$\begin{array}{l} 0.0098 \pm 0.0016 \\ \hline 0.0098 \pm 0.0016 \\ \hline PKM \\ \hline 21.6463 \pm 0.0431 \\ 0.4080 \pm 0.0042 \\ 0.0504 \pm 0.0012 \\ 0.7533 \pm 0.0144 \\ 0.0852 \pm 0.0046 \\ 0.2565 \pm 0.0025 \\ 0.2565 \pm 0.0025 \\ 0.27073 \pm 0.0062 \\ 0.7428 \pm 0.1425 \\ 0.7428 \pm 0.0197 \\ 0.0252 \pm 0.0004 \\ 0.0528 \pm 0.0041 \\ 0.0528 \pm 0.0041 \\ 0.090 \pm 0.0100 \\ 0.2881 \pm 0.0746 \\ 0.1090 \pm 0.0100 \\ 0.2881 \pm 0.0746 \\ 0.1090 \pm 0.0021 \\ 0.7406 \pm 0.0021 \\ 0.7406 \pm 0.0021 \\ 0.7406 \pm 0.0021 \\ 0.7406 \pm 0.0021 \\ 0.00914 \pm 0.0067 \\ \hline FSC \\ \hline 41.3223 \pm 1.18422 \\ 0.5920 \pm 0.0125 \\ 0.5920 \pm 0.0125$	$\begin{array}{l} 0.0464 \pm 0.0000 \\ \hline {\rm EWPKM} \\ 38.1295 \pm 0.0053 \\ 0.5264 \pm 0.0001 \\ 0.6198 \pm 0.0001 \\ 0.6198 \pm 0.0001 \\ 0.0892 \pm 0.0001 \\ 0.0198 \pm 0.0001 \\ 0.1247 \pm 0.0002 \\ 0.0098 \pm 0.0000 \\ 0.3121 \pm 0.0000 \\ 0.3121 \pm 0.0000 \\ 0.0225 \pm 0.0000 \\ 0.0258 \pm 0.0001 \\ 0.0557 \pm 0.0000 \\ 0.0528 \pm 0.0001 \\ 0.0528 \pm 0.0001 \\ 0.0528 \pm 0.0001 \\ 2PFCM \\ 21.8530 \pm 0.0000 \\ 0.4320 \pm 0.0000 \\$	$\begin{array}{r} 0.0042 \pm 0.0008 \\ \hline 8C \\ \hline 24.9753 \pm 0.0000 \\ 0.4738 \pm 0.0000 \\ 0.0797 \pm 0.0000 \\ 0.1327 \pm 0.0000 \\ 0.1327 \pm 0.0000 \\ 0.4450 \pm 0.0000 \\ 0.2491 \pm 0.0000 \\ 0.2491 \pm 0.0000 \\ 0.4550 \pm 0.0000 \\ 0.4550 \pm 0.0000 \\ 0.0010 \pm 0.0000 \\ 0.0010 \pm 0.0000 \\ 0.0010 \pm 0.0000 \\ 0.01108 \pm 0.0000 \\ 0.01737 \pm 0.0000 \\ 0.1737 \pm 0.0000 \\ 0.1737 \pm 0.0000 \\ 0.0866 \pm 0.0000 \\ \hline 8FC \\ \hline 52.5699 \pm 4.7438 \\ 0.0570 \pm 0.2201 \\ \hline \end{array}$	$\begin{array}{l} \underline{0.0597 \pm 0.0136} \\ \hline \text{HC} \\ \hline 22.5422 \pm 0.0000 \\ 0.4167 \pm 0.0000 \\ 0.0547 \pm 0.0000 \\ 0.0547 \pm 0.0000 \\ 0.0589 \pm 0.0000 \\ 0.5102 \pm 0.0000 \\ 0.5102 \pm 0.0000 \\ 0.2541 \pm 0.0000 \\ 0.2541 \pm 0.0000 \\ 0.2541 \pm 0.0000 \\ 0.4269 \pm 0.0000 \\ 0.04269 \pm 0.0000 \\ 0.0426 \pm 0.0000 \\ 0.0686 \pm 0.0000 \\ 0.0686 \pm 0.0000 \\ 0.067 \pm 0.0000 \\ 0.162 \pm 0.0000 \\ 0.1578 \pm 0.0000 \\ 0.1578 \pm 0.0000 \\ 0.1578 \pm 0.0000 \\ 0.1578 \pm 0.0000 \\ 0.1526 \pm 0.0000 \\ 0.1578 \pm 0.0000 \\ 0.1526 \pm 0.0000 \\ 0.1578 \pm 0.0000 \\ 0.0000 \\ 0.1578 \pm 0.0000 \\ 0.00$	$\begin{array}{c} 0.0311 \pm 0.0000 \\ \hline 0.0311 \pm 0.0000 \\ \hline CAPKM++2.0 \\ \hline \textbf{21.5478} \pm 0.0001 \\ \hline 0.374 \pm 0.0001 \\ \hline 0.0476 \pm 0.0002 \\ \hline 0.07867 \pm 0.0002 \\ \hline 0.07867 \pm 0.0002 \\ \hline 0.0737 \pm 0.0000 \\ \hline 0.2523 \pm 0.0000 \\ \hline 0.2523 \pm 0.0000 \\ \hline 0.2622 \pm 0.0000 \\ \hline 0.2622 \pm 0.0000 \\ \hline 0.034 \pm 0.0000 \\ \hline 0.078 \pm 0.0001 \\ \hline 0.0034 \pm 0.0000 \\ \hline 0.078 \pm 0.0000 \\ \hline 0.078 \pm 0.0000 \\ \hline 0.1324 \pm 0.0000 \\ \hline 0.5291 \pm 0.0000 \\ \hline 0.1505 \pm 0.0001 \\ \hline 0.0$
ARI [↑] PageBlocks WGSS↓ MRI↓ GPI↓ BHGI↑ CI↓ TI↑ DGI↑ RII↑ PBHI↑ PBHI↑ PBHI↑ PBHI↑ ARI↑ PageBlocks WGSS↓ MRI↓ GPI↓ BHI↑ PAgeBlocks WGSS↓ MRI↓ GPI↓ BHI↑ CI↓ TWI↓ ACC↑	$\begin{array}{c} 0.0452 \pm 0.0023 \\ \hline 0.0452 \pm 0.0023 \\ \hline KM \\ \hline 21.7169 \pm 0.3282 \\ 0.4072 \pm 0.0058 \\ 0.0504 \pm 0.0019 \\ 0.577 \pm 0.0172 \\ 0.0840 \pm 0.0055 \\ 0.2586 \pm 0.0086 \\ 0.2586 \pm 0.0086 \\ 0.2586 \pm 0.0086 \\ 0.2586 \pm 0.0086 \\ 0.2687 \pm 0.0443 \\ 0.0025 \pm 0.0043 \\ 0.0025 \pm 0.0008 \\ 0.0617 \pm 0.0125 \\ 0.0025 \pm 0.0008 \\ 0.0617 \pm 0.0125 \\ 0.0039 \pm 0.0221 \\ 4.3434 \pm 0.0656 \\ 0.4116 \pm 0.0588 \\ 0.4118 \pm 0.0058 \\ 0.0392 \pm 0.0009 \\ 0.7359 \pm 0.0221 \\ 4.3434 \pm 0.0656 \\ 0.4116 \pm 0.0588 \\ 0.412 \pm 0.0000 \\ 0.452 \pm 0.0000 \\ 0.0532 \pm 0.0000 \\ 0.0322 \pm 0.0000 \\ 0.0352 \pm 0.0000 \\ 0.0352 \pm 0.0000 \\ 0.0352 \pm 0.0000 \\ 0.0354 \pm 0.0000 \\ 0.0354 \pm 0.0000 \\ 0.0354 \pm 0.0000 \\ 0.0355 \pm 0.0000 \\ 0.1047 \pm 0.0000 \\ 0.1047 \pm 0.0000 \\ 0.1046 \pm 0.0000 \\ 0.1047 \pm 0.0000 \\ 0.1047 \pm 0.0000 \\ 0.0354 \pm 0.0000 \\ 0.0352 \pm 0.0000 \\ 0.1047 \pm 0.0000 \\ 0.0352 \pm 0.0000 \\ 0.0352 \pm 0.0000 \\ 0.1047 \pm 0.0000 \\ 0.0352 \pm 0.0000 \\ 0.000 \\ 0.000 \pm 0.0000 \\ 0.0000 $	$\begin{array}{r} \textbf{0.0697} \pm \textbf{0.0108} \\ \hline \textbf{KM++} \\ \hline \textbf{22.1370} \pm 0.6964 \\ 0.4087 \pm 0.0072 \\ 0.0517 \pm 0.0033 \\ 0.7617 \pm 0.0154 \\ 0.00517 \pm 0.00154 \\ 0.00517 \pm 0.0021 \\ 0.0247 \pm 0.0026 \\ 0.2711 \pm 0.021 \\ 0.0247 \pm 0.0026 \\ 0.2711 \pm 0.021 \\ 0.034 \pm 0.0212 \\ 0.034 \pm 0.0125 \\ 0.034 \pm 0.0125 \\ 0.034 \pm 0.0275 \\ 0.034 \pm 0.0275 \\ 0.01583 \pm 0.0669 \\ 0.1583 \pm 0.0669 \\ 0.1583 \pm 0.0669 \\ 0.1584 \pm 0.0669 \\ 0.1584 \pm 0.0669 \\ 0.1584 \pm 0.0669 \\ 0.1545 \pm 0.0050 \\ 0.1318 \pm 0.0150 \\ 0.4501 \pm 0.0468 \\ 4.4274 \pm 0.1393 \\ 0.4822 \pm 0.0425 \\ 0.6254 \pm 0.0468 \\ 0.2499 \pm 0.0330 \\ 0.3122 \pm 0.0487 \\ 0.0219 \pm 0.0171 \\ 0.092 \pm 0.1130 \\ 0.023 \pm 0.0068 \\ 0.0194 \pm 0.0177 \\ 0.7092 \pm 0.1532 \\ 4.4488 \pm 7.6595 \\ 0.1496 \pm 0.0190 \\ 0.0202 \pm 0.0481 \\ 1.3735 \pm 5.1380 \\ 1.6489 \pm 0.5322 \\ -0.3494 \pm 0.2160 \\ 8.1256 \pm 0.6950 \\ 0.4894 + 0.0505 \\ \end{array}$	$\begin{array}{r} 0.0098 \pm 0.0016 \\ \hline 0.0098 \pm 0.0016 \\ \hline PKM \\ \hline 21.6463 \pm 0.0431 \\ 0.4080 \pm 0.0046 \\ 0.0504 \pm 0.0012 \\ 0.7533 \pm 0.0144 \\ 0.0852 \pm 0.0046 \\ 0.2565 \pm 0.0025 \\ 0.2565 \pm 0.0025 \\ 0.2472 \pm 0.0256 \\ 0.2565 \pm 0.0025 \\ 0.2421 \pm 0.0186 \\ 0.2472 \pm 0.0256 \\ 0.4523 \pm 0.0197 \\ 0.0025 \pm 0.0004 \\ 0.0582 \pm 0.0041 \\ 0.0582 \pm 0.0041 \\ 0.0282 \pm 0.0041 \\ 0.0282 \pm 0.0041 \\ 0.0284 \pm 0.0100 \\ 0.2881 \pm 0.0746 \\ 0.1026 \pm 0.0029 \\ 4.3293 \pm 0.0086 \\ 0.4222 \pm 0.0463 \\ 0.1514 \pm 0.0067 \\ \hline FSC \\ \hline 41.3223 \pm 1.1842 \\ 0.5970 \pm 0.0128 \\ 0.031 \pm 0.0095 \\ 0.5077 \pm 0.0268 \\ 0.2945 \pm 0.0085 \\ 0.2945 \pm 0.0085 \\ 0.2945 \pm 0.0085 \\ 0.2945 \pm 0.0085 \\ 0.1465 \pm 0.0123 \\ 0.0104 \pm 0.0123 \\ 0.0104 \pm 0.0123 \\ 0.0104 \pm 0.0123 \\ 0.0145 \pm 0.1211 \\ 0.0022 \pm 0.0080 \\ 1.1420 \pm 0.1116 \\ 0.08457 + 0.0116 \\ 0.8457 + 0.0116 \\ \hline \end{array}$	$\begin{array}{l} 0.0464 \pm 0.0000 \\ \hline {\rm EWPKM} \\ \hline {\rm 38,1295 \pm 0.0053} \\ 0.5264 \pm 0.0001 \\ 0.0892 \pm 0.0001 \\ 0.0892 \pm 0.0001 \\ 0.0892 \pm 0.0001 \\ 0.0892 \pm 0.0001 \\ 0.0198 \pm 0.0000 \\ 0.121 \pm 0.0000 \\ 0.121 \pm 0.0000 \\ 0.3121 \pm 0.0000 \\ 0.2173 \pm 0.0000 \\ 0.0225 \pm 0.0000 \\ 0.0252 \pm 0.0000 \\ 0.0522 \pm 0.0000 \\ 0.0524 \pm 0.0000 \\ 0.0524 \pm 0.0000 \\ 0.0554 \pm 0.0000 \\ 0.0254 \pm 0.0000 \\ 0.0254 \pm 0.0000 \\ 0.0254 \pm 0.0000 \\ 0.1244 \pm 0.0000 \\ 0.0555 \pm 0.0000 \\ 0.0352 \pm 0.0000 \\ 0.1047 \pm 0.0000 \\ 0.383 \pm 0.0000 \\ 0.383 \pm 0.0000 \\ 0.3575 \pm 0.0000 \\ 0.3575$	$\begin{array}{c} 0.0042 \pm 0.0008 \\ \hline \\ \hline \\ SC \\ \hline \\ 24.9753 \pm 0.0000 \\ 0.4738 \pm 0.0000 \\ 0.0797 \pm 0.0000 \\ 0.6547 \pm 0.0000 \\ 0.1327 \pm 0.0000 \\ 0.1327 \pm 0.0000 \\ 0.4450 \pm 0.0000 \\ 0.13952 \pm 0.0000 \\ 1.4506 \pm 0.0000 \\ 0.4250 \pm 0.0000 \\ 0.4250 \pm 0.0000 \\ 0.0010 \pm 0.0000 \\ 0.0010 \pm 0.0000 \\ 0.0118 \pm 0.0000 \\ 0.0118 \pm 0.0000 \\ 0.1775 \pm 0.0000 \\ 0.1775 \pm 0.0000 \\ 0.331 \pm 0.0000 \\ 0.331 \pm 0.0000 \\ 0.3311 \pm 0.0000 \\ 0.3311 \pm 0.0000 \\ 0.4793 \pm 0.0000 \\ 0.1737 \pm 0.0000 \\ 0.1737 \pm 0.0000 \\ 0.1737 \pm 0.0000 \\ 0.1737 \pm 0.0000 \\ 0.0866 \pm 0.0000 \\ 0.1737 \pm 0.0000 \\ 0.0866 \pm 0.0000 \\ 0.0000 \\ 0.0253 \pm 0.0179 \\ 0.0024 \pm 0.0011 \\ 1549.5546 \pm 1722.8200 \\ 0.0031 \pm 0.0075 \\ 0.0004 \pm 0.0021 \\ 0.0024 \pm 0.0041 \\ \infty \pm NaN \\ 3.3310 \pm 13.4587 \\ -3.4776 \pm 0.8038 \\ 12.8945 \pm 0.3714 \\ 0.2314 \pm 0.0170 \\ \end{array}$	$\begin{array}{l} 0.0597 \pm 0.0136 \\ \hline 0.0597 \pm 0.0136 \\ \hline \text{HC} \\ \hline 22.5422 \pm 0.0000 \\ 0.0547 \pm 0.0000 \\ 0.0547 \pm 0.0000 \\ 0.0547 \pm 0.0000 \\ 0.5102 \pm 0.0000 \\ 0.5102 \pm 0.0000 \\ 0.5102 \pm 0.0000 \\ 0.2541 \pm 0.0000 \\ 0.2541 \pm 0.0000 \\ 0.2541 \pm 0.0000 \\ 0.4269 \pm 0.0000 \\ 0.04269 \pm 0.0000 \\ 0.04269 \pm 0.0000 \\ 0.0625 \pm 0.0000 \\ 0.0162 \pm 0.0000 \\ 0.0625 \pm 0.0000 \\ 0.0162 \pm 0.0000 \\ 0.162 \pm 0.0000 \\ 0.1578 \pm 0.0000 \\ 0.0000 \\ 0.1578 \pm 0.0000 \\ 0.00$	$\begin{array}{c} 0.0311 \pm 0.0000 \\ \hline 0.0311 \pm 0.0000 \\ \hline CAPKM++2.0 \\ \hline \textbf{21.5478} \pm 0.0001 \\ \hline 0.374 \pm 0.0001 \\ \hline 0.0476 \pm 0.0002 \\ \hline 0.0785 \pm 0.0002 \\ \hline 0.0785 \pm 0.0002 \\ \hline 0.0735 \pm 0.0000 \\ \hline 0.2523 \pm 0.0000 \\ \hline 0.2523 \pm 0.0000 \\ \hline 0.2523 \pm 0.0000 \\ \hline 0.1114 \pm 0.0000 \\ \hline 0.4168 \pm 0.0003 \\ \hline 0.0747 \pm 0.0000 \\ \hline 0.0747 \pm 0.0000 \\ \hline 0.1324 \pm 0.0000 \\ \hline 0.1304 \pm 0.0000 \\ \hline 0.1304 \pm 0.0000 \\ \hline 0.1324 \pm 0.0000 \\ \hline 0.373 \pm 0.0000 \\ \hline 0.5291 \pm 0.0000 \\ \hline 0.5291 \pm 0.0000 \\ \hline 0.4754 \pm 0.0000 \\ \hline 0.373 \pm 0.0000 \\ \hline 0.373 \pm 0.0000 \\ \hline 0.0774 \pm 0.0000 \\ \hline 0.0774 \pm 0.0000 \\ \hline 0.0734 \pm 0.0000 \\ \hline 0.0734 \pm 0.0000 \\ \hline 0.0323 \pm 0.0000 \\ \hline 0.0323 \pm 0.0000 \\ \hline 0.0323 \pm 0.0000 \\ \hline 0.1323 \pm 0.0000 \\ \hline 0.7474 \pm 0.0000 \\ \hline 0.5302 \pm 0.0000 \\ \hline 0.7474 \pm 0.0000 \\ \hline 0.5302 \pm 0.0000 \\ \hline 0.53$

TABLE IV

MEAN VALUES AND STANDARD DEVIATIONS OF INTERNAL AND EXTERNAL CLUSTER VALIDITY INDICES RESULTING FROM CAFCM, AND THIRTEEN BASELINES
ON TEXTURE AND OPTDIGITS, WHERE $N=3$ and $M=15$ in CAPKM++2.0 and CAFCM on Texture, and $N=2$ and $M=5$ in
CAPKM++2.0 AND CAFCM ON OPTDIGITS

Texture	KM	KM++	РКМ	EWPKM	SC	HC	CAPKM++2.0
WGSS↓	16.3911 ± 1.0559	15.9094 ± 0.6088	15.6292 ± 0.0044	15.6776 ± 0.0029	19.2342 ± 0.4501	16.1971 ± 0.0000	15.5736 ± 0.0004
MRI↓	0.3433 ± 0.0135	0.3375 ± 0.0085	0.3337 ± 0.0003	0.3345 ± 0.0001	0.4125 ± 0.0172	0.3535 ± 0.0000	0.3332 ± 0.0003
GPI↓ BHGI↑	0.0097 ± 0.0022 0.8995 ± 0.0186	0.0087 ± 0.0014 0.9092 ± 0.0128	$\frac{0.0081 \pm 0.0000}{0.9139 \pm 0.0002}$	0.0082 ± 0.0000 0.9136 ± 0.0001	0.0246 ± 0.0054 0.7962 ± 0.0262	0.0115 ± 0.0000 0.8921 ± 0.0000	$\begin{array}{c} 0.0079 \pm 0.0000 \\ 0.9199 \pm 0.0002 \end{array}$
CI↓	0.0373 ± 0.0064	0.0338 ± 0.0045	$\frac{0.0323 \pm 0.0002}{0.0323 \pm 0.0001}$	0.0326 ± 0.0000	0.0709 ± 0.0098	0.0389 ± 0.0000	0.0300 ± 0.0001
TI↑ DGI↑	0.3940 ± 0.0138 0.1157 ± 0.0175	0.3986 ± 0.0126 0.1173 ± 0.0210	0.3970 ± 0.0008 0.0996 ± 0.0194	0.3977 ± 0.0002 0.1064 ± 0.0001	0.3895 ± 0.0052 0.1294 ± 0.0043	0.4127 ± 0.0000 0.2607 ± 0.0000	0.4095 ± 0.0005 0.1067 ± 0.0288
RLI↑	0.2777 ± 0.0023	0.2787 ± 0.0013	0.2793 ± 0.0000	0.2795 ± 0.0000	$\frac{0.1291 \pm 0.0013}{0.2702 \pm 0.0025}$	0.2764 ± 0.0000	0.2793 ± 0.0000
CHI↑ RTL	7.0583 ± 0.4753 1.0800 ± 0.5900	7.2822 ± 0.2871 0.8433 ± 0.2548	7.4197 ± 0.0024 0.7606 ± 0.0477	7.3306 ± 0.0022 0.6440 ± 0.0070	5.0688 ± 0.3170 2.2327 ± 0.2134	6.5713 ± 0.0000 0.8343 ± 0.0000	$\frac{7.4498 \pm 0.0002}{0.6207 \pm 0.0091}$
WGI↑	0.4006 ± 0.0169	0.4075 ± 0.0119	0.4072 ± 0.0009	0.4007 ± 0.0003	0.3109 ± 0.0107	0.3707 ± 0.0000	$\overline{0.4125\pm0.0005}$
DI↑ BHI↑	0.0178 ± 0.0036 0.1312 ± 0.0082	$\frac{0.0201 \pm 0.0043}{0.1371 \pm 0.0073}$	0.0190 ± 0.0032 0.1421 ± 0.0024	0.0199 ± 0.0000 0.1405 ± 0.0001	0.0164 ± 0.0011 0.1340 ± 0.0034	0.0464 ± 0.0000 0.1500 ± 0.0000	0.0187 ± 0.0050 0.1391 ± 0.0003
PBMI↑	0.5566 ± 0.0672	0.6295 ± 0.0808	$\frac{0.7082 \pm 0.0197}{0.0118 \pm 0.0026}$	0.6900 ± 0.0008	0.3830 ± 0.0112	0.7264 ± 0.0000	0.6281 ± 0.0032
DBI↓	1.2223 ± 0.0549	1.1994 ± 0.0033	1.1962 ± 0.0030	1.1921 ± 0.0021	1.4880 ± 0.0449	1.2158 ± 0.0000	1.1751 ± 0.0016
LSSRI†	1.9518 ± 0.0709	1.9846 ± 0.0417 1.4463 ± 0.0553	$\frac{2.0041 \pm 0.0003}{1.4208 \pm 0.0004}$	1.9921 ± 0.0003 1.4360 ± 0.0004	1.6207 ± 0.0742	1.8827 ± 0.0000 1.5801 ± 0.0000	2.0082 ± 0.0000
	0.5837 ± 0.0605	0.5955 ± 0.0470	0.6072 ± 0.0004	0.5610 ± 0.0004	0.6464 ± 0.0093	0.6258 ± 0.0000	$\frac{1.4138 \pm 0.0000}{0.5706 \pm 0.0010}$
NMI↑	0.6298 ± 0.0216	0.6342 ± 0.0157	0.6294 ± 0.0006	0.6057 ± 0.0011	0.7588 ± 0.0102	$\frac{0.66666 \pm 0.0000}{0.66666 \pm 0.0000}$	0.6313 ± 0.0006
ARI↑	0.4653 ± 0.0467	0.4754 ± 0.0357	0.4777 ± 0.0049	0.4459 ± 0.0011	0.5215 ± 0.0200	0.4884 ± 0.0000	0.4593 ± 0.0016
Texture	FCM	MEC 51 2170 + 2 0582	FSC 22.7949 2.5161	2PFCM	BFC	42 7041 1 8668	15 5734 ± 0.0000
MDI	10.0020 ± 0.1795	51.2179 ± 2.9383 0 5275 \pm 0 0003	33.7848 ± 3.3101 0.8380 \pm 0.0074	10.0031 ± 0.0000	×	45.7941 ± 1.8008 0 5434 ± 0 0032	15.5734 ± 0.0000 0.3330 \pm 0.0000
GPI↓	0.0084 ± 0.0002	0.0781 ± 0.0002	0.0940 ± 0.0014 0.0940 ± 0.0048	0.0083 ± 0.0000	×	0.0494 ± 0.0032 0.0892 ± 0.0019	0.0079 ± 0.0000
BHGI↑ CI	0.9011 ± 0.0025 0.0369 ± 0.0008	0.6874 ± 0.0009 0.1366 ± 0.0002	0.1706 ± 0.0110 0.3168 ± 0.0044	0.9019 ± 0.0000 0.0367 ± 0.0000	×	0.6376 ± 0.0096 0.1483 \pm 0.0026	$\begin{array}{c} 0.9199 \pm 0.0000 \\ 0.0300 \pm 0.0000 \end{array}$
TI↑	0.3712 ± 0.0004	0.4860 ± 0.0006	0.0812 ± 0.0058	0.3714 ± 0.0000	×	$\frac{0.4474 \pm 0.0097}{0.00000000000000000000000000000000000$	0.4093 ± 0.0000
DGI↑ RLI↑	0.1211 ± 0.0157 0.2775 ± 0.0007	0.0950 ± 0.0019 0.3644 ± 0.0394	0.0595 ± 0.0087 0.1894 ± 0.0040	0.1263 ± 0.0000 0.2778 ± 0.0000	×	0.0953 ± 0.0077 0.2238 ± 0.0036	0.0890 ± 0.0000 0.2793 ± 0.0000
CHI [↑]	7.1204 ± 0.1057	4.4463 ± 1.2798	0.4649 ± 0.0430	7.1556 ± 0.0000	×	1.4389 ± 0.0820	7.4499 ± 0.0000
WGI↑	0.3839 ± 0.0044	0.1331 ± 0.0639	42.4435 ± 10.7327 0.0197 ± 0.0169	0.3853 ± 0.0000	× ×	0.0562 ± 0.0186	0.4123 ± 0.0000
DI↑ BHI↑	0.0165 ± 0.0018 0.1299 ± 0.0011	0.0108 ± 0.0000 0.2549 ± 0.0609	0.0104 ± 0.0016 0.5555 ± 0.0426	0.0170 ± 0.0000 0.1295 ± 0.0000	×	0.0109 ± 0.0009 0.1620 ± 0.0066	0.0156 ± 0.0000 0.1391 ± 0.0000
PBMI↑	0.1299 ± 0.0011 0.4994 ± 0.0208	$\frac{0.2349 \pm 0.0009}{0.3232 \pm 0.1332}$	0.3333 ± 0.0420 0.1040 ± 0.0082	0.1293 ± 0.0000 0.4924 ± 0.0000	×	0.0476 ± 0.0038	0.6284 ± 0.0000
XBI↓ DBI	0.0101 ± 0.0045 1 3566 ± 0.0035	0.0457 ± 0.0000 1 2662 ± 0.4884	0.1044 ± 0.0469 6 2638 ± 0.9078	$\frac{0.0086 \pm 0.0000}{1.3552 \pm 0.0000}$	×	0.0433 ± 0.0065 4.6500 ± 0.7287	0.0151 ± 0.0000 1 1756 ± 0.0000
LSSRI↑	1.9628 ± 0.0151	0.1953 ± 0.0020	-0.7804 ± 0.0872	1.9679 ± 0.0000	×	0.3540 ± 0.0498	$\frac{1.1750 \pm 0.0000}{2.0082 \pm 0.0000}$
TWI↓	1.4735 ± 0.0199	5.3993 ± 0.0058	8.2005 ± 0.2295	1.4668 ± 0.0000	×	4.9345 ± 0.1425	1.4158 ± 0.0000
ACC↑ NMI↑	0.6330 ± 0.0114 0.6254 ± 0.0046	0.1824 ± 0.0003 0.3779 ± 0.0006	0.1860 ± 0.0206 0.1238 ± 0.0232	$\frac{0.6367 \pm 0.0000}{0.6269 \pm 0.0000}$	×	0.2036 ± 0.0170 0.3642 ± 0.0142	0.5709 ± 0.0000 0.6313 ± 0.0000
ARI↑	0.5018 ± 0.0102	0.1315 ± 0.0002	0.0376 ± 0.0073	0.5050 ± 0.0000	×	0.1465 ± 0.0120	0.4596 ± 0.0000
					~	0.1405 ± 0.0120	0.4390 ± 0.0000
Optdigits	KM	KM++	РКМ	EWPKM	SC	HC	CAPKM++2.0
Optdigits WGSS↓	KM 238.0204 ± 3.7684	KM++ 238.6506 ± 4.5788	PKM $3 235.2651 \pm 0.7834$	EWPKM 344.0539 ± 5.0062	SC 241.4227 ± 0.0360	$\frac{10.1403 \pm 0.0120}{\text{HC}}$	CAPKM++2.0 234.8252 ± 0.0000
Optdigits WGSS↓ MRI↓ GPI↓	$\frac{\text{KM}}{238.0204 \pm 3.7684}$ 0.7191 ± 0.0094 0.0189 ± 0.0025	$\frac{\text{KM}\text{++}}{238.6506 \pm 4.5788}$ 0.7199 ± 0.0093 0.0190 ± 0.0026	$\frac{PKM}{235.2651 \pm 0.7834}$ $\frac{0.7111 \pm 0.0025}{0.0169 \pm 0.0006}$	$\frac{1}{1} = \frac{1}{1} = \frac{1}$	$\frac{\text{SC}}{\text{241.4227} \pm 0.0360}$ 0.7281 ± 0.0015 0.0231 ± 0.0005	$\begin{array}{c} \text{HC} \\ \text{237.9126} \pm 0.0000 \\ 0.7253 \pm 0.0000 \\ 0.0218 \pm 0.0000 \end{array}$	CAPKM++2.0 234.8252 ± 0.0000 0.7111 ± 0.0000 0.0168 ± 0.0000
Optdigits WGSS↓ MRI↓ GPI↓ BHGI↑	$\begin{array}{c} \text{KM} \\ 238.0204 \pm 3.7684 \\ 0.7191 \pm 0.0094 \\ 0.0189 \pm 0.0025 \\ 0.8118 \pm 0.0201 \\ 0.1126 \pm 0.0111 \end{array}$	$\begin{array}{c} \text{KM++} \\ 238.6506 \pm 4.5788 \\ 0.7199 \pm 0.0093 \\ 0.0190 \pm 0.0026 \\ 0.8130 \pm 0.0249 \\ 0.1162 \pm 0.0149 \\ 0.0149 \pm 0.0024 \\ 0.0148 \pm 0.0024 \\ 0.0148 \pm 0.0024 \\ 0.0148 \pm 0.0024 \\ 0.0024 \pm 0.$	PKM 3 235.2651 ± 0.7834 0.7111 ± 0.0025 0.0169 ± 0.0006 0.8237 ± 0.0063	$\frac{1}{10000000000000000000000000000000000$		$\begin{array}{c} \text{HC} \\ \hline \text{HC} \\ \hline 237.9126 \pm 0.0000 \\ 0.7253 \pm 0.0000 \\ 0.0218 \pm 0.0000 \\ 0.7862 \pm 0.0000 \\ 0.1245 \pm 0.0000 \end{array}$	$\begin{array}{c} \hline 0.4390 \pm 0.0000 \\ \hline CAPKM++2.0 \\ \hline 0.234.8252 \pm 0.0000 \\ \hline 0.7111 \pm 0.0000 \\ \hline 0.0168 \pm 0.0000 \\ \hline 0.8307 \pm 0.0000 \\ \hline 0.0000 \\ \hline 0.0000 \\ \hline \end{array}$
$\begin{array}{c} \textbf{Optdigits} \\ WGSS\downarrow \\ MRI\downarrow \\ GPI\downarrow \\ BHGI\uparrow \\ CI\downarrow \\ TI\uparrow \end{array}$	$\begin{array}{c} \text{KM} \\ 238.0204 \pm 3.7684 \\ 0.7191 \pm 0.0094 \\ 0.0189 \pm 0.0025 \\ 0.8118 \pm 0.0201 \\ 0.1176 \pm 0.0111 \\ 0.3632 \pm 0.0138 \\ \end{array}$	$\begin{array}{r} \text{KM++}\\ \hline \text{238.6506} \pm 4.5788\\ 0.7199 \pm 0.0093\\ 0.0190 \pm 0.0026\\ 0.8130 \pm 0.0249\\ 0.1162 \pm 0.0138\\ 0.3669 \pm 0.0151 \end{array}$	PKM 3 235.2651 ± 0.7834 0.7111 ± 0.0025 0.0169 ± 0.0006 0.8237 ± 0.0063 0.1115 ± 0.0045 0.3606 ± 0.0087	$\begin{array}{c} \hline \hline \\ $	$\begin{array}{c} SC\\ \hline 241.4227 \pm 0.0360\\ 0.7281 \pm 0.0015\\ 0.0231 \pm 0.0005\\ 0.7793 \pm 0.0034\\ 0.1251 \pm 0.0014\\ 0.3568 \pm 0.0004 \end{array}$	$\begin{array}{c} \text{HC} \\ \hline \text{HC} \\ \hline 237.9126 \pm 0.0000 \\ 0.0218 \pm 0.0000 \\ 0.0862 \pm 0.0000 \\ 0.1245 \pm 0.0000 \\ 0.3552 \pm 0.0000 \end{array}$	CAPKM++2.0 234.8252 ± 0.0000 0.7111 ± 0.0000 0.0168 ± 0.0000 0.307 ± 0.0000 0.1059 ± 0.0000 0.3701 ± 0.0000
Optdigits WGSS \downarrow MRI \downarrow GPI \downarrow BHGI \uparrow CI \downarrow TI \uparrow DGI \uparrow	$\begin{array}{c} \text{KM} \\ \hline 238.0204 \pm 3.7684 \\ 0.7191 \pm 0.0094 \\ 0.0189 \pm 0.0025 \\ 0.8118 \pm 0.0201 \\ 0.1176 \pm 0.0111 \\ 0.3632 \pm 0.0138 \\ 0.4874 \pm 0.0387 \\ 0.1800 \pm 0.0017 \\ \end{array}$	$\begin{array}{r} KM++\\ 238.6506 \pm 4.5788\\ 0.7199 \pm 0.0093\\ 0.0190 \pm 0.0026\\ 0.8130 \pm 0.0249\\ 0.1162 \pm 0.0138\\ 0.3669 \pm 0.0151\\ 0.4926 \pm 0.0475\\ 0.4926 \pm 0.0475\\ \end{array}$	PKM 3 235.2651 ± 0.7834 0.7111 ± 0.0025 0.0169 ± 0.0006 0.8237 ± 0.0063 0.1115 ± 0.0045 0.3606 ± 0.0087 0.3606 ± 0.0087 0.4799 ± 0.0476 0.4029	$\begin{array}{c} \hline EWPKM \\ 344.0539 \pm 5.0062 \\ 0.9429 \pm 0.0013 \\ 0.1919 \pm 0.0047 \\ 0.2000 \pm 0.0057 \\ 0.3780 \pm 0.0044 \\ 0.1385 \pm 0.0032 \\ 0.3499 \pm 0.0462 \\ 0.1378 \pm 0.00162 \\ 0.1385 \pm 0.00162 \\ 0.00162$	$\begin{array}{c} SC \\ \hline 241.4227 \pm 0.0360 \\ 0.7281 \pm 0.0015 \\ 0.0231 \pm 0.0005 \\ 0.7793 \pm 0.0034 \\ 0.1251 \pm 0.0014 \\ 0.3568 \pm 0.0004 \\ 0.6619 \pm 0.0100 \\ 0.1295 \\ 0.1295 \\ 0.1295 \\ 0.0100 \\ 0.1295 \\ 0.0100 \\ 0.1295 \\ 0.0100 \\ 0.1295 \\ 0.0100 \\ 0.1295 \\ 0.0001 \\ 0.0100 \\ 0.1295 \\ 0.0001 \\ 0.000$	$\begin{array}{c} HC\\ 237.9126 \pm 0.0000\\ 0.7253 \pm 0.0000\\ 0.0218 \pm 0.0000\\ 0.7862 \pm 0.0000\\ 0.1245 \pm 0.0000\\ 0.3552 \pm 0.0000\\ 0.6114 \pm 0.0000\\ 0.6114 \pm 0.0000\\ 0.1701\\ 0.0000\\ \end{array}$	CAPKM++2.0 234.8252 ± 0.0000 0.7111 ± 0.0000 0.0168 ± 0.0000 0.8307 ± 0.0000 0.3701 ± 0.0000 0.3701 ± 0.0000 0.4134 ± 0.0000
	$\begin{array}{c} {\rm KM} \\ 238.0204 \pm 3.7684 \\ 0.7191 \pm 0.0094 \\ 0.0189 \pm 0.0025 \\ 0.8118 \pm 0.0201 \\ 0.1176 \pm 0.0111 \\ 0.3632 \pm 0.0138 \\ 0.4874 \pm 0.0387 \\ 0.1809 \pm 0.0017 \\ 0.8088 \pm 0.0279 \end{array}$	$\begin{array}{r} KM++\\ 238.6506 \pm 4.5788\\ 0.7199 \pm 0.0093\\ 0.0190 \pm 0.0026\\ 0.8130 \pm 0.0249\\ 0.1162 \pm 0.0138\\ 0.3669 \pm 0.0151\\ 0.4926 \pm 0.0475\\ 0.1809 \pm 0.0023\\ 0.8042 \pm 0.0336\end{array}$	$\begin{array}{c} PKM \\ \hline 8 & 235.2651 \pm 0.7834 \\ \hline 0.7111 \pm 0.0025 \\ 0.0169 \pm 0.0006 \\ \hline 0.8237 \pm 0.0063 \\ \hline 0.1115 \pm 0.0045 \\ \hline 0.3606 \pm 0.0087 \\ \hline 0.3606 \pm 0.0087 \\ \hline 0.4799 \pm 0.0476 \\ \hline 0.1820 \pm 0.0006 \\ \hline 0.8296 \pm 0.0060 \\ \hline \end{array}$	$\begin{array}{c} \hline EWPKM \\ 344.0539 \pm 5.0062 \\ 0.9429 \pm 0.0013 \\ 0.1919 \pm 0.0047 \\ 0.2000 \pm 0.0057 \\ 0.3780 \pm 0.0044 \\ 0.1385 \pm 0.0032 \\ 0.3499 \pm 0.0462 \\ 0.1278 \pm 0.0011 \\ 0.0885 \pm 0.0022 \end{array}$	$\begin{array}{c} SC \\ \hline 241.4227 \pm 0.0360 \\ 0.7281 \pm 0.0015 \\ 0.0231 \pm 0.0005 \\ 0.7793 \pm 0.0034 \\ 0.1251 \pm 0.0014 \\ 0.3568 \pm 0.0004 \\ \textbf{0.6619} \pm \textbf{0.0100} \\ 0.1785 \pm 0.0001 \\ 0.7446 \pm 0.0021 \end{array}$	$\begin{array}{c} 0.1405 \pm 0.0120 \\ \hline HC \\ 237.9126 \pm 0.0000 \\ 0.0218 \pm 0.0000 \\ 0.0218 \pm 0.0000 \\ 0.1245 \pm 0.0000 \\ 0.3552 \pm 0.0000 \\ 0.3552 \pm 0.0000 \\ 0.3552 \pm 0.0000 \\ 0.7631 \pm 0.0000 \\ 0.7653 \pm 0.0000 \end{array}$	CAPKM++2.0 234.8252 ± 0.0000 0.7111 ± 0.0000 0.0168 ± 0.0000 0.307 ± 0.0000 0.3701 ± 0.0000 0.3701 ± 0.0000 0.312 ± 0.0000 0.4134 ± 0.0000 0.821 ± 0.0000 0.8330 ± 0.0000
	$\begin{array}{c} {\rm KM} \\ \hline \\ 238.0204 \pm 3.7684 \\ 0.7191 \pm 0.0094 \\ 0.0189 \pm 0.0025 \\ 0.8118 \pm 0.0201 \\ 0.1176 \pm 0.0111 \\ 0.3632 \pm 0.0138 \\ 0.4874 \pm 0.0387 \\ 0.1809 \pm 0.0017 \\ 0.8088 \pm 0.0279 \\ 1.6654 \pm 0.6256 \\ 0.2767 \pm 0.021 \end{array}$	$\begin{array}{r} KM++\\ 238.6506 \pm 4.5788\\ 0.7199 \pm 0.0093\\ 0.0190 \pm 0.0026\\ 0.8130 \pm 0.0249\\ 0.1162 \pm 0.0138\\ 0.3669 \pm 0.0151\\ 0.4926 \pm 0.0475\\ 0.1809 \pm 0.0023\\ 0.8042 \pm 0.0336\\ 1.4157 \pm 0.4323\\ 0.7266 \pm 0.0151\\ 0.726 \pm 0.0151\\ 0.7266 \pm $	PKM 3 235.2651 ± 0.7834 0.7111 ± 0.0025 0.0169 ± 0.0006 0.8237 ± 0.0063 0.1115 ± 0.0045 0.3606 ± 0.0087 0.4799 ± 0.0476 0.1820 ± 0.0000 1.5200 ± 0.2926 0.3206 ± 0.0052	$\begin{array}{c} \hline EWPKM \\ 344.0539 \pm 5.0062 \\ 0.9429 \pm 0.0013 \\ 0.1919 \pm 0.0047 \\ 0.2000 \pm 0.0057 \\ 0.3780 \pm 0.0044 \\ 0.1385 \pm 0.0032 \\ 0.3499 \pm 0.0462 \\ 0.1278 \pm 0.0011 \\ 0.0885 \pm 0.0022 \\ 17.4298 \pm 2.3087 \\ 0.0089 \pm 0.0029 \\ 0.008 \pm 0.0$	$\begin{array}{c} SC \\ \hline 241.4227 \pm 0.0360 \\ 0.7281 \pm 0.0015 \\ 0.0231 \pm 0.0005 \\ 0.7793 \pm 0.0034 \\ 0.1251 \pm 0.0014 \\ 0.3568 \pm 0.0004 \\ 0.6619 \pm 0.0100 \\ 0.1785 \pm 0.0001 \\ 0.7446 \pm 0.0021 \\ 1.0344 \pm 0.0013 \\ 0.7404 \pm 0.0003 \\ 0.7404 \pm 0.0003 \\ 0.7404 \\ 0.0740 \\ 0.7404 \\ 0.0013 \\ 0.0014 \\ 0.0013 \\ 0.0014 \\ 0.0013 \\ 0.0014 \\ 0.001$	$\begin{array}{c} 0.1405 \pm 0.0120 \\ \hline HC \\ 237.9126 \pm 0.0000 \\ 0.7253 \pm 0.0000 \\ 0.0218 \pm 0.0000 \\ 0.1245 \pm 0.0000 \\ 0.1245 \pm 0.0000 \\ 0.3552 \pm 0.0000 \\ 0.3552 \pm 0.0000 \\ 0.7632 \pm 0.0000 \\ 0.7653 \pm 0.000$	CAPKM++2.0 2348252 ± 0.0000 0.7111 ± 0.0000 0.0168 ± 0.0000 0.307 ± 0.0000 0.3701 ± 0.0000 0.3701 ± 0.0000 0.3711 ± 0.0000 0.3830 ± 0.0000 0.3830 ± 0.0000 0.1821 ± 0.0000 0.8330 ± 0.0000 1.1413 ± 0.0004 0.2904 ± 0.0004
	$\begin{array}{c} {\rm KM} \\ \hline \\ 238.0204 \pm 3.7684 \\ 0.7191 \pm 0.0094 \\ 0.0189 \pm 0.0025 \\ 0.8118 \pm 0.0201 \\ 0.1176 \pm 0.0111 \\ 0.3632 \pm 0.0138 \\ 0.4874 \pm 0.0387 \\ 0.1809 \pm 0.0017 \\ 0.8088 \pm 0.0279 \\ 1.6654 \pm 0.6256 \\ 0.2767 \pm 0.0121 \\ 0.1368 \pm 0.0121 \\ 0.1368 \pm 0.0121 \\ \end{array}$	$\begin{array}{r} KM++\\ 238.6506 \pm 4.5788\\ 0.7199 \pm 0.0093\\ 0.0190 \pm 0.0026\\ 0.8130 \pm 0.0249\\ 0.1162 \pm 0.0138\\ 0.3669 \pm 0.0151\\ 0.4926 \pm 0.0475\\ 0.1809 \pm 0.0023\\ 0.8042 \pm 0.0336\\ 1.4157 \pm 0.4323\\ 0.2766 \pm 0.0151\\ 0.1405 \pm 0.0149 \end{array}$	$\begin{array}{c} PKM \\ \hline \\ 3 \\ \hline 235.2651 \pm 0.7834 \\ \hline 0.7111 \pm 0.0025 \\ \hline 0.0169 \pm 0.0006 \\ \hline 0.8237 \pm 0.0063 \\ \hline 0.1115 \pm 0.0045 \\ \hline 0.3606 \pm 0.0087 \\ \hline 0.3606 \pm 0.0087 \\ \hline 0.3606 \pm 0.0006 \\ \hline 0.8296 \pm 0.0060 \\ \hline 0.8296 \pm 0.0060 \\ \hline 0.8206 \pm 0.0060 \\ \hline 0.8206 \pm 0.0055 \\ \hline 0.1331 \pm 0.0139 \\ \hline \end{array}$	$\begin{array}{c} \hline EWPKM \\ 344.0539 \pm 5.0062 \\ 0.9429 \pm 0.0013 \\ 0.1919 \pm 0.0047 \\ 0.2000 \pm 0.0057 \\ 0.3780 \pm 0.0044 \\ 0.1385 \pm 0.0032 \\ 0.3499 \pm 0.0462 \\ 0.1278 \pm 0.0012 \\ 17.4298 \pm 2.3087 \\ 0.0089 \pm 0.0020 \\ 0.1053 \pm 0.0137 \end{array}$	$\begin{array}{c} SC \\ \hline 241.4227 \pm 0.0360 \\ 0.7281 \pm 0.0015 \\ 0.0231 \pm 0.0005 \\ 0.7793 \pm 0.0034 \\ 0.1251 \pm 0.0014 \\ 0.3568 \pm 0.0004 \\ 0.6619 \pm 0.0100 \\ 0.1785 \pm 0.0001 \\ 0.7446 \pm 0.0021 \\ 1.0344 \pm 0.0013 \\ 0.2740 \pm 0.0003 \\ 0.1733 \pm 0.0024 \end{array}$	$\begin{array}{c} 0.1405 \pm 0.0120 \\ \hline HC \\ 237.9126 \pm 0.0000 \\ 0.7253 \pm 0.0000 \\ 0.0218 \pm 0.0000 \\ 0.1245 \pm 0.0000 \\ 0.1245 \pm 0.0000 \\ 0.3552 \pm 0.0000 \\ 0.3552 \pm 0.0000 \\ 0.3552 \pm 0.0000 \\ 0.7653 \pm 0.0000 \\ 0.7653 \pm 0.0000 \\ 0.2671 \pm 0.0000 \\ 0.1692 \pm 0.0000 \end{array}$	$\begin{array}{c} \text{CAPKM}{+}\text{2.0} \\ \hline \text{CAPKM}{+}\text{2.0} \\ \textbf{234.8252} \pm 0.0000 \\ \textbf{0.7111} \pm 0.0000 \\ \textbf{0.0168} \pm 0.0000 \\ \textbf{0.0168} \pm 0.0000 \\ \textbf{0.3301} \pm 0.0000 \\ \textbf{0.3701} \pm 0.0000 \\ \textbf{0.4134} \pm 0.0000 \\ \textbf{0.8330} \pm 0.0000 \\ \textbf{0.1821} \pm 0.0000 \\ \textbf{0.8330} \pm 0.0000 \\ \textbf{1.1413} \pm 0.0004 \\ \textbf{0.2904} \pm 0.0000 \\ \textbf{0.1133} \pm 0.0000 \end{array}$
	$\begin{array}{c c} KM\\ \hline \\ 238.0204 \pm 3.7684\\ 0.7191 \pm 0.0094\\ 0.0189 \pm 0.0025\\ 0.8118 \pm 0.0201\\ 0.1176 \pm 0.0111\\ 0.3632 \pm 0.0138\\ 0.4874 \pm 0.0387\\ 0.1809 \pm 0.0017\\ 0.8088 \pm 0.0279\\ 1.6654 \pm 0.6256\\ 0.2767 \pm 0.0121\\ 0.1368 \pm 0.0121\\ 2.5823 \pm 0.0427\\ 0.1568 \pm 0.0027\\ \end{array}$	$\begin{array}{r} KM++\\ 238.6506 \pm 4.5788\\ 0.7199 \pm 0.0093\\ 0.0190 \pm 0.0026\\ 0.8130 \pm 0.0249\\ 0.1162 \pm 0.0138\\ 0.3669 \pm 0.0151\\ 0.4926 \pm 0.0475\\ 0.1809 \pm 0.0023\\ 0.8042 \pm 0.0336\\ 1.4157 \pm 0.4323\\ 0.2766 \pm 0.0151\\ 0.1405 \pm 0.0149\\ 2.5976 \pm 0.0149\\ 0.1561 \pm 0.0073\\ 0.0075\\ 0.00$	$\begin{array}{c} PKM \\ \hline 8 \\ \hline 3 \\ \hline 235.2651 \pm 0.7834 \\ \hline 0.7111 \pm 0.0025 \\ \hline 0.0169 \pm 0.0006 \\ \hline 0.8237 \pm 0.0063 \\ \hline 0.1115 \pm 0.0045 \\ \hline 0.3606 \pm 0.0087 \\ \hline 0.3709 \pm 0.0476 \\ \hline 0.1820 \pm 0.0006 \\ \hline 1.5200 \pm 0.2926 \\ \hline 0.2826 \pm 0.0050 \\ \hline 0.2826 \pm 0.0053 \\ \hline 0.131 \pm 0.0139 \\ \hline 2.5910 \pm 0.0087 \\ \hline 0.1547 + 0.0033 \\ $	$\begin{array}{c} \hline EWPKM \\ 344.0539 \pm 5.0062 \\ 0.9429 \pm 0.0013 \\ 0.1919 \pm 0.0047 \\ 0.2000 \pm 0.0057 \\ 0.3780 \pm 0.0044 \\ 0.1385 \pm 0.0032 \\ 0.1385 \pm 0.0032 \\ 0.1278 \pm 0.0012 \\ 17.4298 \pm 2.3087 \\ 0.0089 \pm 0.0020 \\ 17.4298 \pm 2.3087 \\ 0.0089 \pm 0.0020 \\ 0.1053 \pm 0.0137 \\ 3.5609 \pm 0.00368 \\ 0.1053 \pm 0.00368 \\ 0.0058 \pm 0.0020 \\ 0.0059 \pm 0.0048 \\ 0.0059 \pm 0.0058 \\ 0.0059 \pm 0.0048 \\ 0.0058 $	$\begin{array}{c} SC \\ \hline 241.4227 \pm 0.0360 \\ 0.7281 \pm 0.0015 \\ 0.0231 \pm 0.0005 \\ 0.7793 \pm 0.0034 \\ 0.1251 \pm 0.0014 \\ 0.3568 \pm 0.0004 \\ 0.6619 \pm 0.0100 \\ 0.1785 \pm 0.0001 \\ 0.7446 \pm 0.0021 \\ 1.0344 \pm 0.0013 \\ 0.2740 \pm 0.0003 \\ 0.1733 \pm 0.0024 \\ 2.6041 \pm 0.0035 \\ 0.19005 \\ 0.1905 \\ $	$\begin{array}{c} 1.463 \pm 0.0120 \\ \hline HC \\ 237.9126 \pm 0.0000 \\ 0.7253 \pm 0.0000 \\ 0.0218 \pm 0.0000 \\ 0.0218 \pm 0.0000 \\ 0.1245 \pm 0.0000 \\ 0.1245 \pm 0.0000 \\ 0.3552 \pm 0.0000 \\ 0.3552 \pm 0.0000 \\ 0.3552 \pm 0.0000 \\ 0.7653 \pm 0.0000 \\ 0.7653 \pm 0.0000 \\ 0.2671 \pm 0.0000 \\ 0.26413 \pm 0.0000 \\ 2.6413 \pm 0.0000 \\ 0.1592 \pm 0.0000 \\ 2.6413 \pm 0.0000 \\ 0.1592 \pm 0.000$	CAPKM++2.0 234.8252 ± 0.0000 0.7111 ± 0.0000 0.0168 ± 0.0000 0.307 ± 0.0000 0.3701 ± 0.0000 0.3701 ± 0.0000 0.3701 ± 0.0000 0.3711 ± 0.0000 0.3830 ± 0.0000 0.1821 ± 0.0000 0.1821 ± 0.0000 1.1413 ± 0.0004 0.2904 ± 0.0000 2.5848 ± 0.0001 0.1545 ± 0.0001
$\begin{array}{c} \hline \textbf{Optdigits} \\ WGSS \downarrow \\ WGSS \downarrow \\ BHGI \uparrow \\ CL \downarrow \\ BHGI \uparrow \\ CL \downarrow \uparrow \\ TI \uparrow \\ DGI \uparrow \\ RLI \uparrow \\ CHI \uparrow \\ RTI \downarrow \\ WGI \uparrow \\ DI \uparrow \\ BHI \uparrow \\ YBI \downarrow \\ \end{array}$	$\begin{array}{c c} KM \\ \hline \\ 238.0204 \pm 3.7684 \\ 0.7191 \pm 0.0094 \\ 0.0189 \pm 0.0025 \\ 0.8118 \pm 0.0201 \\ 0.1176 \pm 0.0111 \\ 0.3632 \pm 0.0138 \\ 0.4874 \pm 0.0387 \\ 0.1809 \pm 0.0017 \\ 0.8088 \pm 0.0279 \\ 1.6654 \pm 0.6256 \\ 0.2767 \pm 0.0121 \\ 0.1368 \pm 0.0121 \\ 2.5823 \pm 0.0427 \\ 0.1568 \pm 0.0027 \\ 0.1568 \pm 0.0027 \\ 0.1568 \pm 0.0027 \\ 0.0014 \pm 0.0002 \\ \end{array}$	$\begin{array}{r} KM++\\ 238.6506 \pm 4.5788\\ 0.7199 \pm 0.0093\\ 0.0190 \pm 0.0026\\ 0.8130 \pm 0.0249\\ 0.1162 \pm 0.0138\\ 0.3669 \pm 0.0151\\ 0.4926 \pm 0.0475\\ 0.1809 \pm 0.0023\\ 0.8042 \pm 0.0336\\ 1.4157 \pm 0.4323\\ 0.2766 \pm 0.0151\\ 0.1405 \pm 0.0149\\ 2.5976 \pm 0.0449\\ 0.1561 \pm 0.0073\\ \end{array}$	$\begin{array}{c} PKM \\ \hline 8 \\ \hline 3 \\ \hline 235.2651 \pm 0.7834 \\ \hline 0.7111 \pm 0.0025 \\ \hline 0.0169 \pm 0.0006 \\ \hline 0.8237 \pm 0.0063 \\ \hline 0.1115 \pm 0.0045 \\ \hline 0.3606 \pm 0.0087 \\ \hline 0.3606 \pm 0.0087 \\ \hline 0.4799 \pm 0.0476 \\ \hline 0.1820 \pm 0.0060 \\ \hline 1.5200 \pm 0.2926 \\ \hline 0.2826 \pm 0.0050 \\ \hline 0.1331 \pm 0.0139 \\ \hline 2.5910 \pm 0.0087 \\ \hline 0.1547 \pm 0.0033 \\ \hline 0.0014 \pm 0.0003 \\ \hline \end{array}$	$\begin{array}{c} \hline EWPKM \\ \hline 344.0539 \pm 5.0062 \\ 0.9429 \pm 0.0013 \\ 0.1919 \pm 0.0047 \\ 0.2000 \pm 0.0057 \\ 0.3780 \pm 0.0042 \\ 0.1385 \pm 0.0032 \\ 0.1385 \pm 0.0032 \\ 0.1278 \pm 0.0012 \\ 17.4298 \pm 2.3087 \\ 0.0088 \pm 0.0022 \\ 17.4298 \pm 2.3087 \\ 0.0089 \pm 0.0023 \\ 0.1053 \pm 0.0137 \\ 3.5609 \pm 0.0368 \\ \hline 0.1059 \pm 0.0047 \\ 0.0030 \pm 0.0007 \\ \end{array}$	$\begin{array}{c} & \\ & \\ & \\ & \\ SC \\ \hline \\ & \\ & \\ & \\ & \\ & \\ & \\ & \\ & \\ &$	$\begin{array}{c} 1.463 \pm 0.0120 \\ \hline HC \\ 237.9126 \pm 0.0000 \\ 0.7253 \pm 0.0000 \\ 0.0218 \pm 0.0000 \\ 0.0218 \pm 0.0000 \\ 0.1245 \pm 0.0000 \\ 0.1245 \pm 0.0000 \\ 0.3552 \pm 0.0000 \\ 0.3552 \pm 0.0000 \\ 0.3552 \pm 0.0000 \\ 0.7653 \pm 0.0000 \\ 0.7653 \pm 0.0000 \\ 0.2671 \pm 0.0000 \\ 0.2671 \pm 0.0000 \\ 0.1692 \pm 0.0000 \\ 0.1596 \pm 0.0000 \\ 0.1596 \pm 0.0000 \\ 0.1596 \pm 0.0000 \\ 0.1596 \pm 0.0000 \\ 0.0008 \pm 0.0000 \\ \end{array}$	$\begin{array}{c} \text{CAPKM}{+}+2.0 \\ \hline \text{CAPKM}{+}+2.0 \\ \textbf{i} 234.8252 \pm 0.0000 \\ \textbf{0.7111} \pm 0.0000 \\ \textbf{0.0168} \pm 0.0000 \\ \textbf{0.01059} \pm 0.0000 \\ \textbf{0.3701} \pm 0.0000 \\ \textbf{0.3701} \pm 0.0000 \\ \textbf{0.3701} \pm 0.0000 \\ \textbf{0.1821} \pm 0.0000 \\ \textbf{0.1821} \pm 0.0000 \\ \textbf{0.1834} \pm 0.0000 \\ \textbf{0.1834} \pm 0.0000 \\ \textbf{0.1834} \pm 0.0000 \\ \textbf{0.1834} \pm 0.0000 \\ \textbf{0.1139} \pm 0.0000 \\ \textbf{0.5848} \pm 0.0001 \\ \textbf{0.5455} \pm 0.0001 \\ \textbf{0.1545} \pm 0.0001 \\ \textbf{0.0019} \pm 0.0000 \\ \end{array}$
	$\begin{array}{c c} KM \\\hline & \\ 238.0204 \pm 3.7684 \\\hline 0.7191 \pm 0.0094 \\\hline 0.0189 \pm 0.0025 \\\hline 0.0189 \pm 0.0025 \\\hline 0.0189 \pm 0.0025 \\\hline 0.8118 \pm 0.0201 \\\hline 0.1176 \pm 0.0011 \\\hline 0.3632 \pm 0.0138 \\\hline 0.4874 \pm 0.0387 \\\hline 0.1809 \pm 0.0017 \\\hline 0.8088 \pm 0.0279 \\\hline 1.6654 \pm 0.0279 \\\hline 0.6054 \pm 0.0256 \\\hline 0.2767 \pm 0.0121 \\\hline 0.2767 \pm 0.0121 \\\hline 0.1568 \pm 0.0067 \\\hline 0.0156 \pm 0.0027 \\\hline 0.1568 \pm 0.0067 \\\hline 0.0014 \pm 0.0002 \\\hline 1.9179 \pm 0.0796 \\\hline -0.2128 \pm 0.0356 \\\hline 0.0218 \pm 0.0356 \\\hline 0.0218 \pm 0.0057 \\\hline 0.0014 \pm 0.0056 \\\hline 0.0014 \\\hline 0.0$	$\begin{array}{l} \hline KM++\\ \hline 238.6506 \pm 4.5788\\ 0.7199 \pm 0.0093\\ 0.0190 \pm 0.0026\\ 0.8130 \pm 0.0249\\ 0.1162 \pm 0.0138\\ 0.3669 \pm 0.0151\\ 0.4926 \pm 0.0475\\ 0.1809 \pm 0.0023\\ 0.8042 \pm 0.0336\\ 1.4157 \pm 0.4323\\ 0.2766 \pm 0.0151\\ 0.1405 \pm 0.0149\\ 2.5976 \pm 0.0449\\ 0.1561 \pm 0.0073\\ 1.8986 \pm 0.0961\\ -0.2187 + 0.0433\\ \end{array}$	$\begin{array}{c} PKM \\ \hline \\ 3 \\ \hline 235.2651 \pm 0.7834 \\ \hline 0.7111 \pm 0.0025 \\ \hline 0.0169 \pm 0.0006 \\ \hline 0.8237 \pm 0.0063 \\ \hline 0.1115 \pm 0.0045 \\ \hline 0.3606 \pm 0.0087 \\ \hline 0.3606 \pm 0.0087 \\ \hline 0.1820 \pm 0.0006 \\ \hline 1.5200 \pm 0.2926 \\ \hline 0.2826 \pm 0.0050 \\ \hline 0.1331 \pm 0.0139 \\ \hline 2.5910 \pm 0.0087 \\ \hline 0.1547 \pm 0.0033 \\ \hline 1.5102 \pm 0.0031 \\ \hline 0.0014 \pm 0.0003 \\ \hline 1.9102 \pm 0.0474 \\ \hline 0.01869 \pm 0.0074 \\ \hline 0.01869 \pm 0.0073 \\ \hline \end{array}$	$\begin{array}{c} \hline EWPKM \\ \hline 344.0539 \pm 5.0062 \\ 0.9429 \pm 0.0013 \\ 0.1919 \pm 0.0047 \\ 0.2000 \pm 0.0057 \\ 0.3780 \pm 0.0042 \\ 0.1385 \pm 0.0032 \\ 0.1385 \pm 0.0032 \\ 0.1278 \pm 0.0012 \\ 17.4298 \pm 2.3087 \\ 0.0088 \pm 0.0022 \\ 17.4298 \pm 2.3087 \\ 0.0085 \pm 0.0022 \\ 17.4298 \pm 0.00137 \\ 3.5609 \pm 0.0368 \\ 0.1053 \pm 0.00137 \\ 3.5609 \pm 0.0007 \\ 4.9440 \pm 0.2232 \\ -2.4247 + 0.0225 \\ \end{array}$	$\begin{array}{c} & \\ & \\ & \\ & \\ SC \\ \hline \\ & \\ & \\ & \\ & \\ & \\ & \\ & \\ & \\ &$	$\begin{array}{c} 1.463 \pm 0.0120 \\ \hline HC \\ 237.9126 \pm 0.0000 \\ 0.7253 \pm 0.0000 \\ 0.0218 \pm 0.0000 \\ 0.0218 \pm 0.0000 \\ 0.1245 \pm 0.0000 \\ 0.1245 \pm 0.0000 \\ 0.3552 \pm 0.0000 \\ 0.3552 \pm 0.0000 \\ 0.3552 \pm 0.0000 \\ 0.3552 \pm 0.0000 \\ 0.1691 \pm 0.0000 \\ 0.2671 \pm 0.0000 \\ 0.2671 \pm 0.0000 \\ 0.1596 \pm 0.0000 \\ 0.093 \pm 0.0000 \\ 0.2075 + 0.0000 \\ 0.2075 + 0.0000 \\ 0.2671 \pm 0.0000 \\ 0.0008 \pm 0.0000 $	$\begin{array}{c} \text{CAPKM}{+}+2.0 \\ \hline \text{CAPKM}{+}+2.0 \\ \hline \text{c} \textbf{234.8252} \pm 0.0000 \\ \textbf{0.7111} \pm 0.0000 \\ \textbf{0.0168} \pm 0.0000 \\ \textbf{0.0168} \pm 0.0000 \\ \textbf{0.3701} \pm 0.0000 \\ \textbf{0.3701} \pm 0.0000 \\ \textbf{0.3701} \pm 0.0000 \\ \textbf{0.1821} \pm 0.0000 \\ \textbf{0.8330} \pm 0.0000 \\ \textbf{0.1821} \pm 0.0000 \\ \textbf{0.1834} \pm 0.0000 \\ \textbf{0.1134} \pm 0.0000 \\ \textbf{0.1134} \pm 0.0000 \\ \textbf{0.1134} \pm 0.0000 \\ \textbf{0.1545} \pm 0.0001 \\ \textbf{0.5454} \pm 0.0001 \\ \textbf{0.5454} \pm 0.0000 \\ \textbf{1.8543} \pm 0.0002 \\ \textbf{-0.1827} + 0.0000 \\ \hline \end{array}$
Optdigits WGSS↓ MRL↓ GPI↓ BHGI↑ CL↓ TI↑ DGI↑ CHI↑ RTL↓ CHI↑ RTL↓ DGI↑ DI↑ DH↑ XBL↓ DBI↓ LSSRI↑ TWI↓	$\begin{array}{c c} KM \\ \hline \\ 238.0204 \pm 3.7684 \\ 0.7191 \pm 0.0094 \\ 0.0189 \pm 0.0025 \\ 0.8118 \pm 0.0201 \\ 0.1176 \pm 0.0111 \\ 0.3632 \pm 0.0138 \\ 0.4874 \pm 0.0387 \\ 0.1809 \pm 0.0017 \\ 0.8088 \pm 0.0279 \\ 1.6654 \pm 0.6256 \\ 0.2767 \pm 0.0121 \\ 0.1368 \pm 0.0121 \\ 0.1568 \pm 0.0027 \\ 0.1568 \pm 0.0027 \\ 0.0014 \pm 0.0002 \\ 1.9179 \pm 0.0796 \\ -0.2128 \pm 0.03768 \\ 23.8020 \pm 0.3768 \\ \end{array}$	$\begin{array}{l} KM++\\ \hline & KM++\\ 238.6506 \pm 4.5788\\ 0.7199 \pm 0.0093\\ 0.0190 \pm 0.0026\\ 0.8130 \pm 0.0249\\ 0.1162 \pm 0.0138\\ 0.3669 \pm 0.0151\\ 0.4926 \pm 0.0475\\ 0.1809 \pm 0.0023\\ 0.8042 \pm 0.0336\\ 1.4157 \pm 0.4323\\ 0.2766 \pm 0.0151\\ 0.1405 \pm 0.0149\\ 2.5976 \pm 0.0149\\ 2.5976 \pm 0.0449\\ 0.0511 \pm 0.0073\\ 1.8986 \pm 0.0961\\ -0.2187 \pm 0.0433\\ 23.8651 \pm 0.4579\\ \end{array}$	$\begin{array}{c} PKM \\ \hline \\ 3 \\ \hline 2 \\ 3 \\ \hline 2 \\ 3 \\ 3 \\ 2 \\ 3 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5$	$\begin{array}{c} \hline EWPKM \\ \hline 344.0539 \pm 5.0062 \\ 0.9429 \pm 0.0013 \\ 0.1919 \pm 0.0047 \\ 0.2000 \pm 0.0057 \\ 0.3780 \pm 0.0042 \\ 0.1385 \pm 0.0032 \\ 0.1385 \pm 0.0032 \\ 0.1278 \pm 0.0011 \\ 0.0885 \pm 0.0022 \\ 17.4298 \pm 2.3087 \\ 0.0088 \pm 0.0020 \\ 0.1053 \pm 0.0137 \\ 3.5609 \pm 0.0368 \\ 0.1053 \pm 0.0017 \\ 4.9440 \pm 0.2232 \\ -2.4247 \pm 0.0225 \\ 39.5425 \pm 0.0817 \\ \end{array}$	$\begin{array}{c} SC \\ \hline 241.4227 \pm 0.0360 \\ 0.7281 \pm 0.0015 \\ 0.0231 \pm 0.0005 \\ 0.0231 \pm 0.0004 \\ 0.0231 \pm 0.0014 \\ 0.3568 \pm 0.0004 \\ 0.3568 \pm 0.0004 \\ 0.3568 \pm 0.0001 \\ 0.1785 \pm 0.0001 \\ 0.1785 \pm 0.0001 \\ 0.07446 \pm 0.0021 \\ 1.0344 \pm 0.0013 \\ 0.2740 \pm 0.0003 \\ 0.2740 \pm 0.0003 \\ 0.0733 \pm 0.0024 \\ 2.6041 \pm 0.0035 \\ 0.0007 \pm 0.0000 \\ 1.8383 \pm 0.0047 \\ -0.2950 \pm 0.0029 \\ 24.6730 \pm 0.0300 \end{array}$	$\begin{array}{c} 1.463 \pm 0.0120 \\ \hline HC \\ \hline 237.9126 \pm 0.0000 \\ 0.7253 \pm 0.0000 \\ 0.0218 \pm 0.0000 \\ 0.0218 \pm 0.0000 \\ 0.1245 \pm 0.0000 \\ 0.1245 \pm 0.0000 \\ 0.3552 \pm 0.0000 \\ 0.3552 \pm 0.0000 \\ 0.3552 \pm 0.0000 \\ 0.1791 \pm 0.0000 \\ 0.7653 \pm 0.0000 \\ 0.2671 \pm 0.0000 \\ 0.2671 \pm 0.0000 \\ 0.1596 \pm 0.0000 \\ 0.1596 \pm 0.0000 \\ 0.1596 \pm 0.0000 \\ 0.093 \pm 0.0000 \\ 0.093 \pm 0.0000 \\ 0.2073 \pm 0.0000 \\ 0.2673 \pm 0.0000 \\ 0.2633 \pm 0.0000 \\ 0.0008 \pm 0.0000 \\ 0.0008 \pm 0.0000 \\ 0.0008 \pm 0.0000 \\ 0.02653 \pm 0.0000 \\ 0.02653 \pm 0.0000 \\ 0.02653 \pm 0.0000 \\ 0.02653 \pm 0.0000 \\ 0.0008 \pm 0.$	$\begin{array}{c} \text{CAPKM}{+}+2.0 \\ \hline \text{CAPKM}{+}+2.0 \\ \textbf{i} 234.8252 \pm 0.0000 \\ \textbf{0.7111} \pm 0.0000 \\ \textbf{0.0168} \pm 0.0000 \\ \textbf{0.0168} \pm 0.0000 \\ \textbf{0.3701} \pm 0.0000 \\ \textbf{0.3701} \pm 0.0000 \\ \textbf{0.3701} \pm 0.0000 \\ \textbf{0.1821} \pm 0.0000 \\ \textbf{0.1821} \pm 0.0000 \\ \textbf{0.1824} \pm 0.0000 \\ \textbf{0.1133} \pm 0.0000 \\ \textbf{0.1133} \pm 0.0000 \\ \textbf{0.1139} \pm 0.0000 \\ \textbf{0.1545} \pm 0.0001 \\ \textbf{0.1545} \pm 0.0001 \\ \textbf{0.1545} \pm 0.0001 \\ \textbf{0.8534} \pm 0.0002 \\ \textbf{-0.1827} \pm 0.0000 \\ \textbf{2.34825} \pm 0.0000 \\ \textbf{23.4825} \pm 0.0000 \end{array}$
Optdigits WGSS↓ MRI↓ GPI↓ BHGI↑ CI↓ TI↑ CHI↑ RII↓ CHI↑ RII↓ DI↑ BHI↑ PBMI↑ XBI↓ DBI↓ DBI↓ CHI↑ RII↓ ACC↑	$\begin{array}{c c} KM \\ \hline \\ 238.0204 \pm 3.7684 \\ 0.7191 \pm 0.0094 \\ 0.0189 \pm 0.0025 \\ 0.0189 \pm 0.0025 \\ 0.8118 \pm 0.0201 \\ 0.1176 \pm 0.0111 \\ 0.1363 \pm 0.0138 \\ 0.4874 \pm 0.0387 \\ 0.1809 \pm 0.0017 \\ 0.8088 \pm 0.0279 \\ 1.6654 \pm 0.6256 \\ 0.2767 \pm 0.0121 \\ 0.1368 \pm 0.0121 \\ 0.1568 \pm 0.0027 \\ 0.1568 \pm 0.0027 \\ 0.1568 \pm 0.0027 \\ 0.014 \pm 0.0002 \\ 1.9179 \pm 0.0796 \\ -0.2128 \pm 0.0356 \\ 23.8020 \pm 0.3768 \\ 0.7537 \pm 0.0641 \\ 0.7342 + 0.027 \end{array}$	$\begin{array}{r} KM++\\ 238.6506 \pm 4.5788\\ 0.7199 \pm 0.0093\\ 0.0190 \pm 0.0026\\ 0.8130 \pm 0.0249\\ 0.1162 \pm 0.0138\\ 0.8042 \pm 0.0151\\ 0.4926 \pm 0.0475\\ 0.8042 \pm 0.0336\\ 1.4157 \pm 0.4323\\ 0.2766 \pm 0.0151\\ 0.1405 \pm 0.0149\\ 2.5976 \pm 0.0149\\ 2.5976 \pm 0.0449\\ 0.0561 \pm 0.0073\\ 1.8986 \pm 0.0961\\ -0.2187 \pm 0.0433\\ 23.8651 \pm 0.4579\\ 0.7357 \pm 0.0528\\ 0.7357 \pm 0.0528\\ 0.7357 \pm 0.0528\\ 0.7358 + 0.0028\\ \end{array}$	$\begin{array}{c} PKM \\ \hline 3 235.2651 \pm 0.7834 \\ \hline $0.7111 \pm 0.0025 \\ 0.0169 \pm 0.0006 \\ \hline $0.8237 \pm 0.0063 \\ \hline $0.1115 \pm 0.0045 \\ 0.3606 \pm 0.0087 \\ 0.4799 \pm 0.0476 \\ \hline $0.1820 \pm 0.0004 \\ \hline $0.8296 \pm 0.0060 \\ 1.5200 \pm 0.2926 \\ \hline $0.2826 \pm 0.0055 \\ \hline $0.1331 \pm 0.0139 \\ 2.5910 \pm 0.0037 \\ 0.1547 \pm 0.0033 \\ 0.0014 \pm 0.0003 \\ 1.9102 \pm 0.0473 \\ \hline $0.1547 \pm 0.0073 \\ \hline $2.5267 \pm 0.0783 \\ 0.7950 \pm 0.0256 \\ 0.786 \pm 0.011 \\ \hline $0.786 \pm 0.011 \\ \hline 0.7	$\begin{array}{c} \hline EWPKM \\ \hline 344.0539 \pm 5.0062 \\ 0.9429 \pm 0.0013 \\ 0.1919 \pm 0.0047 \\ 0.2000 \pm 0.0057 \\ 0.3780 \pm 0.0032 \\ 0.1385 \pm 0.0032 \\ 0.1385 \pm 0.0012 \\ 0.1278 \pm 0.0011 \\ 0.0885 \pm 0.0022 \\ 17.4298 \pm 2.3087 \\ 0.0088 \pm 0.0022 \\ 17.4298 \pm 0.0037 \\ 0.0089 \pm 0.0020 \\ 0.1053 \pm 0.0037 \\ 0.0030 \pm 0.0007 \\ 4.9440 \pm 0.2232 \\ -2.4247 \pm 0.0255 \\ 39.5425 \pm 0.0817 \\ 0.1354 \pm 0.0039 \\ 0.1355 \pm 0.00039 \\ 0.$	$\begin{array}{c} & \\ & \\ & \\ SC \\ \hline \\ & 241.4227 \pm 0.0360 \\ & \\ & 0.0231 \pm 0.0015 \\ & 0.00231 \pm 0.0003 \\ & \\ & 0.0231 \pm 0.0014 \\ & 0.03568 \pm 0.0004 \\ & 0.0568 \pm 0.0004 \\ & 0.0568 \pm 0.0001 \\ & 0.0746 \pm 0.0021 \\ & 1.0344 \pm 0.0013 \\ & 0.0740 \pm 0.0003 \\ & 0.7404 \pm 0.0003 \\ & 0.7404 \pm 0.0003 \\ & 0.1703 \pm 0.0004 \\ & 2.6041 \pm 0.0003 \\ & 0.1900 \pm 0.0005 \\ \hline & 0.0007 \pm 0.0000 \\ & 1.8383 \pm 0.0047 \\ & -0.2950 \pm 0.0029 \\ & 24.6730 \pm 0.0030 \\ & 0.8265 \pm 0.0003 \\ & 0.8708 \pm 0.0003 \\ \hline \end{array}$	$\begin{array}{c} 1.463 \pm 0.0020 \\ \hline HC \\ \hline 237.9126 \pm 0.0000 \\ 0.7253 \pm 0.0000 \\ 0.0218 \pm 0.0000 \\ 0.0218 \pm 0.0000 \\ 0.1245 \pm 0.0000 \\ 0.1245 \pm 0.0000 \\ 0.3552 \pm 0.0000 \\ 0.3552 \pm 0.0000 \\ 0.1791 \pm 0.0000 \\ 0.1635 \pm 0.0000 \\ 0.1692 \pm 0.0000 \\ 0.1692 \pm 0.0000 \\ 0.1596 \pm 0.0000 \\ 0.1596 \pm 0.0000 \\ 0.1993 \pm 0.0000 \\ 0.093 \pm 0.0000 \\ 0.2671 \pm 0.0000 \\ 0.2671 \pm 0.0000 \\ 0.2671 \pm 0.0000 \\ 0.2631 \pm 0.0000 \\ 0.2631 \pm 0.0000 \\ 0.2631 \pm 0.0000 \\ 0.2631 \pm 0.0000 \\ 0.2635 \pm 0.0000 \\ 0.2635 \pm 0.0000 \\ 0.2355 \pm 0.0000 \\ 0.889 \pm 0.0000 \\ 0.889 \pm 0.0000 \\ 0.0000 $	$\begin{array}{c} \text{CAPKM}{+}+2.0 \\ \hline \text{CAPKM}{+}+2.0 \\ \textbf{i} 234.8252 \pm 0.0000 \\ \textbf{0.7111} \pm 0.0000 \\ \textbf{0.0168} \pm 0.0000 \\ \textbf{0.0168} \pm 0.0000 \\ \textbf{0.3701} \pm 0.0000 \\ \textbf{0.3701} \pm 0.0000 \\ \textbf{0.3701} \pm 0.0000 \\ \textbf{0.1821} \pm 0.0000 \\ \textbf{0.1821} \pm 0.0000 \\ \textbf{0.1824} \pm 0.0000 \\ \textbf{0.1133} \pm 0.0000 \\ \textbf{0.1133} \pm 0.0000 \\ \textbf{0.1139} \pm 0.0000 \\ \textbf{0.2904} \pm 0.0000 \\ \textbf{0.1545} \pm 0.0001 \\ \textbf{0.1545} \pm 0.0001 \\ \textbf{0.019} \pm 0.0000 \\ \textbf{2.34825} \pm 0.0000 \\ \textbf{2.34825} \pm 0.0000 \\ \textbf{0.7914} \pm 0.0000 \\ \textbf{0.7914} \pm 0.0001 \\ \textbf{0.7563} + 0.0001 \\ \textbf{0.7563} + 0.0000 \\ \textbf{0.7563} + 0.00001 \\ \textbf{0.7563} + 0.000$
Optdigits WGSS↓ MRI↓ GPI↓ BHGI↑ CI↓ TI↑ DGI↑ CH↓ WGI↑ DI↑ PBMI↑ XBL↓ DBI↓ LSSRI↑ TWI↓ ACC↑ NMI↑ ARI↑	$\begin{array}{c c} KM \\ \hline \\ 238.0204 \pm 3.7684 \\ 0.7191 \pm 0.0094 \\ 0.0189 \pm 0.0025 \\ 0.8118 \pm 0.0201 \\ 0.1176 \pm 0.0111 \\ 0.3632 \pm 0.0138 \\ 0.4874 \pm 0.0387 \\ 0.1809 \pm 0.0017 \\ 0.8088 \pm 0.0279 \\ 1.6654 \pm 0.6256 \\ 0.2767 \pm 0.0121 \\ 0.1568 \pm 0.0427 \\ 0.1568 \pm 0.0427 \\ 0.1568 \pm 0.0427 \\ 0.1568 \pm 0.0022 \\ 1.9179 \pm 0.0796 \\ 2.38020 \pm 0.3768 \\ 0.7537 \pm 0.0641 \\ 0.7342 \pm 0.0272 \\ 0.6355 \pm 0.0602 \\ \end{array}$	$\begin{array}{l} KM++\\ 238.6506 \pm 4.5788\\ 0.7199 \pm 0.0093\\ 0.0190 \pm 0.0026\\ 0.8130 \pm 0.0249\\ 0.1162 \pm 0.0138\\ 0.1162 \pm 0.0138\\ 0.8042 \pm 0.0336\\ 1.4157 \pm 0.4323\\ 0.8042 \pm 0.0336\\ 1.4157 \pm 0.4323\\ 0.2766 \pm 0.0149\\ 2.5976 \pm 0.0149\\ 2.5976 \pm 0.0149\\ 2.5976 \pm 0.00449\\ 0.1561 \pm 0.0073\\ 3.00013 \pm 0.0003\\ 1.8986 \pm 0.0961\\ -0.2187 \pm 0.0433\\ 23.8651 \pm 0.4579\\ 0.7357 \pm 0.0528\\ 0.7240 \pm 0.0255\\ 0.7240 \pm 0.0507\\ \end{array}$	$\begin{array}{c} PKM \\ \hline \\ \textbf{3} \ \textbf{235.2651} \pm 0.7834 \\ \textbf{0.7111} \pm \textbf{0.0025} \\ \textbf{0.0169} \pm 0.0006 \\ \textbf{0.8237} \pm 0.0063 \\ \hline \textbf{0.1115} \pm \textbf{0.0045} \\ \hline \textbf{0.1115} \pm \textbf{0.0045} \\ \hline \textbf{0.1115} \pm \textbf{0.0045} \\ \hline \textbf{0.115} \pm \textbf{0.0045} \\ \hline \textbf{0.1820} \pm 0.0004 \\ \hline \textbf{0.8296} \pm 0.0060 \\ \hline \textbf{1.5200} \pm 0.2926 \\ \hline \textbf{0.2826} \pm 0.0055 \\ \hline \textbf{0.1331} \pm \textbf{0.0139} \\ \hline \textbf{2.5910} \pm \textbf{0.0033} \\ \hline \textbf{0.1547} \pm \textbf{0.0033} \\ \hline \textbf{0.1547} \pm \textbf{0.0033} \\ \hline \textbf{0.192 \pm 0.0073} \\ \hline \textbf{2.5267} \pm \textbf{0.0783} \\ \hline \textbf{0.7860} \pm \textbf{0.0113} \\ \hline \textbf{0.7256} \pm \textbf{0.011} \\ \hline \textbf{0.722} \pm \textbf{0.0256} \\ \hline \textbf{0.7426} \pm \textbf{0.0250} \\ \hline \textbf{0.6722} \pm \textbf{0.0250} \\ \hline \end{array}$	$\begin{array}{c} \hline EWPKM \\ \hline 344.0539 \pm 5.0062 \\ 0.9429 \pm 0.0013 \\ 0.1919 \pm 0.0047 \\ 0.2000 \pm 0.0057 \\ 0.3780 \pm 0.0044 \\ 0.1385 \pm 0.0032 \\ 0.1385 \pm 0.0032 \\ 0.1278 \pm 0.0011 \\ 0.0885 \pm 0.0022 \\ 17.4298 \pm 2.3087 \\ 0.0088 \pm 0.0022 \\ 0.1053 \pm 0.0137 \\ 3.5609 \pm 0.0368 \\ 0.1059 \pm 0.0007 \\ 4.9440 \pm 0.2232 \\ -2.4247 \pm 0.0255 \\ 39.5425 \pm 0.0817 \\ 0.1741 \pm 0.0039 \\ 0.1355 \pm 0.0037 \\ 0.0135 \pm 0.0003 \\ 0.0039 \\ 0.0039 \\ 0.0039 \\ 0.0039 \\ 0.0039 \\ 0.0039 \\ 0.0039 \\ 0.0039 \\ 0.0039 \\ 0.0039 \\ 0.0030 \\ 0.0030 \\ 0.0030 \\ 0.0030 \\ 0.0039 \\ 0.0039 \\ 0.0030$	$\begin{array}{c} & \\ & \\ & \\ SC \\ \hline \\ & 241.4227 \pm 0.0360 \\ & \\ & \\ & \\ & \\ & \\ & \\ & \\ & \\ & \\ $	$\begin{array}{c} 1.463 \pm 0.0120 \\ \hline HC \\ 237.9126 \pm 0.0000 \\ 0.7253 \pm 0.0000 \\ 0.0218 \pm 0.0000 \\ 0.0218 \pm 0.0000 \\ 0.1245 \pm 0.0000 \\ 0.1245 \pm 0.0000 \\ 0.3552 \pm 0.0000 \\ 0.3552 \pm 0.0000 \\ 0.1791 \pm 0.0000 \\ 0.7653 \pm 0.0000 \\ 0.2671 \pm 0.0000 \\ 0.2671 \pm 0.0000 \\ 0.1596 \pm 0.0000 \\ 0.1596 \pm 0.0000 \\ 0.1596 \pm 0.0000 \\ 0.1596 \pm 0.0000 \\ 0.352 \pm 0.0000 \\ 0.353 \pm 0.0000 \\ 0.2353 \pm 0.0000 \\ 0.24333 5 \pm 0.0000 \\ 0.8255 \pm 0.0000 \\ 0.7170 \pm 0.0000 \\ 0.7170 \pm 0.0000 \\ \end{array}$	$\begin{array}{c} \text{CAPKM}{+}+2.0 \\ \hline \text{CAPKM}{+}+2.0 \\ \hline \text{c} \textbf{234.8252} \pm 0.0000 \\ \textbf{0.7111} \pm 0.0000 \\ \textbf{0.0168} \pm 0.0000 \\ \textbf{0.0168} \pm 0.0000 \\ \textbf{0.3701} \pm 0.0000 \\ \textbf{0.3701} \pm 0.0000 \\ \textbf{0.3701} \pm 0.0000 \\ \textbf{0.1821} \pm 0.0000 \\ \textbf{0.1821} \pm 0.0000 \\ \textbf{0.1824} \pm 0.0000 \\ \textbf{0.1824} \pm 0.0000 \\ \textbf{0.1139} \pm 0.0000 \\ \textbf{0.139} \pm 0.0000 \\ \textbf{0.139} \pm 0.0000 \\ \textbf{0.1545} \pm 0.0001 \\ \textbf{0.01545} \pm 0.0000 \\ \textbf{2.5848} \pm 0.0001 \\ \textbf{0.019} \pm 0.0000 \\ \textbf{2.34825} \pm 0.0000 \\ \textbf{2.34825} \pm 0.0000 \\ \textbf{0.7914} \pm 0.0001 \\ \textbf{0.7563} \pm 0.0002 \\ \textbf{0.6704} \pm 0.0002 \\ \end{array}$
Optdigits WGSS↓ MRL↓ GPI↓ BHGI↑ CL↓ TI↑ DGI↑ RLI↑ DH BHGI↑ XBL↓ DBI↓ LSSRI↑ TWI↓ ACC↑ NMI↑ ARI↑ Optdigits	$\begin{array}{c} {\rm KM} \\ 238.0204 \pm 3.7684 \\ 0.7191 \pm 0.0094 \\ 0.0189 \pm 0.0025 \\ 0.0189 \pm 0.0025 \\ 0.8118 \pm 0.0201 \\ 0.1176 \pm 0.0111 \\ 0.3632 \pm 0.0138 \\ 0.4874 \pm 0.0387 \\ 0.1809 \pm 0.0017 \\ 0.8088 \pm 0.0279 \\ 1.6654 \pm 0.6256 \\ 0.2767 \pm 0.0121 \\ 0.1568 \pm 0.0427 \\ 0.1568 \pm 0.0427 \\ 0.1568 \pm 0.0427 \\ 0.1568 \pm 0.0052 \\ 0.0014 \pm 0.0092 \\ 1.9179 \pm 0.0796 \\ 2.3.8020 \pm 0.3768 \\ 0.7537 \pm 0.0641 \\ 0.7342 \pm 0.0272 \\ 0.6355 \pm 0.0602 \\ {\rm FCM} \end{array}$	$\begin{array}{r} KM++\\ 238.6506 \pm 4.5788\\ 0.7199 \pm 0.0093\\ 0.0190 \pm 0.0026\\ 0.8130 \pm 0.0249\\ 0.1162 \pm 0.0138\\ 0.8042 \pm 0.0151\\ 0.4926 \pm 0.0475\\ 0.1809 \pm 0.0023\\ 0.8042 \pm 0.0336\\ 1.4157 \pm 0.4323\\ 0.2766 \pm 0.0149\\ 0.2767 \pm 0.0149\\ 2.5976 \pm 0.0149\\ 2.5976 \pm 0.0149\\ 2.5976 \pm 0.0031\\ 1.8986 \pm 0.0961\\ -0.2187 \pm 0.0433\\ 23.8651 \pm 0.4579\\ 0.7357 \pm 0.0528\\ 0.7240 \pm 0.0255\\ 0.6160 \pm 0.0507\\ \hline \end{array}$	$\begin{array}{c} PKM \\ \hline \\ \textbf{3} \ \textbf{235.2651} \pm 0.7834 \\ \textbf{0.7111} \pm 0.0025 \\ \textbf{0.0169} \pm 0.0006 \\ \hline \textbf{0.8237} \pm 0.0063 \\ \hline \textbf{0.1115} \pm 0.0045 \\ \hline \textbf{0.1115} \pm 0.0045 \\ \hline \textbf{0.1115} \pm 0.0045 \\ \hline \textbf{0.120} \pm 0.0004 \\ \hline \textbf{0.8296} \pm 0.0060 \\ \hline \textbf{1.5200} \pm 0.2926 \\ \hline \textbf{0.2826} \pm 0.0055 \\ \hline \textbf{0.1331} \pm 0.0139 \\ \hline \textbf{2.5910} \pm 0.0033 \\ \hline \textbf{0.1547} \pm 0.0073 \\ \hline \textbf{23.5267} \pm 0.0783 \\ \hline \textbf{0.7786} \pm 0.0071 \\ \hline \textbf{0.7486} \pm 0.0111 \\ \hline \textbf{0.7486} \pm 0.0250 \\ \hline \textbf{FSC} \end{array}$	$\begin{array}{c} \hline EWPKM \\ \hline 344.0539 \pm 5.0062 \\ 0.9429 \pm 0.0013 \\ 0.1919 \pm 0.0047 \\ 0.2000 \pm 0.0057 \\ 0.3780 \pm 0.0044 \\ 0.1385 \pm 0.0032 \\ 0.1385 \pm 0.0032 \\ 0.1278 \pm 0.0011 \\ 0.0885 \pm 0.0022 \\ 17.4298 \pm 2.3087 \\ 0.0088 \pm 0.0022 \\ 0.1053 \pm 0.0137 \\ 3.5609 \pm 0.0368 \\ 0.1059 \pm 0.0007 \\ 4.9440 \pm 0.2232 \\ -2.4247 \pm 0.0255 \\ 39.5425 \pm 0.0817 \\ 0.1741 \pm 0.0039 \\ 0.1355 \pm 0.0017 \\ 0.0150 \pm 0.0017 \\ \end{array}$	$\begin{array}{c} & \\ & \\ & \\ SC \\ \hline \\ & 241.4227 \pm 0.0360 \\ & \\ & 0.7281 \pm 0.0015 \\ & 0.0231 \pm 0.0003 \\ & \\ & 0.1251 \pm 0.0014 \\ & \\ & 0.3568 \pm 0.0004 \\ & \\ & 0.3568 \pm 0.0004 \\ & \\ & 0.3568 \pm 0.0001 \\ & \\ & 0.3568 \pm 0.0011 \\ & \\ & 0.3740 \pm 0.0013 \\ & 0.740 \pm 0.0003 \\ & \\ & 0.740 \pm 0.0003 \\ & \\ & 0.1703 \pm 0.0024 \\ & 2.6041 \pm 0.0035 \\ & \\ & 0.1900 \pm 0.0005 \\ & \\ & 0.0007 \pm 0.0000 \\ & \\ & 1.8383 \pm 0.0024 \\ & 2.6041 \pm 0.0035 \\ & \\ & 0.0007 \pm 0.0000 \\ & \\ & 1.8383 \pm 0.0024 \\ & 2.6041 \pm 0.0035 \\ & \\ & 0.0007 \pm 0.0000 \\ & \\ & 0.1900 \pm 0.0005 \\ & \\ & 0.0250 \pm 0.0023 \\ & \\ & 0.6050 \pm 0.0003 \\ & \\ & 0.7799 \pm 0.0003 \\ & \\ & \\ & \\ & \\ & \\ & \\ & \\ & \\ & \\ $	$\begin{array}{c} 1.463 \pm 0.0120 \\ \hline HC \\ 237.9126 \pm 0.0000 \\ 0.7253 \pm 0.0000 \\ 0.0218 \pm 0.0000 \\ 0.0218 \pm 0.0000 \\ 0.1245 \pm 0.0000 \\ 0.1245 \pm 0.0000 \\ 0.3552 \pm 0.0000 \\ 0.3552 \pm 0.0000 \\ 0.1791 \pm 0.0000 \\ 0.1614 \pm 0.0000 \\ 0.1691 \pm 0.0000 \\ 0.1692 \pm 0.0000 \\ 0.1596 \pm 0.0000 \\ 0.1596 \pm 0.0000 \\ 0.1596 \pm 0.0000 \\ 0.1596 \pm 0.0000 \\ 0.02671 \pm 0.0000 \\ 0.2671 \pm 0.0000 \\ 0.3552 \pm 0.0000 \\ 0.0008 \pm 0.0000 \\ 0.0008 \pm 0.0000 \\ 0.8899 \pm 0.0000 \\ 0.8250 \pm 0.0000 \\ 0.7170 \pm 0.0000 \\ \hline \text{KFCM} \end{array}$	$\begin{array}{c} \text{CAPKM}{++2.0} \\ \hline \text{CAPKM}{++2.0} \\ \textbf{234.8252} \pm 0.0000 \\ \textbf{0.7111} \pm 0.0000 \\ \textbf{0.0168} \pm 0.0000 \\ \textbf{0.3017} \pm 0.0000 \\ \textbf{0.3701} \pm 0.0000 \\ \textbf{0.3701} \pm 0.0000 \\ \textbf{0.3701} \pm 0.0000 \\ \textbf{0.1821} \pm 0.0000 \\ \textbf{0.1821} \pm 0.0000 \\ \textbf{0.1824} \pm 0.0000 \\ \textbf{0.1824} \pm 0.0000 \\ \textbf{0.1139} \pm 0.0000 \\ \textbf{0.139} \pm 0.0000 \\ \textbf{0.139} \pm 0.0000 \\ \textbf{0.1545} \pm 0.0001 \\ \textbf{0.01545} \pm 0.0001 \\ \textbf{0.019} \pm 0.0002 \\ \textbf{-0.1827} \pm 0.0000 \\ \textbf{2.34825} \pm 0.0001 \\ \textbf{0.7563} \pm 0.0002 \\ \textbf{0.7763} \pm 0.0002 \\ \textbf{0.6704} \pm 0.0002 \\ \textbf{CAFCM} \\ \end{array}$
Optdigits WGSS↓ MRI↓ GPI↓ BHGI↑ CI↓ TI↑ DGI↑ RLI↑ CH↓ PBU↓ BHGI↑ CH↓ DI↑ BHI↑ PBMI↑ XBI↓ LSSRI↑ TWI↓ ARL↑ Optdigits WGSS↓	$\begin{array}{c} {\rm KM} \\ 238.0204 \pm 3.7684 \\ 0.7191 \pm 0.0094 \\ 0.0189 \pm 0.0025 \\ 0.0189 \pm 0.0025 \\ 0.8118 \pm 0.0201 \\ 0.1176 \pm 0.0111 \\ 0.3632 \pm 0.0138 \\ 0.4874 \pm 0.0387 \\ 0.1809 \pm 0.0017 \\ 0.8088 \pm 0.0279 \\ 1.6654 \pm 0.6256 \\ 0.2767 \pm 0.0121 \\ 0.1568 \pm 0.00427 \\ 0.1568 \pm 0.0057 \\ 0.0014 \pm 0.0056 \\ 23.8020 \pm 0.3768 \\ 0.7342 \pm 0.0356 \\ 23.8020 \pm 0.0356 \\ 23.8020 \pm 0.0356 \\ 23.8020 \pm 0.0356 \\ 23.8020 \pm 0.03768 \\ 0.7342 \pm 0.0272 \\ 0.6355 \pm 0.0602 \\ \hline {\rm FCM} \\ 301.2430 \pm 10.6738 \\ 0.0541 \pm 0.0354 \\ 0.0541 \pm 0.0354 \\ 0.0541 \pm 0.0356 \\ \hline {\rm KM} \\ 0.0541 \pm 0.0356 \\ \hline {\rm KM} \\ 0.0158 \\ 0.0158 \\ \hline {\rm KM} \\ 0.0158 \\ 0.0018 \\ \hline {\rm KM} \\ 0.0158 \\ 0.0018 \\ 0.0018 \\ \hline {\rm KM} \\ 0.0158 \\ 0.0018 \\ 0.0018 \\ \hline {\rm KM} \\ 0.018 $	$\begin{array}{r} KM++\\ 238.6506 \pm 4.5788\\ 0.7199 \pm 0.0093\\ 0.0190 \pm 0.0026\\ 0.8130 \pm 0.0249\\ 0.1162 \pm 0.0138\\ 0.3669 \pm 0.0151\\ 0.4926 \pm 0.0475\\ 0.1809 \pm 0.0023\\ 0.8042 \pm 0.0336\\ 1.4157 \pm 0.4323\\ 0.2766 \pm 0.0151\\ 0.1405 \pm 0.0149\\ 2.5976 \pm 0.0449\\ 0.1561 \pm 0.0073\\ 3.00013 \pm 0.0003\\ 1.8986 \pm 0.0043\\ 2.38651 \pm 0.4579\\ 0.7367 \pm 0.0433\\ 23.8651 \pm 0.4579\\ 0.7367 \pm 0.0528\\ 0.7240 \pm 0.255\\ 0.6160 \pm 0.0507\\ \hline \text{MEC}\\ \hline 289.1568 \pm 9.2649\\ 0.9245 \pm 0.0158\\ \hline \end{array}$	$\begin{array}{c} PKM \\ \hline \\ 3 \ 235.2651 \pm 0.7834 \\ \hline 0.7111 \pm 0.0025 \\ 0.0169 \pm 0.0006 \\ 0.8237 \pm 0.0063 \\ 0.1115 \pm 0.0045 \\ \hline 0.3606 \pm 0.0087 \\ 0.4799 \pm 0.0476 \\ 0.1820 \pm 0.0004 \\ \hline 0.8296 \pm 0.0060 \\ 1.5200 \pm 0.2926 \\ 0.2826 \pm 0.0055 \\ \hline 0.1331 \pm 0.0139 \\ 2.5910 \pm 0.0033 \\ 0.01547 \pm 0.0033 \\ 0.0014 \pm 0.0003 \\ 1.9102 \pm 0.0474 \\ \hline 0.1809 \pm 0.0073 \\ 23.5267 \pm 0.0783 \\ 0.7486 \pm 0.0111 \\ 0.7486 \pm 0.0111 \\ 0.7486 \pm 0.0111 \\ 0.7486 \pm 0.0115 \\ 0.7486 \pm 1.0150 \\ FSC \\ \hline 387.2978 \pm 11.7520 \\ 0.0156 \pm 0.0116 \\ \hline \end{array}$	$\begin{array}{c} \hline EWPKM \\ \hline 344.0539 \pm 5.0062 \\ 0.9429 \pm 0.0013 \\ 0.9429 \pm 0.0043 \\ 0.01919 \pm 0.0047 \\ 0.2000 \pm 0.0057 \\ 0.3780 \pm 0.0044 \\ 0.1385 \pm 0.0032 \\ 0.1385 \pm 0.0032 \\ 0.1278 \pm 0.0011 \\ 0.0885 \pm 0.0022 \\ 17.4298 \pm 2.3087 \\ 0.0089 \pm 0.0026 \\ 0.1053 \pm 0.0137 \\ 3.5609 \pm 0.0368 \\ 0.1059 \pm 0.0047 \\ 0.0030 \pm 0.0007 \\ 4.9440 \pm 0.2232 \\ -2.4247 \pm 0.0255 \\ 39.5425 \pm 0.0817 \\ 0.1741 \pm 0.0039 \\ 0.1355 \pm 0.0001 \\ 0.155 \pm 0.0001 \\ 0.039 \pm 0.0013 \\ 2PFCM \\ \hline 306.0312 \pm 0.0000 \\ 0.8098 \pm 0.0000 \\ \end{array}$	$\begin{array}{c} SC \\ \hline 241.4227 \pm 0.0360 \\ 0.7281 \pm 0.0015 \\ 0.0231 \pm 0.0005 \\ 0.7793 \pm 0.0034 \\ 0.1251 \pm 0.0014 \\ 0.3568 \pm 0.0004 \\ 0.6619 \pm 0.0100 \\ 0.1785 \pm 0.0001 \\ 0.7446 \pm 0.0021 \\ 1.0344 \pm 0.0013 \\ 0.2740 \pm 0.0003 \\ 0.1703 \pm 0.0024 \\ 2.6041 \pm 0.0003 \\ 0.1900 \pm 0.0005 \\ \hline 0.0007 \pm 0.0000 \\ 1.8383 \pm 0.0024 \\ 2.6041 \pm 0.0035 \\ 0.0007 \pm 0.0000 \\ 1.8383 \pm 0.0024 \\ 2.6050 \pm 0.0003 \\ 0.8708 \pm 0.0003 \\ 0.8708 \pm 0.0003 \\ 0.8708 \pm 0.0003 \\ BFC \\ 365.3603 \pm 7.7366 \\ 0.02924 \pm 0.0013 \\ 0.02924 \pm 0.0003 \\ 0.0003 \\ 0.0003 \pm 0.0003 \\ 0.0003 \\ 0.0003 \\ 0.0003 \\ 0.0003 \\ 0.0003 $	$\begin{array}{c} 1.463 \pm 0.0120 \\ \hline HC \\ \hline 237.9126 \pm 0.0000 \\ 0.7253 \pm 0.0000 \\ 0.0218 \pm 0.0000 \\ 0.0218 \pm 0.0000 \\ 0.1245 \pm 0.0000 \\ 0.1245 \pm 0.0000 \\ 0.3552 \pm 0.0000 \\ 0.3552 \pm 0.0000 \\ 0.7613 \pm 0.0000 \\ 0.7653 \pm 0.0000 \\ 0.7613 \pm 0.0000 \\ 0.2671 \pm 0.0000 \\ 0.2671 \pm 0.0000 \\ 0.2671 \pm 0.0000 \\ 0.2671 \pm 0.0000 \\ 0.4261 \pm 0.0000 \\ 0.2671 \pm 0.0000 \\ 0.753 \pm 0.0000 \\ 0.2673 \pm 0.0000 \\ 0.5850 \pm 0.0000 \\ 0.2383 \pm 0.0000 \\ 0.7170 \pm 0.0000 \\ \hline \text{KFCM} \\ \hline 287.3822 \pm 9.4675 \\ 0.9218 \pm 0.0001 \\ \hline \end{array}$	$\begin{array}{c} \text{CAPKM}{+}\pm 0.0000\\ \hline \text{CAPKM}{+}\pm 2.0\\ \textbf{234.8252} \pm 0.0000\\ \textbf{0.7111} \pm 0.0000\\ \textbf{0.0168} \pm 0.0000\\ \textbf{0.0168} \pm 0.0000\\ \textbf{0.3701} \pm 0.0000\\ \textbf{0.3701} \pm 0.0000\\ \textbf{0.3701} \pm 0.0000\\ \textbf{0.1821} \pm 0.0000\\ \textbf{0.1821} \pm 0.0000\\ \textbf{0.1821} \pm 0.0000\\ \textbf{0.1824} \pm 0.0000\\ \textbf{0.1139} \pm 0.0000\\ \textbf{0.1139} \pm 0.0000\\ \textbf{0.1139} \pm 0.0000\\ \textbf{0.1139} \pm 0.0000\\ \textbf{0.1545} \pm 0.0001\\ \textbf{0.0194} \pm 0.0000\\ \textbf{2.34825} \pm 0.0000\\ \textbf{2.34825} \pm 0.0000\\ \textbf{0.7563} \pm 0.0002\\ \textbf{0.7564} \pm 0.0002\\ \textbf{0.7564} \pm 0.0002\\ \textbf{0.7564} \pm 0.0002\\ \textbf{0.6704} \pm 0.0002\\ \textbf{CAFCM}\\ \hline \textbf{234.8252} \pm \textbf{0.0000}\\ \textbf{0.7514} \pm \textbf{0.0002}\\ \hline \textbf{0.0012}\\ \hline \textbf{0.0012}\\ \hline \textbf{0.0012}\\ \hline \textbf{0.0012}\\ \hline \textbf{0.0012}\\ \hline \textbf{0.0002}\\ \hline \textbf{0.0012}\\ \hline \textbf{0.0002}\\ \hline \textbf{0.0002}$
Optdigits WGSS↓ WGSS↓ BHGI↑ Cl↓ DGI↑ RLI↑ CH↓ BHGI↑ CH↓ DGI↑ RLI↑ DI↑ BHI↑ PBMI↑ XBI↓ LSSRI↑ TWI↓ ACC↑ MRI↓ GPI↓ MRI↓ GPI↓	$\begin{array}{c} {\rm KM} \\ 238.0204 \pm 3.7684 \\ 0.7191 \pm 0.0094 \\ 0.0189 \pm 0.0025 \\ 0.8118 \pm 0.0201 \\ 0.1176 \pm 0.0111 \\ 0.3632 \pm 0.0138 \\ 0.4874 \pm 0.0387 \\ 0.1809 \pm 0.0017 \\ 0.8088 \pm 0.0279 \\ 1.6654 \pm 0.6256 \\ 0.2767 \pm 0.0121 \\ 0.1568 \pm 0.00427 \\ 0.1568 \pm 0.0057 \\ 0.0014 \pm 0.0052 \\ 0.0014 \pm 0.0356 \\ 23.8020 \pm 0.3768 \\ 0.7537 \pm 0.0641 \\ 0.7342 \pm 0.0272 \\ 0.6355 \pm 0.0602 \\ \hline {\rm FCM} \\ 301.2430 \pm 10.6738 \\ 0.8541 \pm 0.0154 \\ 0.0935 \pm 0.0161 \\ \end{array}$	$\begin{array}{r} KM++\\ 238.6506 \pm 4.5788\\ 0.7199 \pm 0.0093\\ 0.0190 \pm 0.0026\\ 0.8130 \pm 0.0249\\ 0.1162 \pm 0.0138\\ 0.3669 \pm 0.0151\\ 0.4926 \pm 0.0475\\ 0.1809 \pm 0.0023\\ 0.8042 \pm 0.0336\\ 1.4157 \pm 0.4323\\ 0.2766 \pm 0.0151\\ 0.1405 \pm 0.0149\\ 2.5976 \pm 0.0449\\ 0.1561 \pm 0.0073\\ 1.8986 \pm 0.0031\\ 1.8986 \pm 0.0031\\ 1.8986 \pm 0.0031\\ 2.38651 \pm 0.4579\\ 0.7357 \pm 0.0528\\ 0.7240 \pm 0.0255\\ 0.6160 \pm 0.0507\\ \hline \text{MEC}\\ \hline 2289.1568 \pm 9.2649\\ 0.8345 \pm 0.0171\\ 0.0734 \pm 0.0161\\ \hline \end{array}$	$\begin{array}{c} PKM \\ \hline \\ 3 \ 235.2651 \pm 0.7834 \\ \hline 0.7111 \pm 0.0025 \\ 0.0169 \pm 0.0006 \\ 0.8237 \pm 0.0063 \\ 0.1115 \pm 0.0045 \\ \hline 0.3606 \pm 0.0087 \\ 0.4799 \pm 0.0476 \\ 0.1820 \pm 0.0004 \\ \hline 0.8296 \pm 0.0060 \\ 1.5200 \pm 0.2926 \\ 0.2826 \pm 0.0055 \\ \hline 0.1331 \pm 0.0139 \\ 2.5910 \pm 0.0033 \\ 0.01547 \pm 0.0033 \\ 0.0144 \pm 0.0003 \\ 1.9102 \pm 0.0474 \\ -0.1869 \pm 0.0073 \\ \hline 23.5267 \pm 0.0783 \\ 0.7486 \pm 0.0111 \\ 0.6722 \pm 0.0256 \\ 0.7486 \pm 0.0111 \\ 0.6722 \pm 0.0250 \\ \hline FSC \\ \hline 0.387.2978 \pm 11.7520 \\ 0.9156 \pm 0.0137 \\ \hline \end{array}$	$\begin{array}{c} \hline EWPKM \\ \hline 344.0539 \pm 5.0062 \\ 0.9429 \pm 0.0013 \\ 0.9429 \pm 0.0043 \\ 0.0057 \\ 0.2000 \pm 0.0057 \\ 0.3780 \pm 0.0044 \\ 0.1385 \pm 0.0032 \\ 0.3780 \pm 0.0046 \\ 0.1278 \pm 0.0011 \\ 0.0885 \pm 0.0022 \\ 17.4298 \pm 2.3087 \\ 0.0089 \pm 0.0026 \\ 0.1053 \pm 0.0137 \\ 3.5609 \pm 0.0047 \\ 0.0030 \pm 0.0007 \\ 4.9440 \pm 0.2232 \\ 2.24247 \pm 0.0255 \\ 39.5425 \pm 0.0817 \\ 0.1741 \pm 0.0029 \\ 0.1355 \pm 0.0007 \\ 0.0150 \pm 0.0013 \\ 2PFCM \\ \hline 306.0312 \pm 0.0000 \\ 0.8408 \pm 0.0000 \\ 0.08408 \pm 0.0000 \\ 0.0846 \pm 0.0000 \\ \hline \end{array}$	$\begin{array}{c} & \\ & \\ & \\ & \\ \hline \\ SC \\ \hline \\ & \\ & \\ & \\ & \\ & \\ & \\ & \\ & \\ &$	$\begin{array}{c} 1.463 \pm 0.0120 \\ \hline HC \\ \hline 237.9126 \pm 0.0000 \\ 0.7253 \pm 0.0000 \\ 0.0218 \pm 0.0000 \\ 0.0218 \pm 0.0000 \\ 0.1245 \pm 0.0000 \\ 0.1245 \pm 0.0000 \\ 0.1245 \pm 0.0000 \\ 0.1245 \pm 0.0000 \\ 0.1791 \pm 0.0000 \\ 0.7653 \pm 0.0000 \\ 0.2671 \pm 0.0000 \\ 0.2671 \pm 0.0000 \\ 0.2671 \pm 0.0000 \\ 0.2671 \pm 0.0000 \\ 0.413 \pm 0.0000 \\ 0.413 \pm 0.0000 \\ 0.459 \pm 0.0000 \\ 0.459 \pm 0.0000 \\ 0.263 \pm 0.0000 \\ 0.1596 \pm 0.0000 \\ 0.1596 \pm 0.0000 \\ 0.263 \pm 0.0000 \\ 0.263 \pm 0.0000 \\ 0.0088 \pm 0.0000 \\ 0.7170 \pm 0.0000 \\ \hline RFCM \\ 287.3822 \pm 9.4675 \\ 0.8318 \pm 0.0184 \\ 0.0683 \pm 0.0124 \\ \end{array}$	$\begin{array}{c} \text{CAPKM}{++2.0} \\ \hline \text{CAPKM}{++2.0} \\ \hline \textbf{234.8252} \pm 0.0000 \\ \textbf{0.7111} \pm 0.0000 \\ \textbf{0.0168} \pm 0.0000 \\ \textbf{0.0168} \pm 0.0000 \\ \textbf{0.3701} \pm 0.0000 \\ \textbf{0.3701} \pm 0.0000 \\ \textbf{0.3701} \pm 0.0000 \\ \textbf{0.1821} \pm 0.0000 \\ \textbf{0.1821} \pm 0.0000 \\ \textbf{0.1821} \pm 0.0000 \\ \textbf{0.1824} \pm 0.0000 \\ \textbf{0.1139} \pm 0.0000 \\ \textbf{0.1139} \pm 0.0000 \\ \textbf{0.1139} \pm 0.0000 \\ \textbf{0.1545} \pm 0.0001 \\ \textbf{0.0194} \pm 0.0000 \\ \textbf{2.3848} \pm 0.0001 \\ \textbf{0.0194} \pm 0.0000 \\ \textbf{2.34825} \pm 0.0000 \\ \textbf{0.7563} \pm 0.0000 \\ \textbf{0.7564} \pm 0.0000 \\ \textbf{0.7564} \pm 0.0000 \\ \textbf{0.7564} \pm 0.0000 \\ \textbf{CAFCM} \\ \hline \textbf{234.8252} \pm \textbf{0.0000} \\ \textbf{0.7111} \pm \textbf{0.0000} \\ \textbf{0.0168} \pm \textbf{0.0000} \\ \hline \textbf{0.0168} \pm \textbf{0.0000} \\ \hline \end{array}$
Optdigits WGSS↓ MRI↓ GPI↓ BHGI↑ CI↓ TI↑ DGI↑ RLI↑ CH↓ PBMI↑ PBMI↑ XBI↓ LSSRI↑ TWI↓ ACC↑ NMI↑ ARI↑ Optdigits WGSS↓	$\begin{array}{c} {\rm KM} \\ 238.0204 \pm 3.7684 \\ 0.7191 \pm 0.0094 \\ 0.0189 \pm 0.0025 \\ 0.8118 \pm 0.0201 \\ 0.1176 \pm 0.0111 \\ 0.3632 \pm 0.0138 \\ 0.4874 \pm 0.0387 \\ 0.1809 \pm 0.0017 \\ 0.8088 \pm 0.0279 \\ 1.6654 \pm 0.6256 \\ 0.2767 \pm 0.0121 \\ 0.1568 \pm 0.00427 \\ 0.1568 \pm 0.0057 \\ 0.0014 \pm 0.0056 \\ 23.8020 \pm 0.3768 \\ 0.7342 \pm 0.0356 \\ 23.8020 \pm 0.3768 \\ 0.7537 \pm 0.0641 \\ 0.7342 \pm 0.0272 \\ 0.6355 \pm 0.0602 \\ \hline {\rm FCM} \\ 301.2430 \pm 10.6738 \\ 0.8541 \pm 0.0154 \\ 0.0935 \pm 0.0161 \\ 0.4784 \pm 0.0480 \\ 0.2690 \pm 0.0217 \\ \end{array}$	$\begin{array}{r} KM++\\ 238.6506 \pm 4.5788\\ 0.7199 \pm 0.0093\\ 0.0190 \pm 0.0026\\ 0.8130 \pm 0.0249\\ 0.1162 \pm 0.0138\\ 0.3669 \pm 0.0151\\ 0.4926 \pm 0.0475\\ 0.1809 \pm 0.0023\\ 0.8042 \pm 0.0336\\ 1.4157 \pm 0.4323\\ 0.2766 \pm 0.0151\\ 0.1405 \pm 0.0149\\ 2.5976 \pm 0.0449\\ 0.1561 \pm 0.0073\\ 0.0013 \pm 0.0003\\ 1.8986 \pm 0.0961\\ 0.2187 \pm 0.0433\\ 23.8651 \pm 0.4579\\ 0.7327 \pm 0.0528\\ 0.7240 \pm 0.0255\\ 0.6160 \pm 0.0507\\ \hline MEC\\ \hline 2289.1568 \pm 9.2649\\ 0.8345 \pm 0.0171\\ 0.0734 \pm 0.0161\\ 0.3364 \pm 0.0474\\ 0.2515 \pm 0.0128\\ \hline \end{array}$	$\begin{array}{c} PKM \\ \hline \\ 3 \ 235.2651 \pm 0.7834 \\ 0.7111 \pm 0.0025 \\ 0.0169 \pm 0.0006 \\ 0.8237 \pm 0.0063 \\ 0.1115 \pm 0.0045 \\ 0.3606 \pm 0.0087 \\ 0.4799 \pm 0.0476 \\ 0.1820 \pm 0.0004 \\ 0.8296 \pm 0.0060 \\ 1.5200 \pm 0.2926 \\ 0.2826 \pm 0.0055 \\ 0.1331 \pm 0.0139 \\ 2.5910 \pm 0.0033 \\ 0.01547 \pm 0.0033 \\ 0.0014 \pm 0.0003 \\ 1.9102 \pm 0.0474 \\ 0.1869 \pm 0.0073 \\ 23.5267 \pm 0.0783 \\ 0.7486 \pm 0.0111 \\ 0.7486 \pm 0.0111 \\ 0.0576 \pm 0.0139 \\ 0.0576 \pm 0.0139 \\ 0.0578 \pm 11.7520 \\ 0.3018 \pm 0.0423 \\ 0.318 \pm 0.0492 \\ 0.3018 \pm 0.0492 \\ 0.301$	$\begin{array}{c} \hline EWPKM \\ \hline 344.0539 \pm 5.0062 \\ 0.9429 \pm 0.0013 \\ 0.9429 \pm 0.0043 \\ 0.01919 \pm 0.0047 \\ 0.2000 \pm 0.0057 \\ 0.3780 \pm 0.0044 \\ 0.1385 \pm 0.0032 \\ 0.3780 \pm 0.0046 \\ 0.1278 \pm 0.0011 \\ 0.0885 \pm 0.0022 \\ 17.4298 \pm 2.3087 \\ 0.0089 \pm 0.0020 \\ 0.1053 \pm 0.0137 \\ 3.5609 \pm 0.0368 \\ 0.1059 \pm 0.0047 \\ 0.0030 \pm 0.0007 \\ 4.9440 \pm 0.2232 \\ -2.4247 \pm 0.0255 \\ 39.5425 \pm 0.0817 \\ 0.1741 \pm 0.0039 \\ 0.1355 \pm 0.0007 \\ 0.0150 \pm 0.0013 \\ 2PFCM \\ \hline 306.0312 \pm 0.0000 \\ 0.8408 \pm 0.0000 \\ 0.08408 \pm 0.0000 \\ 0.0264 \pm 0.0000 \\ 0.2639 \pm 0.0001 \\ 0.264 \pm 0.0000 \\ 0.264 \pm 0.0000 \\ 0.264 \pm 0.0000 \\ 0.264 \pm 0.0000 \\ 0.2439 \pm 0.0001 \\ 0.2439 \pm 0.0000 \\ 0.2439 \pm 0.000$	$\begin{array}{c} & \\ & \\ & \\ & \\ SC \\ \hline \\ & \\ & \\ & \\ & \\ & \\ & \\ & \\ & \\ &$	$\begin{array}{c} 1.405 \pm 0.0120 \\ \hline HC \\ \hline 237.9126 \pm 0.0000 \\ 0.7253 \pm 0.0000 \\ 0.7253 \pm 0.0000 \\ 0.0218 \pm 0.0000 \\ 0.7862 \pm 0.0000 \\ 0.1245 \pm 0.0000 \\ 0.1245 \pm 0.0000 \\ 0.3552 \pm 0.0000 \\ 0.753 \pm 0.0000 \\ 0.7613 \pm 0.0000 \\ 0.7613 \pm 0.0000 \\ 0.2671 \pm 0.0000 \\ 0.753 \pm 0.0000 \\ 0.2671 \pm 0.0000 \\ 0.254 \pm 0.0000 \\ 0.7170 \pm 0.0000 \\ 0.254 \pm 0.0000 \\ 0.0633 \pm 0.0124 \\ 0.5403 \pm 0.0270 \\ 0.254 \pm 0.0270 $	$\begin{array}{c} \text{CAPKM}{++2.0} \\ \hline \text{CAPKM}{++2.0} \\ \hline \text{c34.8252} \pm 0.0000 \\ 0.7111 \pm 0.0000 \\ 0.0168 \pm 0.0000 \\ 0.0168 \pm 0.0000 \\ 0.3701 \pm 0.0000 \\ 0.3701 \pm 0.0000 \\ 0.3701 \pm 0.0000 \\ 0.1821 \pm 0.0000 \\ 0.1821 \pm 0.0000 \\ 0.1821 \pm 0.0000 \\ 0.1824 \pm 0.0000 \\ 0.1824 \pm 0.0000 \\ 0.1139 \pm 0.0000 \\ 0.1139 \pm 0.0000 \\ 0.2904 \pm 0.0000 \\ 0.1545 \pm 0.0001 \\ 0.01545 \pm 0.0001 \\ 0.0192 \pm 0.0000 \\ 2.34825 \pm 0.0000 \\ 2.34825 \pm 0.0000 \\ 0.7563 \pm 0.0002 \\ 0.7563 \pm 0.0002 \\ 0.7564 \pm 0.0000 \\ 0.334825 \pm 0.0000 \\ 0.7511 \pm 0.0000 \\ 0.0168 \pm 0.0000 \\ 0.0168 \pm 0.0000 \\ 0.01059 \pm 0.0000 \\$
Optdigits WGSSJ MRIJ GPIJ BHGI↑ CIJ TI↑ RKI↑ PBMI↑ XBI↓ LSSRI↑ TWI↓ ARI↑ Optdigits WGSSJ MRI↓ GPI↓ BHG↑ CC↑ NMI↑ ARI↑ Optdigits WGRS↓	$\begin{array}{c} {\rm KM} \\ \hline {\rm 238.0204 \pm 3.7684} \\ \hline {\rm 0.7191 \pm 0.0094} \\ \hline {\rm 0.0189 \pm 0.0025} \\ \hline {\rm 0.0189 \pm 0.0025} \\ \hline {\rm 0.0189 \pm 0.0025} \\ \hline {\rm 0.01176 \pm 0.0011} \\ \hline {\rm 0.1176 \pm 0.0011} \\ \hline {\rm 0.1176 \pm 0.0017} \\ \hline {\rm 0.1809 \pm 0.0017} \\ \hline {\rm 0.1809 \pm 0.0017} \\ \hline {\rm 0.8088 \pm 0.0279} \\ \hline {\rm 1.6654 \pm 0.6256} \\ \hline {\rm 0.02767 \pm 0.0121} \\ \hline {\rm 0.1568 \pm 0.0027} \\ \hline {\rm 0.1568 \pm 0.0027} \\ \hline {\rm 0.1568 \pm 0.00427} \\ \hline {\rm 0.1568 \pm 0.00427} \\ \hline {\rm 0.1568 \pm 0.0027} \\ \hline {\rm 0.0014 \pm 0.0002} \\ \hline {\rm 1.9179 \pm 0.0796} \\ \hline {\rm 2.3.8020 \pm 0.03768} \\ \hline {\rm 0.7537 \pm 0.0641} \\ \hline {\rm 0.7342 \pm 0.0272} \\ \hline {\rm 0.6355 \pm 0.0602} \\ \hline {\rm FCM} \\ \hline {\rm 301.2430 \pm 10.6738} \\ \hline {\rm 0.02430 \pm 10.6738} \\ \hline {\rm 0.2699 \pm 0.0217} \\ \hline {\rm 0.2284 \pm 0.0238} \\ \hline {\rm 0.2844 \pm 0.0238} \\ \hline \end{array}$	$\begin{array}{r} KM++\\ \hline 238.6506 \pm 4.5788\\ 0.7199 \pm 0.0093\\ 0.0190 \pm 0.0026\\ 0.8130 \pm 0.0249\\ 0.1162 \pm 0.0138\\ 0.3669 \pm 0.0151\\ 0.4926 \pm 0.0475\\ 0.1809 \pm 0.0023\\ 0.8042 \pm 0.0336\\ 1.4157 \pm 0.4323\\ 0.2766 \pm 0.0151\\ 0.1405 \pm 0.0149\\ 2.5976 \pm 0.0449\\ 0.1561 \pm 0.0073\\ 0.0013 \pm 0.0003\\ 1.8986 \pm 0.0961\\ 0.2187 \pm 0.0433\\ 23.8651 \pm 0.4579\\ 0.7357 \pm 0.0258\\ 0.7240 \pm 0.0255\\ 0.6160 \pm 0.0507\\ \hline MEC\\ \hline 289.1568 \pm 9.2649\\ 0.8345 \pm 0.0171\\ 0.0734 \pm 0.0161\\ 0.3564 \pm 0.0474\\ 0.2515 \pm 0.0189\\ \hline \end{array}$	$\begin{array}{c} PKM \\ \hline \\ 3 \ 235.2651 \pm 0.7834 \\ \hline 0.7111 \pm 0.0025 \\ 0.0169 \pm 0.0006 \\ 0.8237 \pm 0.0063 \\ 0.1115 \pm 0.0045 \\ \hline 0.3606 \pm 0.0087 \\ 0.4799 \pm 0.0476 \\ 0.1820 \pm 0.0004 \\ \hline 0.8296 \pm 0.0060 \\ 1.5200 \pm 0.2926 \\ 0.2826 \pm 0.0055 \\ \hline 0.1331 \pm 0.0139 \\ 2.5910 \pm 0.0033 \\ 0.01547 \pm 0.0033 \\ 0.0014 \pm 0.0003 \\ 1.9102 \pm 0.0474 \\ \hline 0.1809 \pm 0.0073 \\ 23.5267 \pm 0.0783 \\ 0.7486 \pm 0.0111 \\ 0.6722 \pm 0.0256 \\ 0.7486 \pm 0.0111 \\ 0.0576 \pm 0.0139 \\ 0.0576 \pm 0.0139 \\ 0.0576 \pm 0.0139 \\ 0.3218 \pm 0.0420 \\ 0.3218 \pm 0.0420 \\ 0.32218 \pm 0.0420 \\ 0.1252 \pm 0.0392 \\ \hline \end{array}$	$\begin{array}{c} \hline EWPKM \\ \hline 344.0539 \pm 5.0062 \\ 0.9429 \pm 0.0013 \\ 0.9429 \pm 0.0043 \\ 0.01919 \pm 0.0047 \\ 0.2000 \pm 0.0057 \\ 0.3780 \pm 0.0044 \\ 0.1385 \pm 0.0032 \\ 0.3780 \pm 0.0044 \\ 0.1385 \pm 0.0012 \\ 0.1278 \pm 0.0011 \\ 0.0885 \pm 0.0022 \\ 17.4298 \pm 2.3087 \\ 0.0089 \pm 0.0020 \\ 0.1053 \pm 0.0137 \\ 3.5609 \pm 0.0047 \\ 0.0030 \pm 0.0007 \\ 4.9440 \pm 0.2232 \\ -2.4247 \pm 0.0255 \\ 39.5425 \pm 0.0817 \\ 0.1741 \pm 0.0039 \\ 0.1355 \pm 0.0007 \\ 0.0150 \pm 0.0013 \\ 2PFCM \\ \hline 306.0312 \pm 0.0000 \\ 0.8408 \pm 0.0000 \\ 0.2649 \pm 0.0000 \\ 0.2439 \pm 0.0000 \\ 0.2146 \pm 0.0000 \\ 0.2149 \pm 0.0000 \\ \hline 0.2146 \pm 0.0000 \\ \hline 0.2$	$\begin{array}{c} & \\ & \\ & \\ & \\ \hline \\ SC \\ \hline \\ & \\ & \\ & \\ & \\ & \\ & \\ & \\ & \\ &$	$\begin{array}{c} 1.405 \pm 0.0120 \\ \hline HC \\ \hline 237.9126 \pm 0.0000 \\ 0.7253 \pm 0.0000 \\ 0.7253 \pm 0.0000 \\ 0.0218 \pm 0.0000 \\ 0.0218 \pm 0.0000 \\ 0.1245 \pm 0.0000 \\ 0.1245 \pm 0.0000 \\ 0.1245 \pm 0.0000 \\ 0.7553 \pm 0.0000 \\ 0.753 \pm 0.0000 \\ 0.7613 \pm 0.0000 \\ 0.2671 \pm 0.0000 \\ 0.755 \pm 0.0000 \\ 0.2671 \pm 0.0000 \\ 0.0008 \pm 0.0000 \\ 0.0008 \pm 0.0000 \\ 0.0008 \pm 0.0000 \\ 0.2550 \pm 0.0000 \\ 0.7170 \pm 0.0000 \\ \hline RFCM \\ \hline 287.3822 \pm 9.4675 \\ 0.8318 \pm 0.0184 \\ 0.0683 \pm 0.0124 \\ 0.5403 \pm 0.0279 \\ 0.2229 \pm 0.0274 \\ \hline \end{array}$	$\begin{array}{c} \text{CAPKM}{++2.0} \\ \hline \text{CAPKM}{++2.0} \\ \hline \text{c34.8252} \pm 0.0000 \\ 0.7111 \pm 0.0000 \\ 0.0168 \pm 0.0000 \\ 0.0168 \pm 0.0000 \\ 0.3701 \pm 0.0000 \\ 0.3701 \pm 0.0000 \\ 0.3701 \pm 0.0000 \\ 0.1821 \pm 0.0000 \\ 0.1821 \pm 0.0000 \\ 0.1821 \pm 0.0000 \\ 0.1821 \pm 0.0000 \\ 0.1824 \pm 0.0000 \\ 0.1824 \pm 0.0001 \\ 0.1545 \pm 0.0001 \\ 0.0194 \pm 0.0000 \\ 2.3848 \pm 0.0001 \\ 0.0194 \pm 0.0000 \\ 2.34825 \pm 0.0001 \\ 0.7563 \pm 0.0002 \\ 0.7563 \pm 0.0002 \\ 0.7564 \pm 0.0000 \\ 0.3764 \pm 0.0000 \\ 0.3827 \pm 0.0000 \\ 0.0168 \pm 0.0000 \\ 0.3007 \pm 0.0000 \\ 0.3701 \pm 0.0000 \\ 0.00$
Optdigits WGSS4 WGSS4 GPI4 BHGI↑ CL1 TI↑ DGI↑ RL1↑ CHI↑ PBMI↑ VBI↓ LSSRI↑ TWI↓ ARL↑ Optdigits WGSS↓ MRI↓ GPI↓ BHGI↑ CC↑ MRI↓ GPI↓ BHGI↑ CL↓ TT↑ DGI↑ RL1↑	$\begin{array}{c c} KM \\ \hline \\ 238.0204 \pm 3.7684 \\ 0.7191 \pm 0.0094 \\ 0.0189 \pm 0.0025 \\ 0.8118 \pm 0.0201 \\ 0.1176 \pm 0.0111 \\ 0.3632 \pm 0.0138 \\ 0.4874 \pm 0.0387 \\ 0.1809 \pm 0.0017 \\ 0.8088 \pm 0.0279 \\ 1.6654 \pm 0.6256 \\ 0.2767 \pm 0.0121 \\ 0.1568 \pm 0.00427 \\ 0.1568 \pm 0.0057 \\ 0.0014 \pm 0.0056 \\ 23.8020 \pm 0.3768 \\ 0.7342 \pm 0.0356 \\ 23.8020 \pm 0.3768 \\ 0.7342 \pm 0.0272 \\ 0.6355 \pm 0.0602 \\ \hline FCM \\ \hline \\ 301.2430 \pm 10.6738 \\ 0.2699 \pm 0.0217 \\ 0.2844 \pm 0.0238 \\ 0.3498 \pm 0.0508 \\ 0.1429 + 0.0101 \\ 0.1429 + 0.0101 \\ \hline \end{array}$	$\begin{array}{r} KM++\\ \hline 238.6506 \pm 4.5788\\ 0.7199 \pm 0.0093\\ 0.0190 \pm 0.0026\\ 0.8130 \pm 0.0249\\ 0.1162 \pm 0.0138\\ 0.3669 \pm 0.0151\\ 0.4926 \pm 0.0475\\ 0.1809 \pm 0.0023\\ 0.8042 \pm 0.0336\\ 1.4157 \pm 0.4323\\ 0.2766 \pm 0.0151\\ 0.1405 \pm 0.0149\\ 2.5976 \pm 0.0449\\ 0.1561 \pm 0.0073\\ 0.0013 \pm 0.0003\\ 1.8986 \pm 0.0961\\ 0.2187 \pm 0.0433\\ 23.8651 \pm 0.4579\\ 0.7357 \pm 0.0528\\ 0.7240 \pm 0.0255\\ 0.6160 \pm 0.0507\\ \hline MEC\\ \hline 2289.1568 \pm 9.2649\\ 0.8345 \pm 0.0171\\ 0.0734 \pm 0.0161\\ 0.3564 \pm 0.0474\\ 0.2515 \pm 0.0189\\ 0.2984 \pm 0.0179\\ 0.3593 \pm 0.0487\\ 0.1487 \pm 0.0887\\ \hline \end{array}$	$\begin{array}{c} PKM \\ \hline \\ 3 \ 235.2651 \pm 0.7834 \\ 0.7111 \pm 0.0025 \\ 0.0169 \pm 0.0006 \\ 0.8237 \pm 0.0063 \\ 0.1115 \pm 0.0045 \\ 0.3606 \pm 0.0087 \\ 0.4799 \pm 0.0476 \\ 0.1820 \pm 0.0004 \\ 0.8296 \pm 0.0060 \\ 1.5200 \pm 0.02926 \\ 0.2826 \pm 0.0055 \\ 0.1331 \pm 0.0139 \\ 2.5910 \pm 0.0033 \\ 0.01547 \pm 0.0033 \\ 0.01547 \pm 0.0033 \\ 0.014 \pm 0.0003 \\ 1.9102 \pm 0.0474 \\ 0.1869 \pm 0.0073 \\ 23.5267 \pm 0.0783 \\ 0.7486 \pm 0.0111 \\ 0.6722 \pm 0.0256 \\ 0.7486 \pm 0.0111 \\ 0.0576 \pm 0.0139 \\ 0.0576 \pm 0.0337 \\ 0.3218 \pm 0.0492 \\ 0.3031 \pm 0.0220 \\ 0.1252 \pm 0.0392 \\ 0.4267 \pm 0.0481 \\ 0.0151 \\ 0.0157 \\ 0.0157 \\ 0.0156 \\ 0.0159 \\ 0.0392 \\ 0.04267 \\ 0.0481 \\ 0.0057 \\ 0.0151 \\ 0.0057 \\ 0.0151 \\ 0.0057 \\ 0.0392 \\ 0.04267 \\ 0.0481 \\ 0.0057 \\ 0.0151 \\ 0.0057 \\ 0.0052 \\ 0.0032 \\ 0.$	$\begin{array}{c} \hline EWPKM \\ \hline 344.0539 \pm 5.0062 \\ 0.9429 \pm 0.0013 \\ 0.9429 \pm 0.0043 \\ 0.01919 \pm 0.0047 \\ 0.2000 \pm 0.0057 \\ 0.3780 \pm 0.0044 \\ 0.1385 \pm 0.0032 \\ 0.3780 \pm 0.0046 \\ 0.1278 \pm 0.0011 \\ 0.0885 \pm 0.0022 \\ 17.4298 \pm 2.3087 \\ 0.0089 \pm 0.0020 \\ 0.1053 \pm 0.0137 \\ 3.5609 \pm 0.0047 \\ 0.0030 \pm 0.0007 \\ 4.9440 \pm 0.2232 \\ -2.4247 \pm 0.0255 \\ 39.5425 \pm 0.0817 \\ 0.1741 \pm 0.0029 \\ 0.1355 \pm 0.0001 \\ 0.155 \pm 0.0001 \\ 0.08408 \pm 0.0000 \\ 0.08408 \pm 0.0000 \\ 0.0264 \pm 0.0000 \\ 0.2439 \pm 0.0000 \\ 0.3166 \pm 0.0000 \\ 0.3305 \pm 0.0000 \\ 0.1491 \pm$	$\begin{array}{c} SC \\ \hline 241.4227 \pm 0.0360 \\ 0.7281 \pm 0.0015 \\ 0.0231 \pm 0.0005 \\ 0.7793 \pm 0.0034 \\ 0.1251 \pm 0.0014 \\ 0.1251 \pm 0.0014 \\ 0.3568 \pm 0.0004 \\ 0.6619 \pm 0.0100 \\ 0.1785 \pm 0.0001 \\ 0.7446 \pm 0.0021 \\ 1.0344 \pm 0.0013 \\ 0.2740 \pm 0.0003 \\ 0.1785 \pm 0.0001 \\ 0.2740 \pm 0.0003 \\ 0.1703 \pm 0.0024 \\ 2.6041 \pm 0.0003 \\ 0.0007 \pm 0.0000 \\ 1.8383 \pm 0.0024 \\ 2.6041 \pm 0.0035 \\ 0.0007 \pm 0.0000 \\ 1.8383 \pm 0.0024 \\ 2.6050 \pm 0.0029 \\ 24.6730 \pm 0.0030 \\ 0.8708 \pm 0.0003 \\ 0.8708 \pm 0.0003 \\ 0.8708 \pm 0.0003 \\ BFC \\ \hline 365.3603 \pm 7.7366 \\ 0.9824 \pm 0.0049 \\ 0.0856 \pm 0.0019 \\ 0.0517 \pm 0.0137 \\ 0.5344 \pm 0.0066 \\ 0.2348 \pm 0.0281 \\ 0.0451 \pm 0.0061 \\ 0.2481 \pm 0.0081 \\ \hline \end{array}$	$\begin{array}{c} 1.405 \pm 0.0120 \\ \hline HC \\ \hline 237.9126 \pm 0.0000 \\ 0.7253 \pm 0.0000 \\ 0.7253 \pm 0.0000 \\ 0.0218 \pm 0.0000 \\ 0.0218 \pm 0.0000 \\ 0.1245 \pm 0.0000 \\ 0.1245 \pm 0.0000 \\ 0.1245 \pm 0.0000 \\ 0.1591 \pm 0.0000 \\ 0.7653 \pm 0.0000 \\ 0.7653 \pm 0.0000 \\ 0.7653 \pm 0.0000 \\ 0.2671 \pm 0.0000 \\ 0.2520 \pm 0.0000 \\ 0.2534 \pm 0.0200 \\ 0.2534 \pm 0.0279 \\ 0.2534 \pm 0.0279 \\ 0.2524 \pm 0.0274 \\ 0.3552 \pm 0.0543 \\ 0.0124 \\ 0.427 \pm 0.0077 \\ 0.427 \pm 0.0077 \\ 0.1427 \pm 0.0077 \\ 0.0071 \\ 0.1427 \pm 0.0077 \\ 0.1427 \pm 0.007 $	$\begin{array}{c} \text{CAPKM}{}+\text{2.0} \\ \hline \text{CAPKM}{}+\text{2.0} \\ \hline \text{234.8252} \pm 0.0000 \\ \text{0.7111} \pm 0.0000 \\ \text{0.0168} \pm 0.0000 \\ \text{0.0168} \pm 0.0000 \\ \text{0.01059} \pm 0.0000 \\ \text{0.3701} \pm 0.0000 \\ \text{0.3701} \pm 0.0000 \\ \text{0.1821} \pm 0.0000 \\ \text{0.1821} \pm 0.0000 \\ \text{0.1821} \pm 0.0000 \\ \text{0.1824} \pm 0.0000 \\ \text{0.1824} \pm 0.0000 \\ \text{0.1824} \pm 0.0000 \\ \text{0.1824} \pm 0.0000 \\ \text{0.194} \pm 0.0000 \\ \text{0.1545} \pm 0.0001 \\ \text{0.0194} \pm 0.0000 \\ \text{2.34825} \pm 0.0001 \\ \text{0.7563} \pm 0.0002 \\ \text{0.7563} \pm 0.0002 \\ \text{0.7564} \pm 0.0002 \\ \text{0.7564} \pm 0.0000 \\ \text{0.7564} \pm 0.0002 \\ \text{CAFCM} \\ \hline \hline \begin{array}{c} \text{234.8252} \pm 0.0000 \\ \text{0.3111} \pm 0.0000 \\ \text{0.3111} \pm 0.0000 \\ \text{0.3307} \pm 0.0000 \\ \text{0.3307} \pm 0.0000 \\ \text{0.3307} \pm 0.0000 \\ \text{0.3307} \pm 0.0000 \\ \text{0.3301} \pm 0.0000 \\ \text{0.3115} \pm 0.0000 \\ \text{0.1821} \pm 0.0000 \\ \end{array}$
Optdigits WGSS↓ MRI↓ GPI↓ BHGI↑ Cl↓ TI↑ RLI↑ CH↓ BHGI↑ DGI↑ RTI↓ WGI↑ DI↑ BHI↑ PBMI↑ XBI↓ DSL↓ LSSRI↑ TWI↓ ACC↑ MRI↓ GPL↓ BHGI↑ Cl↓ TT↑ DGI↑ RLI↑ CG↑↓ TT↑ DGI↑ RLI↑ CHI↑	$\begin{array}{c c} KM \\ \hline \\ 238.0204 \pm 3.7684 \\ 0.7191 \pm 0.0094 \\ 0.7191 \pm 0.0095 \\ 0.0189 \pm 0.0025 \\ 0.8118 \pm 0.0201 \\ 0.1176 \pm 0.0111 \\ 0.3632 \pm 0.0138 \\ 0.4874 \pm 0.0387 \\ 0.1809 \pm 0.0017 \\ 0.8088 \pm 0.0279 \\ 1.6654 \pm 0.6256 \\ 0.2767 \pm 0.0121 \\ 0.1568 \pm 0.00427 \\ 0.1568 \pm 0.00427 \\ 0.1568 \pm 0.00427 \\ 0.1568 \pm 0.00427 \\ 0.1568 \pm 0.0057 \\ 0.0014 \pm 0.0002 \\ 1.9179 \pm 0.0796 \\ 23.8020 \pm 0.3768 \\ 0.7342 \pm 0.0356 \\ 23.8020 \pm 0.3768 \\ 0.7342 \pm 0.0272 \\ 0.6355 \pm 0.0602 \\ \hline FCM \\ \hline \\ 301.2430 \pm 10.6738 \\ 0.2699 \pm 0.0217 \\ 0.2844 \pm 0.0238 \\ 0.3498 \pm 0.0508 \\ 0.1429 \pm 0.0101 \\ 0.4032 \pm 0.0668 \\ \hline \\ \end{array}$	$\begin{array}{r} KM++\\ \hline & KM++\\ \hline & 238.6506 \pm 4.5788\\ 0.7199 \pm 0.0093\\ 0.0190 \pm 0.0026\\ 0.8130 \pm 0.0249\\ 0.01162 \pm 0.0138\\ 0.3669 \pm 0.0151\\ 0.4926 \pm 0.0475\\ 0.1809 \pm 0.0023\\ 0.8042 \pm 0.0336\\ 1.4157 \pm 0.4323\\ 0.2766 \pm 0.0151\\ 0.1405 \pm 0.0149\\ 2.5976 \pm 0.0449\\ 0.1561 \pm 0.0073\\ 0.0013 \pm 0.0003\\ 1.8986 \pm 0.0961\\ 0.2187 \pm 0.0433\\ 23.8651 \pm 0.4579\\ 0.7357 \pm 0.0528\\ 0.7240 \pm 0.0255\\ 0.6160 \pm 0.0507\\ \hline MEC\\ \hline & 289.1568 \pm 9.2649\\ 0.8345 \pm 0.0171\\ 0.0734 \pm 0.0161\\ 0.5364 \pm 0.0474\\ 0.2515 \pm 0.0188\\ 0.2984 \pm 0.0179\\ 0.3593 \pm 0.0487\\ 0.0483 \pm 0.0088\\ 0.4028 \pm 0.0588\\ 0.4028 \pm 0.0588\\ 0.4028 \pm 0.0588\\ \end{array}$	$\begin{array}{c} PKM \\ \hline $325.2651 \pm 0.7834 \\ 0.7111 \pm 0.0025 \\ 0.0169 \pm 0.0006 \\ 0.8237 \pm 0.0063 \\ 0.1115 \pm 0.0045 \\ 0.3606 \pm 0.0087 \\ 0.4799 \pm 0.0476 \\ 0.1820 \pm 0.0004 \\ 0.8296 \pm 0.0060 \\ 1.5200 \pm 0.02926 \\ 0.2826 \pm 0.0055 \\ 0.1331 \pm 0.0139 \\ 2.5910 \pm 0.0083 \\ 0.01547 \pm 0.0033 \\ 0.0014 \pm 0.0003 \\ 1.9102 \pm 0.0474 \\ 0.1869 \pm 0.0073 \\ 23.5267 \pm 0.0783 \\ 0.7486 \pm 0.0256 \\ 0.7486 \pm 0.0111 \\ 0.6722 \pm 0.0250 \\ FSC \\ \hline $387.2978 \pm 11.7520 \\ 0.9156 \pm 0.0137 \\ 0.0218 \pm 0.0426 \\ 0.0311 \pm 0.0226 \\ 0.0312 \pm 0.0320 \\ FSC \\ \hline $387.2978 \pm 11.7520 \\ 0.9156 \pm 0.0137 \\ 0.0218 \pm 0.0492 \\ 0.3031 \pm 0.0220 \\ 0.1252 \pm 0.0392 \\ 0.4267 \pm 0.0481 \\ 0.0156 \\ 0.0376 \pm 0.0156 \\ 0.0376 \pm 0.0156 \\ 0.0376 \\ \pm 0.0126 \\ \hline \end{tabular}$	$\begin{array}{c} \hline EWPKM \\ \hline 344.0539 \pm 5.0062 \\ 0.9429 \pm 0.0013 \\ 0.9429 \pm 0.0043 \\ 0.01919 \pm 0.0047 \\ 0.2000 \pm 0.0057 \\ 0.3780 \pm 0.0044 \\ 0.1385 \pm 0.0032 \\ 0.3780 \pm 0.0044 \\ 0.1385 \pm 0.0012 \\ 0.1278 \pm 0.0011 \\ 0.0885 \pm 0.0022 \\ 17.4298 \pm 2.3087 \\ 0.0089 \pm 0.0020 \\ 0.1053 \pm 0.0137 \\ 3.5609 \pm 0.0047 \\ 0.0030 \pm 0.0007 \\ 4.9440 \pm 0.2232 \\ -2.4247 \pm 0.0255 \\ 39.5425 \pm 0.0817 \\ 0.0155 \pm 0.0007 \\ 0.0155 \pm 0.0007 \\ 0.1355 \pm 0.0007 \\ 0.0155 \pm 0.0007 \\ 0.0150 \pm 0.0013 \\ 2PFCM \\ \hline 306.0312 \pm 0.0000 \\ 0.5264 \pm 0.0000 \\ 0.2439 \pm 0.0000 \\ 0.346 \pm 0.0000 \\ 0.4423 \pm 0.0000 \\ 0.4443 \pm 0.0000 \\ 0.4444 \\ 0.0000 \\ 0.4444 \\ 0.0000 \\ 0.4444 \\ 0.0000 \\ 0.4444 \\ 0.0000 \\ 0.4444 \\ 0.0000 \\ 0.4444 \\ 0.0000 \\ 0.4444 \\ 0.0000 \\ 0.4444 \\ 0.0000 \\ 0.4444 \\ 0.0000 \\ 0.4444 \\ 0.0000 \\ 0.4444 \\ 0.0000 \\ 0.4444 \\ 0.0000 \\ 0.$	$\begin{array}{c} SC \\ \hline 241.4227 \pm 0.0360 \\ 0.7281 \pm 0.0015 \\ 0.0231 \pm 0.0005 \\ 0.7793 \pm 0.0034 \\ 0.1251 \pm 0.0014 \\ 0.1251 \pm 0.0014 \\ 0.3568 \pm 0.0004 \\ 0.6619 \pm 0.0100 \\ 0.1785 \pm 0.0001 \\ 0.7446 \pm 0.0021 \\ 1.0344 \pm 0.0013 \\ 0.2740 \pm 0.0003 \\ 0.1785 \pm 0.0001 \\ 0.2740 \pm 0.0003 \\ 0.1703 \pm 0.0024 \\ 2.6041 \pm 0.0003 \\ 0.0007 \pm 0.0000 \\ 1.8383 \pm 0.0042 \\ 2.6041 \pm 0.0035 \\ 0.0007 \pm 0.0000 \\ 1.8383 \pm 0.0024 \\ 2.6041 \pm 0.0035 \\ 0.0007 \pm 0.0003 \\ 0.1900 \pm 0.0003 \\ 0.0007 \pm 0.0003 \\ 0.0007 \pm 0.0003 \\ 0.0003 \pm 0.0003 \\ 0.8708 \pm 0.0004 \\ 0.08768 \pm 0.0019 \\ 0.0517 \pm 0.0137 \\ 0.5344 \pm 0.0066 \\ 0.0224 \pm 0.0060 \\ 0.2348 \pm 0.0281 \\ 0.00451 \pm 0.0061 \\ 0.0451 \pm 0.0061 \\ 0.0261 \pm 0.0061 \\ 0.0224 \pm 0.0060 \\ 0.2348 \pm 0.0081 \\ 0.0261 \pm 0.0081 \\ 0.02080 \pm 0.0081 \\ 0.$	$\begin{array}{c} \text{HC}\\ \text{HC}\\ \hline \text{HC}\\ \hline \text{237,9126} \pm 0.0000\\ 0.7253 \pm 0.0000\\ 0.7253 \pm 0.0000\\ 0.0218 \pm 0.0000\\ 0.7862 \pm 0.0000\\ 0.7862 \pm 0.0000\\ 0.1245 \pm 0.0000\\ 0.1245 \pm 0.0000\\ 0.7553 \pm 0.0000\\ 0.753 \pm 0.0000\\ 0.7653 \pm 0.0000\\ 0.7653 \pm 0.0000\\ 0.7613 \pm 0.0000\\ 0.2671 \pm 0.0000\\ 0.0008 \pm 0.0000\\ 0.0008 \pm 0.0000\\ 0.7170 \pm 0.0000\\ 0.0008 \pm 0.0000\\ 0.0008 \pm 0.0000\\ 0.7170 \pm 0.0000\\ 0.2353 \pm 0.0000\\ 0.7170 \pm 0.0000\\ 0.8250 \pm 0.0000\\ 0.7170 \pm 0.0000\\ 0.0033 \pm 0.0124\\ 0.0633 \pm 0.0124\\ 0.5403 \pm 0.0279\\ 0.2534 \pm 0.0279\\ 0.2534 \pm 0.0274\\ 0.3552 \pm 0.0543\\ 0.0124\\ 0.5403 \pm 0.077\\ 0.4001 \pm 0.0538\\ 0.0124\\ 0.0071\\ 0.0011 \pm 0.0538\\ 0.0124\\ 0.0071\\ 0.0011\\ 0.0001\\ 0.0001\\ 0.0001\\ 0.0001\\ 0.0001\\ 0.0000\\ 0.$	$\begin{array}{c} \text{CAPKM}{}+\text{2.0} \\ \hline \text{CAPKM}{}+\text{2.0} \\ \hline \text{234.8252} \pm 0.0000 \\ \text{0.7111} \pm 0.0000 \\ \text{0.0168} \pm 0.0000 \\ \text{0.0168} \pm 0.0000 \\ \text{0.01059} \pm 0.0000 \\ \text{0.03701} \pm 0.0000 \\ \text{0.3701} \pm 0.0000 \\ \text{0.1321} \pm 0.0000 \\ \text{0.1821} \pm 0.0000 \\ \text{0.1821} \pm 0.0000 \\ \text{0.1824} \pm 0.0000 \\ \text{0.1824} \pm 0.0000 \\ \text{0.1139} \pm 0.0000 \\ \text{0.1139} \pm 0.0000 \\ \text{0.1139} \pm 0.0000 \\ \text{0.1545} \pm 0.0001 \\ \text{0.01545} \pm 0.0001 \\ \text{0.01545} \pm 0.0000 \\ \text{2.34825} \pm 0.0000 \\ \text{2.34825} \pm 0.0000 \\ \text{2.34825} \pm 0.0000 \\ \text{0.7563} \pm 0.0002 \\ \text{0.7564} \pm 0.0002 \\ \text{CAFCM} \\ \hline \begin{array}{c} \text{234.8252} \pm 0.0000 \\ \text{0.37014} \pm 0.0000 \\ \text{0.3307} \pm 0.0000 \\ \text{0.3307} \pm 0.0000 \\ \text{0.3307} \pm 0.0000 \\ \text{0.1355} \pm 0.0000 \\ \text{0.1355} \pm 0.0000 \\ \text{0.1355} \pm 0.0000 \\ \text{0.1355} \pm 0.0000 \\ \text{0.3301} \pm 0.0000 \\ \hline 0.3301 \pm 0.0000 \\ \hline 0.00$
Optdigits WGSS↓ MRI↓ GPL↓ BHGI↑ Cl↓ TI↑ RLI↑ CHI↑ BHGI↑ DGI↑ BHI↑ PBMI↑ XBL↓ DBL↓ LSSRI↑ TWL↓ QPIdigits WGSS↓ MRI↓ GPL↓ BHG1↑ CL↓ TT↑ DGI↑ RLI↑ CHI↑ RUI↑ WGI↑	$\begin{array}{c c} KM \\ \hline \\ 238.0204 \pm 3.7684 \\ 0.7191 \pm 0.0094 \\ 0.7191 \pm 0.0095 \\ 0.8118 \pm 0.0201 \\ 0.1176 \pm 0.0111 \\ 0.3632 \pm 0.0138 \\ 0.4874 \pm 0.0387 \\ 0.1809 \pm 0.0017 \\ 0.8088 \pm 0.0279 \\ 1.6654 \pm 0.6256 \\ 0.2767 \pm 0.0121 \\ 0.1568 \pm 0.00427 \\ 0.1568 \pm 0.0057 \\ 0.0014 \pm 0.0056 \\ 23.8020 \pm 0.3768 \\ 0.7342 \pm 0.0356 \\ 23.8020 \pm 0.3768 \\ 0.7342 \pm 0.0272 \\ 0.6355 \pm 0.0602 \\ \hline FCM \\ \hline \\ 301.2430 \pm 10.6738 \\ 0.2699 \pm 0.0217 \\ 0.2844 \pm 0.0238 \\ 0.3498 \pm 0.0508 \\ 0.1429 \pm 0.0108 \\ 0.1429 \pm 2.4365 \\ 0.0760 \pm 0.0263 \\ \hline \end{array}$	$\begin{array}{r} KM++\\ \hline & $238.6506 \pm 4.5788\\ 0.7199 \pm 0.0093\\ 0.0190 \pm 0.0026\\ 0.8130 \pm 0.0249\\ 0.0130 \pm 0.0249\\ 0.1162 \pm 0.0138\\ 0.3669 \pm 0.0151\\ 0.4926 \pm 0.0475\\ 0.1809 \pm 0.0023\\ 0.8042 \pm 0.0336\\ 1.4157 \pm 0.4323\\ 0.2766 \pm 0.0151\\ 0.1405 \pm 0.0149\\ 2.5976 \pm 0.0449\\ 0.1561 \pm 0.0073\\ 0.0013 \pm 0.0003\\ 1.8986 \pm 0.0961\\ 0.2187 \pm 0.0433\\ 23.8651 \pm 0.4579\\ 0.7357 \pm 0.0528\\ 0.7240 \pm 0.0255\\ 0.6160 \pm 0.0507\\ \hline MEC\\ \hline & 289.1568 \pm 9.2649\\ 0.8345 \pm 0.0171\\ 0.0734 \pm 0.0161\\ 0.3564 \pm 0.0474\\ 0.2515 \pm 0.0188\\ 0.2984 \pm 0.0179\\ 0.3593 \pm 0.0487\\ 0.04437 \pm 0.0058\\ 0.4028 \pm 0.0588\\ 3.3267 \pm 1.2337\\ 0.0830 \pm 0.0237\\ \hline \end{array}$	$\begin{array}{c} PKM \\ \hline $325.2651 \pm 0.7834 \\ 0.7111 \pm 0.0025 \\ 0.0169 \pm 0.0006 \\ 0.8237 \pm 0.0063 \\ 0.1115 \pm 0.0045 \\ 0.3606 \pm 0.0087 \\ 0.4799 \pm 0.0476 \\ 0.1820 \pm 0.0004 \\ 0.8296 \pm 0.0060 \\ 1.5200 \pm 0.02926 \\ 0.2826 \pm 0.0055 \\ 0.1331 \pm 0.0139 \\ 2.5910 \pm 0.0033 \\ 0.01547 \pm 0.0033 \\ 0.0144 \pm 0.0003 \\ 1.9102 \pm 0.0474 \\ 0.1869 \pm 0.0073 \\ 23.5267 \pm 0.0783 \\ 0.7486 \pm 0.0216 \\ 0.7486 \pm 0.0111 \\ 0.6722 \pm 0.0250 \\ FSC \\ \hline $387.2978 \pm 11.7520 \\ 0.9156 \pm 0.0119 \\ 0.0576 \pm 0.0331 \\ 0.0218 \pm 0.0492 \\ 0.3031 \pm 0.0220 \\ 0.1252 \pm 0.0392 \\ 0.4267 \pm 0.0481 \\ 0.0156 \\ 0.0156 \\ 3.1296 \pm 1.1438 \\ 0.0459 \\ 0.0266 \\ 0.0459 \\ 0.0266 \\ 0.0459 \\ 0.0266 \\ 0.0459 \\ 0.0266 \\ 0.0459 \\ 0.0266 \\ 0.0459 \\ 0.0266 \\ 0.0459 \\ 0.0266 \\ 0.0459 \\ 0.0266 \\ 0.0156 \\ 0.0459 \\ 0.0266 \\ 0.0266 \\ 0.0156 \\ 0.0156 \\ 0.0156 \\ 0.0156 \\ 0.0156 \\ 0.0156 \\ 0.0156 \\ 0.0156 \\ 0.0156 \\ 0.0156 \\ 0.0156 \\ 0.0260 \\ 0.0267 \\ 0.0260 \\ 0.0267 \\ 0.0459 \\ 0.0267 \\ 0.0459 \\ 0.0267 \\ 0.0459 \\ 0.0267 \\ 0.0459 \\ 0.0267 \\ 0.0459 \\ 0.0267 \\ 0.0459 \\ 0.0267 \\ 0.0459 \\ 0.0267 \\ 0.0151 \\ 0.0256 \\ 0.0459 \\ 0.0267 \\ 0.0459 \\ 0.0267 \\ 0.0459 \\ 0.0267 \\ 0.0459 \\ 0.0267 \\ 0.0459 \\ 0.0267 \\ 0.0459 \\ 0.0267 \\ 0.0459 \\ 0.0267 \\ 0.0151 \\ 0.0256 \\ 0.0459 \\ 0.0267 \\ 0.0459 \\ 0.0267 \\ 0.0151 \\ 0.0459 \\ 0.0267 \\ 0.0459 \\ 0.0459 \\ 0.0459 \\ 0.0459 \\ 0.0459 \\ 0.0459 \\ 0.0459 \\ 0.0459 \\ 0.0459 \\ 0.0459 \\ 0.0459 \\ 0.0459$	$\begin{array}{c} \hline EWPKM \\ \hline 344.0539 \pm 5.0062 \\ 0.9429 \pm 0.0013 \\ 0.9429 \pm 0.0043 \\ 0.01919 \pm 0.0047 \\ 0.2000 \pm 0.0057 \\ 0.3780 \pm 0.0044 \\ 0.1385 \pm 0.0032 \\ 0.3780 \pm 0.0046 \\ 0.1278 \pm 0.0011 \\ 0.0885 \pm 0.0022 \\ 17.4298 \pm 2.3087 \\ 0.0089 \pm 0.0020 \\ 0.1053 \pm 0.0137 \\ 3.5609 \pm 0.0047 \\ 0.0030 \pm 0.0007 \\ 4.9440 \pm 0.2232 \\ -2.4247 \pm 0.0255 \\ 39.5425 \pm 0.0817 \\ 0.1741 \pm 0.0029 \\ 0.1355 \pm 0.0007 \\ 0.0150 \pm 0.0013 \\ 2PFCM \\ \hline 306.0312 \pm 0.0000 \\ 0.8408 \pm 0.0000 \\ 0.2644 \pm 0.0000 \\ 0.2439 \pm 0.0000 \\ 0.3166 \pm 0.0000 \\ 0.3305 \pm 0.0000 \\ 0.1491 \pm 0.0000 \\ 0.1491 \pm 0.0000 \\ 0.1491 \pm 0.0000 \\ 0.1491 \pm 0.0000 \\ 0.4423 \pm 0.0000 \\ 0.0848 \pm 0.0000 \\ 0.4423 \pm 0.0000 \\ 0.0848 \pm 0.0000 \\ 0.4423 \pm 0.0000 \\ 0.49275 \pm 0.0000 \\ 0.0848 \pm 0.0000 \\ 0.0848 \pm 0.0000 \\ 0.0848 \pm 0.0000 \\ 0.49275 \pm 0.0000 \\ 0.0898 \pm 0.0000 \\ 0.0848 \pm 0.0000 \\ 0.0898 \pm $	$\begin{array}{c} & \\ & \\ & \\ & \\ \hline \\ & \\ & \\ & \\ & \\ & \\$	$\begin{array}{c} \text{HC}\\ \text{HC}\\ \hline \text{HC}\\ \hline \text{237,9126} \pm 0.0000\\ 0.7253 \pm 0.0000\\ 0.7253 \pm 0.0000\\ 0.0218 \pm 0.0000\\ 0.0218 \pm 0.0000\\ 0.1245 \pm 0.0000\\ 0.1245 \pm 0.0000\\ 0.1245 \pm 0.0000\\ 0.7553 \pm 0.0000\\ 0.753 \pm 0.0000\\ 0.7653 \pm 0.0000\\ 0.7653 \pm 0.0000\\ 0.2671 \pm 0.0000\\ 0.0008 \pm 0.0000\\ 0.2525 \pm 0.0000\\ 0.27170 \pm 0.0000\\ 0.8252 \pm 0.0000\\ 0.7170 \pm 0.0000\\ \overline{\text{KFCM}}\\ \hline \text{287.3822} \pm 9.4675\\ 0.8318 \pm 0.0184\\ 0.0683 \pm 0.0124\\ 0.5403 \pm 0.0274\\ 0.2534 \pm 0.0279\\ 0.2524 \pm 0.0274\\ 0.3552 \pm 0.0543\\ 3.5445 \pm 1.4785\\ 0.086 \pm 0.0251\\ \hline \end{array}$	$\begin{array}{c} \text{CAPKM}{}+\text{2.0} \\ \hline \text{CAPKM}{}+\text{2.0} \\ \hline \text{234.8252} \pm 0.0000 \\ \text{0.7111} \pm 0.0000 \\ \text{0.0168} \pm 0.0000 \\ \text{0.0168} \pm 0.0000 \\ \text{0.01059} \pm 0.0000 \\ \text{0.1059} \pm 0.0000 \\ \text{0.3701} \pm 0.0000 \\ \text{0.3701} \pm 0.0000 \\ \text{0.1321} \pm 0.0000 \\ \text{0.1821} \pm 0.0000 \\ \text{0.1821} \pm 0.0000 \\ \text{0.1824} \pm 0.0000 \\ \text{0.1824} \pm 0.0000 \\ \text{0.194} \pm 0.0000 \\ \text{0.1139} \pm 0.0000 \\ \text{0.1139} \pm 0.0000 \\ \text{0.1545} \pm 0.0001 \\ \text{0.0194} \pm 0.0000 \\ \text{2.34825} \pm 0.0001 \\ \text{0.7563} \pm 0.0002 \\ \text{0.7563} \pm 0.0002 \\ \text{0.7564} \pm 0.0002 \\ \text{0.7564} \pm 0.0002 \\ \text{CAFCM} \\ \hline \begin{array}{c} \text{234.8252} \pm 0.0000 \\ \text{0.37014} \pm 0.0000 \\ \text{0.3307} \pm 0.0000 \\ \text{0.3307} \pm 0.0000 \\ \text{0.3307} \pm 0.0000 \\ \text{0.1355} \pm 0.0000 \\ \text{0.1355} \pm 0.0000 \\ \text{0.1355} \pm 0.0000 \\ \text{0.1354} \pm 0.0000 \\ \text{0.1354} \pm 0.0000 \\ \text{0.1354} \pm 0.0000 \\ \text{0.1354} \pm 0.0000 \\ \text{0.1414} \pm 0.0000 \\ \text{0.2904} \pm 0.0000 \\ \text{0.2904} \pm 0.0000 \\ \end{array}$
Optdigits WGSS↓ MRI↓ GPI↓ BHGI↑ Cl↓ TI↑ RLI↑ CHI↑ PBHI↑ XBI↓ DBI↓ LSSRI↑ TWI↓ ACC↑ NMI↑ ARI↑ Opidigits BHGI↑ CL↓ TT↑ DGI↑ RLI↑ Opidigits WGSS↓	$\begin{array}{c} {\rm KM} \\ \hline \\ {\rm Z38.0204 \pm 3.7684} \\ 0.7191 \pm 0.0094 \\ 0.0189 \pm 0.0025 \\ 0.8118 \pm 0.0201 \\ 0.1176 \pm 0.0111 \\ 0.3632 \pm 0.0138 \\ 0.1176 \pm 0.0111 \\ 0.3632 \pm 0.0138 \\ 0.1809 \pm 0.0017 \\ 0.8088 \pm 0.0279 \\ 1.6654 \pm 0.0252 \\ 0.2767 \pm 0.0121 \\ 0.1368 \pm 0.0121 \\ 0.25823 \pm 0.0427 \\ 0.1568 \pm 0.0047 \\ 0.0014 \pm 0.0002 \\ 1.9179 \pm 0.0796 \\ -0.2128 \pm 0.0356 \\ 23.8020 \pm 0.3768 \\ 0.7537 \pm 0.0641 \\ 0.7342 \pm 0.0272 \\ 0.1554 \pm 0.0154 \\ 0.0935 \pm 0.0164 \\ 0.0355 \pm 0.0164 \\ 0.02844 \pm 0.0480 \\ 0.2699 \pm 0.0217 \\ 0.2844 \pm 0.0238 \\ 0.1429 \pm 0.0101 \\ 0.4032 \pm 0.0668 \\ 5.1299 \pm 2.4365 \\ 0.0760 \pm 0.0263 \\ 0.0760 \pm 0.0263 \\ 0.0044 \pm 0.0149 \\ 0.0094 \pm 0.0104 \\ 0.0068 \\ 5.1299 \pm 2.4365 \\ 0.0760 \pm 0.0263 \\ 0.0054 \pm 0.0168 \\ 0.0149 \pm 0.0104 \\ 0.0054 \pm 0.0168 \\ 0.0149 \pm 0.0104 \\ 0.0054 \pm 0.0168 \\ 0.0149 \pm 0.0104 \\ 0.0164 \pm 0.0168 \\ 0.0164 \pm 0.0168 \\ 0.0164 \pm 0.0164 \\ 0.0164 \\ 0.0164 \\ 0.0164 \\ 0.0164 \\ 0.0164 \\ $	$\begin{array}{l} \hline KM++\\ \hline 238.6506 \pm 4.5788\\ 0.7199 \pm 0.0093\\ 0.0190 \pm 0.0026\\ 0.8130 \pm 0.0249\\ 0.01160 \pm 0.0151\\ 0.4926 \pm 0.0151\\ 0.4926 \pm 0.0475\\ 0.1809 \pm 0.0023\\ 0.8042 \pm 0.0336\\ 1.4157 \pm 0.4323\\ 0.2766 \pm 0.0151\\ 0.1405 \pm 0.0149\\ 2.5976 \pm 0.0449\\ 0.1561 \pm 0.0073\\ 0.0013 \pm 0.0003\\ 1.8986 \pm 0.0961\\ 0.2187 \pm 0.0433\\ 23.8651 \pm 0.4579\\ 0.7357 \pm 0.0528\\ 0.7240 \pm 0.0255\\ 0.6160 \pm 0.0507\\ \hline MEC\\ \hline 2289.1568 \pm 9.2649\\ 0.3345 \pm 0.0171\\ 0.0734 \pm 0.0161\\ 0.5364 \pm 0.0474\\ 0.2515 \pm 0.0188\\ 0.2934 \pm 0.0179\\ 0.3593 \pm 0.0487\\ 0.04437\\ 0.0487\\ 0.0483 \pm 0.0588\\ 3.3267 \pm 1.2337\\ 0.065 \pm 0.0149\\ 3.0417 \pm 0.0149\\ \end{array}$	$\begin{array}{c} \hline PKM \\ \hline \\ $ 235.2651 \pm 0.7834 \\ 0.7111 \pm 0.0025 \\ 0.0169 \pm 0.0006 \\ \hline 0.8237 \pm 0.0005 \\ \hline 0.0003 \\ 0.3115 \pm 0.0045 \\ \hline 0.0003 \\ 0.3115 \pm 0.0045 \\ \hline 0.0004 \\ 0.8296 \pm 0.0060 \\ \hline 1.820 \pm 0.0074 \\ \hline 0.3296 \pm 0.0060 \\ \hline 1.820 \pm 0.0074 \\ \hline 0.3206 \pm 0.0055 \\ \hline 0.1331 \pm 0.0139 \\ 2.5910 \pm 0.0037 \\ \hline 0.014 \pm 0.0033 \\ 0.0014 \pm 0.0073 \\ \hline 2.35207 \pm 0.0783 \\ \hline 0.7950 \pm 0.0256 \\ \hline 0.7486 \pm 0.0119 \\ 0.0576 \pm 0.0125 \\ \hline 0.3218 \pm 0.0492 \\ 0.3031 \pm 0.0220 \\ 0.155 \pm 0.0397 \\ \hline 0.155 \pm 0.0195 \\ \hline 0.0376 \pm 0.0156 \\ \hline 0.0156 \pm 0.0119 \\ 0.0376 \pm 0.0156 \\ \hline 0.0125 \pm 0.0492 \\ 0.0376 \pm 0.0156 \\ \hline 3.1296 \pm 1.1438 \\ 0.0459 \pm 0.0267 \\ \hline 0.3255 \pm 0.0150 \\ \hline 2.9554 \pm 0.0515 \\ \hline 0.3255 \pm 0.0515 \\ \hline 0.3255 \pm 0.0515 \\ \hline 0.355 \pm 0.0515 \\ \hline 0.3255 \pm 0.0515 \\ \hline 0.565 \\ \hline 0.575 \\ \hline 0$	$\begin{array}{c} \hline \hline \\ $	$\begin{array}{c} & \\ & \\ & \\ & \\ \hline \\ SC \\ \hline \\ & \\ & \\ & \\ & \\ & \\ & \\ & \\ & \\ &$	$\begin{array}{c} 1.403 \pm 0.0120 \\ \hline HC \\ \hline 237.9126 \pm 0.0000 \\ 0.7253 \pm 0.0000 \\ 0.7253 \pm 0.0000 \\ 0.0218 \pm 0.0000 \\ 0.0218 \pm 0.0000 \\ 0.1245 \pm 0.0000 \\ 0.1245 \pm 0.0000 \\ 0.3552 \pm 0.0000 \\ 0.1791 \pm 0.0000 \\ 0.7653 \pm 0.0000 \\ 0.7653 \pm 0.0000 \\ 0.7653 \pm 0.0000 \\ 0.2671 \pm 0.0000 \\ 0.0008 \pm 0.0000 \\ 0.755 \pm 0.0000 \\ 0.1596 \pm 0.0000 \\ 0.355 \pm 0.0000 \\ 0.2770 \pm 0.0000 \\ 0.2534 \pm 0.0000 \\ 0.7170 \pm 0.0000 \\ \hline KPCM \\ \hline 287.3822 \pm 9.4675 \\ 0.8318 \pm 0.0184 \\ 0.0683 \pm 0.0124 \\ 0.5403 \pm 0.0274 \\ 0.3552 \pm 0.0543 \\ 0.1427 \pm 0.0077 \\ 0.4001 \pm 0.0538 \\ 3.5445 \pm 1.4785 \\ 0.086 \pm 0.0251 \\ 0.0086 \pm 0.0251 \\ 0.0$	$\begin{array}{c} CAPKM++2.0\\ \hline CAPKM++2.0\\ \hline 234.8252 \pm 0.0000\\ 0.7111 \pm 0.0000\\ 0.0168 \pm 0.0000\\ 0.0168 \pm 0.0000\\ 0.1059 \pm 0.0000\\ 0.3701 \pm 0.0000\\ 0.3701 \pm 0.0000\\ 0.1321 \pm 0.0000\\ 0.1821 \pm 0.0000\\ 0.1821 \pm 0.0000\\ 0.1821 \pm 0.0000\\ 0.1824 \pm 0.0000\\ 0.1139 \pm 0.0000\\ 0.1139 \pm 0.0000\\ 0.1139 \pm 0.0000\\ 0.1139 \pm 0.0000\\ 0.1545 \pm 0.0001\\ 0.01545 \pm 0.0001\\ 0.0019 \pm 0.0000\\ 2.34825 \pm 0.0000\\ 2.34825 \pm 0.0000\\ 0.7563 \pm 0.0002\\ CAFCM\\ \hline 234.8252 \pm 0.0000\\ 0.7111 \pm 0.0000\\ 0.3307 \pm 0.0000\\ 0.3307 \pm 0.0000\\ 0.3307 \pm 0.0000\\ 0.1835 \pm 0.0000\\ 0.3307 \pm 0.0000\\ 0.1835 \pm 0.0000\\ 0.1821 \pm 0.0000\\ 0.1821 \pm 0.0000\\ 0.1835 \pm 0.0000\\ 0.1835 \pm 0.0000\\ 0.1821 \pm 0.0000\\ 0.1830 \pm 0.0000\\ 0.1830 \pm 0.0000\\ 0.1821 \pm 0.0000\\ 0.3301 \pm 0.0000\\ 0.2904 \pm 0.0000\\ 0.2904 \pm 0.0000\\ 0.2944 \pm 0.0000\\ 0.139 \pm 0.0000\\ 0.139 \pm 0.0000\\ 0.1549 \pm 0.0000\\ 0.1549 \pm 0.0000\\ 0.1549 \pm 0.0000\\ 0.2548 \pm 0.0000\\ 0.1549 \pm 0.0000\\ 0.1549 \pm 0.0000\\ 0.1549 \pm 0.0000\\ 0.2548 \pm$
Optdigits WGSSJ MRIJ GPIJ BHGI↑ CIJ TI↑ RLI↑ CHI↑ PBMI↑ XBI↓ DBI↓ LSSRI↑ TWI↓ ACC↑ NMI↑ ARI↑ Opidigits BHGI↑ CI↓ TI↑ DGI↑ RLI↑ Opidigits WGSS↓ MRI↓ GPI↓ BHGI↑ CI↓ TI↑ DGI↑ RLI↑ PBHGI↑ DGI↑ BHGI↑ DGI↑ RI↓ DGI↑ RI↓ DGI↑ RI↓ BHG1↑ BHI↑ BHI↑	$\begin{array}{c} {\rm KM} \\ \hline \\ {\rm Z38.0204 \pm 3.7684} \\ 0.7191 \pm 0.0094 \\ 0.0189 \pm 0.0025 \\ 0.8118 \pm 0.0201 \\ 0.1176 \pm 0.0111 \\ 0.3632 \pm 0.0138 \\ 0.1176 \pm 0.0111 \\ 0.3632 \pm 0.0138 \\ 0.4874 \pm 0.0387 \\ 0.1809 \pm 0.0017 \\ 0.8088 \pm 0.0279 \\ 1.6654 \pm 0.6256 \\ 0.2767 \pm 0.0121 \\ 0.1368 \pm 0.0121 \\ 2.5823 \pm 0.0427 \\ 0.1568 \pm 0.0047 \\ 0.0014 \pm 0.0002 \\ 1.9179 \pm 0.0796 \\ -0.2128 \pm 0.0356 \\ 23.8020 \pm 0.3768 \\ 0.7537 \pm 0.0641 \\ 0.7342 \pm 0.0272 \\ 0.1655 \pm 0.0602 \\ {\rm FCM} \\ \hline \\ 301.2430 \pm 10.6738 \\ 0.1439 \pm 0.0154 \\ 0.0935 \pm 0.0161 \\ 0.02844 \pm 0.0238 \\ 0.3498 \pm 0.0508 \\ 0.1429 \pm 0.0101 \\ 0.0760 \pm 0.0263 \\ 0.0760 \pm 0.0263 \\ 0.0760 \pm 0.0263 \\ 0.0149 \\ 3.0998 \pm 0.2102 \\ 0.1806 \pm 0.0537 \\ \hline \end{array}$	$\begin{array}{l} \hline KM++\\ \hline 238.6506 \pm 4.5788\\ 0.7199 \pm 0.0093\\ 0.0190 \pm 0.0026\\ 0.8130 \pm 0.02249\\ 0.1162 \pm 0.0138\\ 0.3669 \pm 0.0151\\ \hline 0.4926 \pm 0.0475\\ 0.1809 \pm 0.0023\\ 0.809 \pm 0.0023\\ 0.8042 \pm 0.0336\\ 1.4157 \pm 0.4323\\ 0.2766 \pm 0.0151\\ 0.1405 \pm 0.0149\\ 2.5976 \pm 0.0449\\ 0.1561 \pm 0.0073\\ 0.0013 \pm 0.003\\ 1.8986 \pm 0.0961\\ -0.2187 \pm 0.0433\\ 2.38651 \pm 0.4579\\ 0.7357 \pm 0.0528\\ 0.7240 \pm 0.0255\\ 0.6160 \pm 0.0507\\ \hline MEC\\ \hline 289.1568 \pm 9.2649\\ 0.3545 \pm 0.0171\\ 0.0734 \pm 0.0171\\ 0.2984 \pm 0.0178\\ 0.1443 \pm 0.0085\\ 0.4028 \pm 0.0588\\ 3.3267 \pm 1.2337\\ 0.0830 \pm 0.0237\\ 0.1065 \pm 0.0149\\ 3.0147 \pm 0.2178\\ 0.1209 \pm 0.0293\\ \hline \end{array}$	$\begin{array}{c} \textbf{PKM} \\ \hline \textbf{3} \ 235.2651 \pm 0.7834 \\ \textbf{0.7111} \pm 0.0025 \\ \hline \textbf{0.7111} \pm 0.0025 \\ \hline \textbf{0.7111} \pm 0.0006 \\ \hline \textbf{0.8237} \pm 0.0078 \\ \hline \textbf{0.7115} \pm 0.0047 \\ \hline \textbf{0.8296} \pm 0.0060 \\ \hline \textbf{0.8296} \pm 0.0060 \\ \hline \textbf{0.8296} \pm 0.0055 \\ \hline \textbf{0.1331} \pm 0.0139 \\ \hline \textbf{2.5910} \pm 0.0037 \\ \hline \textbf{0.1547} \pm 0.0033 \\ \hline \textbf{0.0014} \pm 0.0073 \\ \hline \textbf{23.5267} \pm 0.0783 \\ \hline \textbf{0.7950} \pm 0.0256 \\ \hline \textbf{0.7486} \pm 0.0073 \\ \hline \textbf{23.52778} \pm 11.7520 \\ \hline \textbf{0.872} \pm 0.0476 \\ \hline \textbf{0.872} \pm 0.0476 \\ \hline \textbf{0.872} \pm 0.0478 \\ \hline \textbf{0.156} \pm 0.0119 \\ \hline \textbf{0.576} \pm 0.0327 \\ \hline \textbf{0.331} \pm 0.0492 \\ \hline \textbf{0.155} \pm 0.0492 \\ \hline \textbf{0.331} \pm 0.0493 \\ \hline \textbf{0.331} \pm 0.0493 \\ \hline \textbf{0.331} \pm 0.0498 \\ \hline \textbf{0.331} \pm 0.0493 \\ \hline \textbf{0.331} \pm 0.0498 \\ \hline \textbf{0.331} \pm 0.0493 \\ \hline \textbf{0.331} \pm 0.0493 \\ \hline \textbf{0.331} \pm 0.0493 \\ \hline \textbf{0.331} \pm 0.0498 \\ \hline \textbf{0.331} \pm 0.0493 \\ \hline \textbf{0.331} \pm 0.0498 \\ \hline \textbf{0.331} \pm 0.0493 \\ \hline \textbf{0.331} \pm 0.0494 \\ $	$\begin{array}{c} \hline \\ \hline $	$\begin{array}{c} & \\ & \\ & \\ \hline SC \\ \hline 241.4227 \pm 0.0360 \\ & \\ & \\ 0.7281 \pm 0.0015 \\ & \\ 0.0231 \pm 0.0003 \\ & \\ 0.0231 \pm 0.0004 \\ & \\ 0.0231 \pm 0.0014 \\ & \\ 0.0215 \pm 0.0011 \\ & \\ 0.03568 \pm 0.0004 \\ & \\ 0.6619 \pm 0.0100 \\ & \\ 0.7404 \pm 0.0021 \\ & \\ 0.0744 \pm 0.0013 \\ & \\ 0.7404 \pm 0.0003 \\ & \\ 0.1705 \pm 0.0000 \\ & \\ 1.0338 \pm 0.0024 \\ & \\ 2.6041 \pm 0.0035 \\ & \\ 0.0007 \pm 0.0000 \\ & \\ 1.3383 \pm 0.0024 \\ & \\ 2.6041 \pm 0.0035 \\ & \\ 0.0007 \pm 0.0000 \\ & \\ 1.3383 \pm 0.0024 \\ & \\ 2.6041 \pm 0.0035 \\ & \\ 0.0007 \pm 0.0003 \\ & \\ 0.1900 \pm 0.0003 \\ & \\ 0.1900 \pm 0.0029 \\ & \\ 24.6730 \pm 0.0030 \\ & \\ 0.8708 \pm 0.0003 \\ & \\ 0.08708 \pm 0.0003 \\ & \\ 0.8708 \pm 0.0003 \\ & \\ 0.8768 \pm 0.0003 \\ & \\ 0.0868 \pm 0.0019 \\ & \\ 0.0534 \pm 0.0033 \\ & \\ 0.0224 \pm 0.0049 \\ & \\ 0.0234 \pm 0.0045 \\ & \\ 0.0280 \pm 0.0081 \\ & \\ 87.9181 \pm 47.4428 \\ 0.00087 \\ & \\ 4.6291 \pm 0.0381 \\ & \\ 0.0066 \pm 0.0021 \\ \hline \end{array}$	$\begin{array}{c} 1.403 \pm 0.0120 \\ \hline HC \\ \hline 237.9126 \pm 0.0000 \\ 0.7253 \pm 0.0000 \\ 0.7253 \pm 0.0000 \\ 0.0218 \pm 0.0000 \\ 0.0218 \pm 0.0000 \\ 0.1245 \pm 0.0000 \\ 0.1245 \pm 0.0000 \\ 0.1245 \pm 0.0000 \\ 0.1595 \pm 0.0000 \\ 0.7653 \pm 0.0000 \\ 0.7653 \pm 0.0000 \\ 0.7671 \pm 0.0000 \\ 0.2671 \pm 0.0000 \\ 0.0088 \pm 0.0000 \\ 0.2671 \pm 0.0000 \\ 0.2534 \pm 0.0000 \\ 0.2534 \pm 0.0251 \\ 0.2534 \pm 0.0279 \\ 0.2534 \pm 0.0274 \\ 0.3522 \pm 0.0274 \\ 0.3522 \pm 0.0274 \\ 0.3522 \pm 0.0274 \\ 0.086 \pm 0.0251 \\ 0.1062 \pm 0.0231 \\ 0.1082 \pm 0.0231 \\ \end{array}$	$\begin{array}{c} \text{CAPKM}{}+\text{2.0} \\ \hline \text{CAPKM}{}+\text{2.0} \\ \hline \text{234.8252} \pm 0.0000 \\ \text{0.7111} \pm 0.0000 \\ \text{0.0168} \pm 0.0000 \\ \text{0.0168} \pm 0.0000 \\ \text{0.01059} \pm 0.0000 \\ \text{0.03701} \pm 0.0000 \\ \text{0.3701} \pm 0.0000 \\ \text{0.1331} \pm 0.0000 \\ \text{0.1821} \pm 0.0000 \\ \text{0.1821} \pm 0.0000 \\ \text{0.1824} \pm 0.0000 \\ \text{0.1934} \pm 0.0000 \\ \text{0.1934} \pm 0.0000 \\ \text{0.194} \pm 0.0000 \\ \text{0.1139} \pm 0.0000 \\ \text{0.1139} \pm 0.0000 \\ \text{0.1545} \pm 0.0001 \\ \text{0.0194} \pm 0.0000 \\ \text{2.3848} \pm 0.0001 \\ \text{0.0194} \pm 0.0000 \\ \text{2.34825} \pm 0.0000 \\ \text{0.7563} \pm 0.0002 \\ \text{0.7674} \pm 0.0002 \\ \text{CAFCM} \\ \hline \begin{array}{c} \text{234.8252} \pm 0.0000 \\ \text{0.7111} \pm 0.0000 \\ \text{0.3307} \pm 0.0000 \\ \text{0.1355} \pm 0.0000 \\ \text{0.1355} \pm 0.0000 \\ \text{0.1354} \pm 0.0000 \\ \text{0.1324} \pm 0.0000 \\ \text{0.1394} \pm 0.0000 \\ \text{0.1394} \pm 0.0000 \\ \text{0.1544} \pm 0.0000 \\ \text{0.1544} \pm 0.0000 \\ \text{0.1544} \pm 0.0000 \\ \end{array}$
Optoligits WGSSJ MRIJ GPIJ BHGI↑ CIJ TI↑ RLI↑ CHI↑ PBHI↑ DBI↓ LSSRI↑ TWI↓ ACC↑ NMI↑ ARI↑ Optoligits BHGI↑ CI↓ TI↑ PBL↓ CC↑ MRI↓ GPI↓ BHGI↑ CI↓ TI↑ DGI↑ RLI↑ Optoligits WGI↑ DGI↑ RLI↑ DGI↑ RLI↑ DGI↑ RLI↑ DGI↑ RLI↑ DGI↑ RUI↑ BHI↑ BHI↑ DRI↓	$\begin{array}{c} {\rm KM} \\ \hline \\ {\rm Z38.0204 \pm 3.7684} \\ 0.7191 \pm 0.0094 \\ 0.0189 \pm 0.0025 \\ 0.8118 \pm 0.0201 \\ 0.1176 \pm 0.0111 \\ 0.3632 \pm 0.0138 \\ 0.4874 \pm 0.0387 \\ 0.1809 \pm 0.0017 \\ 0.8088 \pm 0.0279 \\ 1.6654 \pm 0.0252 \\ 0.2767 \pm 0.0121 \\ 0.1368 \pm 0.0121 \\ 0.25823 \pm 0.0427 \\ 0.1568 \pm 0.0047 \\ 0.0014 \pm 0.0002 \\ 1.9179 \pm 0.0796 \\ -0.2128 \pm 0.0356 \\ 2.3.8020 \pm 0.3768 \\ 0.7537 \pm 0.0641 \\ 0.7342 \pm 0.0272 \\ 0.46355 \pm 0.0602 \\ {\rm FCM} \\ \hline \\ 301.2430 \pm 10.6738 \\ 0.2844 \pm 0.0184 \\ 0.0935 \pm 0.0161 \\ 0.2844 \pm 0.0238 \\ 0.2748 \pm 0.0235 \\ 0.2844 \pm 0.0154 \\ 0.0935 \pm 0.0161 \\ 0.2844 \pm 0.0238 \\ 0.1429 \pm 0.0101 \\ 0.4032 \pm 0.0688 \\ 5.1299 \pm 2.4365 \\ 0.0760 \pm 0.0263 \\ 0.1034 \pm 0.0149 \\ 3.0998 \pm 0.2102 \\ 0.1806 \pm 0.0537 \\ 0.0029 \pm 0.0010 \\ 2.9943 + 0.3749 \\ \hline \end{array}$	$\begin{array}{r} {\rm KM} ++\\ 238.6506 \pm 4.5788\\ 0.7199 \pm 0.0093\\ 0.0190 \pm 0.0026\\ 0.8130 \pm 0.0249\\ 0.1162 \pm 0.0138\\ 0.3669 \pm 0.0151\\ \overline{0.4926} \pm 0.0151\\ \overline{0.4926} \pm 0.0475\\ 0.1809 \pm 0.0023\\ 0.809 \pm 0.0023\\ 0.8042 \pm 0.0336\\ 1.4157 \pm 0.4323\\ 0.2766 \pm 0.0149\\ 2.5976 \pm 0.0149\\ 0.1561 \pm 0.0073\\ 0.0013 \pm 0.0043\\ 0.0013 \pm 0.0043\\ 0.0013 \pm 0.0043\\ 0.0013 \pm 0.0043\\ 0.238651 \pm 0.4579\\ 0.7357 \pm 0.0528\\ 0.7240 \pm 0.0255\\ 0.6160 \pm 0.0507\\ \hline {\rm MEC}\\ \hline 289.1568 \pm 9.2649\\ 0.3545 \pm 0.0171\\ 0.0734 \pm 0.0171\\ 0.0734 \pm 0.0171\\ 0.0734 \pm 0.0171\\ 0.0734 \pm 0.0171\\ 0.2884 \pm 0.0179\\ 0.3933 \pm 0.0487\\ 0.1443 \pm 0.0085\\ 0.4028 \pm 0.0588\\ 3.3267 \pm 1.2337\\ 0.1065 \pm 0.0149\\ 3.0147 \pm 0.2178\\ 0.1278\\ 0.027 \pm 0.0218\\ 0.0027 \pm 0.0110\\ \hline \end{array}$	$\begin{array}{c} \textbf{PKM} \\ \hline \textbf{2} \ \textbf{2} \ \textbf{3} \ \textbf{2} \ \textbf{3} $	$\begin{array}{c} \hline \\ \hline $	$\begin{array}{c} SC \\ \hline 241.4227 \pm 0.0360 \\ 0.7281 \pm 0.0015 \\ 0.0231 \pm 0.0003 \\ 0.7081 \pm 0.0003 \\ 0.1251 \pm 0.0014 \\ 0.3568 \pm 0.0004 \\ 0.619 \pm 0.0100 \\ 0.1251 \pm 0.0011 \\ 0.1251 \pm 0.0011 \\ 0.2740 \pm 0.0001 \\ 0.7446 \pm 0.0021 \\ 1.0344 \pm 0.0013 \\ 0.2740 \pm 0.0003 \\ 0.1733 \pm 0.0024 \\ 2.6041 \pm 0.0035 \\ 0.1900 \pm 0.0005 \\ 0.0007 \pm 0.00024 \\ 2.6041 \pm 0.0035 \\ 0.1900 \pm 0.0005 \\ 0.0007 \pm 0.00005 \\ 0.0007 \pm 0.00003 \\ 0.7799 \pm 0.0003 \\ 0.7799 \pm 0.0003 \\ 0.7799 \pm 0.0003 \\ 0.7799 \pm 0.0003 \\ 0.7799 \pm 0.0006 \\ 0.0224 \pm 0.0049 \\ 0.0866 \pm 0.0019 \\ 0.024 \pm 0.0063 \\ 0.024 \pm 0.0081 \\ 0.024 \pm 0.0063 \\ 0.024 \pm 0.0081 \\ 87.9181 \pm 47.4428 \\ 0.0063 \pm 0.0087 \\ 4.6291 \pm 0.0381 \\ 0.0066 \pm 0.0021 \\ 0.0065 \pm 0.0013 \\ 0.0000 \pm 0.0001 \\ 0.0000 \pm 0.00013 \\ 0.0000 \pm 0.000013 \\ 0.0000 \pm 0.00013 \\ 0.0000 \pm 0.000013 \\ 0.0000$	$\begin{array}{c} 1.403 \pm 0.0120 \\ \hline HC \\ \hline 237.9126 \pm 0.0000 \\ 0.7253 \pm 0.0000 \\ 0.7253 \pm 0.0000 \\ 0.0218 \pm 0.0000 \\ 0.0218 \pm 0.0000 \\ 0.1245 \pm 0.0000 \\ 0.1245 \pm 0.0000 \\ 0.1245 \pm 0.0000 \\ 0.1595 \pm 0.0000 \\ 0.7653 \pm 0.0000 \\ 0.7653 \pm 0.0000 \\ 0.7613 \pm 0.0000 \\ 0.2671 \pm 0.0000 \\ 0.0088 \pm 0.0000 \\ 0.2671 \pm 0.0000 \\ 0.2534 \pm 0.0000 \\ 0.2534 \pm 0.0251 \\ 0.2534 \pm 0.0279 \\ 0.2534 \pm 0.0274 \\ 0.3522 \pm 0.0274 \\ 0.3522 \pm 0.0274 \\ 0.3522 \pm 0.0274 \\ 0.3522 \pm 0.0274 \\ 0.086 \pm 0.021 \\ 0.0086 \pm 0.0251 \\ 0.1082 \pm 0.0231 \\ 0.0028 \pm 0.0012 \\ 0.0228 \pm 0.0012 \\ 0.0224 \pm 0.2087 \\ 0.1082 \pm 0.0231 \\ 0.0028 \pm 0.0012 \\ 0.0221 \pm 0.2087 \\ 0.0028 \pm 0.0012 \\ 0.0021 \pm 0.0001 \\ 0.0028 \pm 0.0021 \\ 0.0028 \pm 0.0021$	$\begin{array}{c} \text{CAPKM}{}+\text{2.0} \\ \hline \text{CAPKM}{}+\text{2.0} \\ \hline \text{CAPKM}{}+\text{2.0} \\ \hline \text{c3.48252} \pm 0.0000 \\ \textbf{0.7111} \pm 0.0000 \\ \textbf{0.168} \pm 0.0000 \\ \textbf{0.1059} \pm 0.0000 \\ \textbf{0.1059} \pm 0.0000 \\ \textbf{0.3701} \pm 0.0000 \\ \textbf{0.3701} \pm 0.0000 \\ \textbf{0.3701} \pm 0.0000 \\ \textbf{0.1341} \pm 0.0000 \\ \textbf{0.1821} \pm 0.0000 \\ \textbf{0.1821} \pm 0.0000 \\ \textbf{0.1391} \pm 0.0000 \\ \textbf{0.1391} \pm 0.0000 \\ \textbf{0.1391} \pm 0.0000 \\ \textbf{0.1345} \pm 0.0001 \\ \textbf{0.1545} \pm 0.0001 \\ \textbf{0.0194} \pm 0.0000 \\ \textbf{2.34825} \pm 0.0000 \\ \textbf{2.34825} \pm 0.0000 \\ \textbf{2.34825} \pm 0.0000 \\ \textbf{0.7563} \pm 0.0002 \\ \textbf{0.7563} \pm 0.0002 \\ \textbf{0.7674} \pm 0.0002 \\ \textbf{CAFCM} \\ \hline \textbf{2348252} \pm \textbf{0.0000} \\ \textbf{0.1355} \pm \textbf{0.0000} \\ \textbf{0.1355} \pm \textbf{0.0000} \\ \textbf{0.1355} \pm \textbf{0.0000} \\ \textbf{0.1355} \pm \textbf{0.0000} \\ \textbf{0.3701} \pm \textbf{0.0000} \\ \textbf{0.1355} \pm \textbf{0.0000} \\ \textbf{0.1351} \pm \textbf{0.0000} \\ \textbf{0.1354} \pm \textbf{0.0000} \\ \textbf{0.1344} \pm \textbf{0.0000} \\ \textbf{0.1544} \pm \textbf{0.0000} \\ 0.1544$
Optoligits WGSS↓ MRI↓ GPI↓ BHGI↑ Cl↓ TI↑ PBHI↑ PBHI↑ PBI↓ LSSRI↑ WGSS↓	$\begin{array}{c} {\rm KM} \\ \hline \\ 238.0204 \pm 3.7684 \\ 0.7191 \pm 0.0094 \\ 0.0189 \pm 0.0025 \\ 0.8118 \pm 0.0201 \\ 0.1176 \pm 0.0111 \\ 0.3632 \pm 0.0138 \\ 0.4874 \pm 0.0387 \\ 0.1809 \pm 0.0017 \\ 0.8088 \pm 0.0279 \\ 1.6654 \pm 0.6256 \\ 0.2767 \pm 0.0121 \\ 0.1368 \pm 0.0121 \\ 2.5823 \pm 0.0427 \\ 0.1568 \pm 0.0047 \\ 0.0014 \pm 0.0021 \\ 0.2128 \pm 0.0356 \\ 2.3.8020 \pm 0.3768 \\ 0.7537 \pm 0.0641 \\ 0.7334 \pm 0.0272 \\ 0.6355 \pm 0.0602 \\ \hline {\rm FCM} \\ \hline 301.2430 \pm 10.6738 \\ 0.2844 \pm 0.0154 \\ 0.0935 \pm 0.0161 \\ 0.4784 \pm 0.0488 \\ 0.2699 \pm 0.0174 \\ 0.02844 \pm 0.0488 \\ 0.2699 \pm 0.0217 \\ 0.2844 \pm 0.0488 \\ 0.2699 \pm 0.0161 \\ 0.4784 \pm 0.0488 \\ 0.2699 \pm 0.0174 \\ 0.02844 \pm 0.0488 \\ 0.2699 \pm 0.0174 \\ 0.02844 \pm 0.0488 \\ 0.1629 \pm 0.0101 \\ 0.4032 \pm 0.0161 \\ 0.4784 \pm 0.0480 \\ 0.2699 \pm 0.0217 \\ 0.0284 \pm 0.0154 \\ 0.0193 \pm 0.0108 \\ 0.1299 \pm 2.4365 \\ 0.0760 \pm 0.0263 \\ 0.0103 \pm 0.0149 \\ 3.0998 \pm 0.2102 \\ 0.1806 \pm 0.0537 \\ 0.0029 \pm 0.0010 \\ 2.9943 \pm 0.3742 \\ -1.1949 \pm 0.1293 \\ \hline \end{array}$	$\begin{array}{r} {\rm KM} ++\\ 238.6506 \pm 4.5788\\ 0.7199 \pm 0.0093\\ 0.0190 \pm 0.0026\\ 0.8130 \pm 0.0249\\ 0.1162 \pm 0.0138\\ 0.3669 \pm 0.0151\\ \overline{0.4926} \pm 0.0151\\ \overline{0.4926} \pm 0.0475\\ 0.1809 \pm 0.0023\\ 0.809 \pm 0.0023\\ 0.8042 \pm 0.0336\\ 1.4157 \pm 0.4323\\ 0.2766 \pm 0.0151\\ 0.1405 \pm 0.0149\\ 2.5976 \pm 0.0449\\ 0.1561 \pm 0.0073\\ 0.0013 \pm 0.0003\\ 2.38651 \pm 0.0528\\ 0.7240 \pm 0.0528\\ 0.7357 \pm 0.0528\\ 0.7240 \pm 0.0528\\ 0.7357 \pm 0.0528\\ 0.0141 \pm 0.0171\\ 0.0734 \pm 0.0171\\ 0.0734 \pm 0.0171\\ 0.0734 \pm 0.0171\\ 0.0105 \pm 0.0149\\ 3.0147 \pm 0.2178\\ 0.0294 \pm 0.0291\\ 0.0291 \pm 0.0213\\ 0.0027 \pm 0.0010\\ 2.6679 \pm 0.2418\\ 0.1209 \pm 0.2213\\ 0.0027 \pm 0.0010\\ 2.6679 \pm 0.2418\\ 0.1209 \pm 0.0213\\ 0.021 \pm 0.0213\\ 0.0027 \pm 0.0010\\ 0.5679 \pm 0.2418\\ 0.01147 \pm 0.2178\\ 0.0211 \pm 0.0121\\ 0.0211 \pm 0.0121\\ 0.0211 \pm 0.0213\\ 0.0027 \pm 0.0010\\ 0.0511 \pm 0.0213\\ 0.0027 \pm 0.0010\\ 0.0511 \pm 0.0213\\ 0.0027 \pm 0.0010\\ 0.0511 \pm 0.0213\\ 0.0027 \pm 0.0010\\ 0.0211 \pm 0.0213\\ 0.0021 \pm 0.0010\\ 0.0211 \pm 0.0213\\ 0.0021 \pm 0.0213\\ 0.0021 \pm 0.0010\\ 0.0211 \pm 0.0213\\ 0.0021 \pm 0.0010\\ 0.0211 \pm 0.0213\\ 0.0021 \pm 0.0010\\ 0.0211 \pm 0.0213\\ 0.0021 \pm 0.0010\\ 0.0010 \pm 0.001$	$\begin{array}{c} \textbf{PKM} \\ \hline \textbf{2} \ \textbf{235.2651} \pm 0.7834 \\ \hline \textbf{0.7111} \pm 0.0025 \\ \hline \textbf{0.7111} \pm 0.0025 \\ \hline \textbf{0.7111} \pm 0.0045 \\ \hline \textbf{0.7111} \pm 0.0045 \\ \hline \textbf{0.7111} \pm 0.0045 \\ \hline \textbf{0.7115} \pm 0.0045 \\ \hline \textbf{0.7115} \pm 0.0046 \\ \hline \textbf{0.712} \pm 0.0074 \\ \hline \textbf{0.712} \pm 0.0074 \\ \hline \textbf{0.729} \pm 0.0476 \\ \hline \textbf{0.712} \pm 0.0074 \\ \hline \textbf{0.729} \pm 0.0076 \\ \hline \textbf{0.720} \pm 0.0087 \\ \hline \textbf{0.720} \pm 0.0087 \\ \hline \textbf{0.731} \pm 0.0139 \\ \hline \textbf{2.5910} \pm 0.0087 \\ \hline \textbf{0.1547} \pm 0.0033 \\ \hline \textbf{0.014} \pm 0.0073 \\ \hline \textbf{23.5267} \pm 0.0783 \\ \hline \textbf{0.750} \pm 0.0256 \\ \hline \textbf{0.7486} \pm 0.0173 \\ \hline \textbf{23.5267} \pm 0.0783 \\ \hline \textbf{0.7950} \pm 0.0256 \\ \hline \textbf{0.7486} \pm 0.0111 \\ \hline \textbf{0.6722} \pm 0.0250 \\ \hline \textbf{FSC} \\ \hline \textbf{387.2978} \pm 11.7520 \\ \hline \textbf{0.0376} \pm 0.0337 \\ \hline \textbf{0.3218} \pm 0.0492 \\ \hline \textbf{0.0376} \pm 0.0156 \\ \hline \textbf{3.1296} \pm 1.1438 \\ \hline \textbf{0.0426} \pm 0.0150 \\ \hline \textbf{3.1296} \pm 1.1438 \\ \hline \textbf{0.0425} \pm 0.0150 \\ \hline \textbf{2.8654} \pm 0.5831 \\ \hline \textbf{0.0019} \pm 0.0003 \\ \hline \textbf{2.3283} \pm 0.3616 \\ \hline \textbf{-3.8470} \pm 0.5176 \\ \end{array}$	$\begin{array}{c} \hline \\ \hline $	$\begin{array}{c} & \\ & \\ & \\ & \\ \hline \\ & \\ & \\ & \\ & \\ & \\$	$\begin{array}{l} \text{HC} \\ \text{HC} \\ \hline \text{HC} \\ 237,9126 \pm 0.00120 \\ \hline \text{HC} \\ 237,9126 \pm 0.0000 \\ 0.07253 \pm 0.0000 \\ 0.07253 \pm 0.0000 \\ 0.07253 \pm 0.0000 \\ 0.01245 \pm 0.0000 \\ 0.1245 \pm 0.0000 \\ 0.1245 \pm 0.0000 \\ 0.1255 \pm 0.0000 \\ 0.7571 \pm 0.0000 \\ 0.2671 \pm 0.0000 \\ 0.0008 \pm 0.0000 \\ 1.999 \pm 0.0000 \\ 0.0008 \pm 0.0000 \\ 0.0008 \pm 0.0000 \\ 0.0008 \pm 0.0000 \\ 0.7170 \pm 0.0000 \\ 0.552 \pm 0.0433 \\ 0.1427 \pm 0.0274 \\ 0.3552 \pm 0.0543 \\ 0.1427 \pm 0.0274 \\ 0.3552 \pm 0.0543 \\ 0.1427 \pm 0.0251 \\ 0.0025 \pm 0.0251 \\ 0.0182 \pm 0.021 \\ 0.0025 \pm 0.021 \\ 0.0028 \pm 0.0021 \\ 0.0182 \pm 0.021 \\ 0.0028 \pm 0.0021 \\ 0.0182 \pm 0.0231 \\ 0.0028 \pm 0.0021 \\ 0.0182 \pm 0.0231 \\ 0.0028 \pm 0.0021 \\ 0.0126 \pm 0.0251 \\ 0.0020 \pm 0.021 \\ 0.0000 \pm 0.0155 \\ 0.0021 \pm 0.021 \\ 0.0020 \pm 0.021 \\ 0.0000 \\ 0.0000 \pm 0.0155 \\ 0.0021 \\ 0.0020 \pm 0.021 \\ 0.0000 \\ $	$\begin{array}{c} \textbf{CAPKM}{}+\textbf{2.0} \\ \hline \textbf{CAPKM}{}+\textbf{2.0} \\ \hline \textbf{234.8252} \pm \textbf{0.0000} \\ \textbf{0.7111} \pm \textbf{0.0000} \\ \textbf{0.0168} \pm \textbf{0.0000} \\ \textbf{0.0168} \pm \textbf{0.0000} \\ \textbf{0.0168} \pm \textbf{0.0000} \\ \textbf{0.1059} \pm \textbf{0.0000} \\ \textbf{0.1321} \pm \textbf{0.0000} \\ \textbf{0.1343} \pm \textbf{0.0000} \\ \textbf{0.1545} \pm \textbf{0.0001} \\ \textbf{0.0019} \pm \textbf{0.0000} \\ \textbf{0.1545} \pm \textbf{0.0001} \\ \textbf{0.0019} \pm \textbf{0.0000} \\ \textbf{23.4825} \pm \textbf{0.0001} \\ \textbf{0.7563} \pm \textbf{0.0002} \\ \textbf{0.7514} \pm \textbf{0.0000} \\ \textbf{0.7563} \pm \textbf{0.0002} \\ \textbf{0.6704} \pm \textbf{0.0000} \\ \textbf{0.6704} \pm \textbf{0.0000} \\ \textbf{0.6704} \pm \textbf{0.0000} \\ \textbf{0.6704} \pm \textbf{0.0000} \\ \textbf{0.6168} \pm \textbf{0.0000} \\ \textbf{0.6307} \pm \textbf{0.0000} \\ \textbf{0.3701} \pm \textbf{0.0000} \\ \textbf{0.8337} \pm \textbf{0.0000} \\ \textbf{0.1352} \pm \textbf{0.0000} \\ \textbf{0.1352} \pm \textbf{0.0000} \\ \textbf{0.1352} \pm \textbf{0.0000} \\ \textbf{0.1354} \pm \textbf{0.0000} \\ \textbf{0.139} \pm \textbf{0.0000} \\ \textbf{0.139} \pm \textbf{0.0000} \\ \textbf{0.139} \pm \textbf{0.0000} \\ \textbf{0.1544} \pm \textbf{0.0000} \\ \textbf{0.0000} \\ \textbf{0.1544} \pm 0$
Optoligits WGSSJ MRIJ GPIJ BHGI↑ CIJ TI↑ RLI↑ CHI↑ PBHI↑ PBHI↑ PBI↓ LSSRI↑ TWI↓ Optoligits BHGI↑ Optoligits WGSS↓ MRI↓ BHGI↑ CI↓ TI↑ DGI↑ RLI↑ Optoligits WGSS↓ MRI↓ DGI↑ RLI↑ DGI↑ RLI↑ DGI↑ RLI↑ DGI↑ RLI↑ DGI↑ LSSRI↑ TWI↓ DBI↓ LSSRI↑ WG1↑	$\begin{array}{c} {\rm KM} \\ \hline \\ 238.0204 \pm 3.7684 \\ 0.7191 \pm 0.0094 \\ 0.0189 \pm 0.0025 \\ 0.8118 \pm 0.0201 \\ 0.1176 \pm 0.0111 \\ 0.3632 \pm 0.0138 \\ 0.4874 \pm 0.0387 \\ 0.1809 \pm 0.0017 \\ 0.8088 \pm 0.0279 \\ 1.6654 \pm 0.6256 \\ 0.2767 \pm 0.0121 \\ 0.1368 \pm 0.0121 \\ 2.5823 \pm 0.0427 \\ 0.1568 \pm 0.0047 \\ 0.0014 \pm 0.0026 \\ 0.0128 \pm 0.0356 \\ 2.3.8020 \pm 0.3768 \\ 0.7537 \pm 0.0641 \\ 0.7334 \pm 0.0272 \\ 0.47535 \pm 0.0641 \\ 0.7335 \pm 0.0641 \\ 0.7335 \pm 0.0641 \\ 0.7337 \pm 0.0641 \\ 0.7335 \pm 0.0641 \\ 0.7335 \pm 0.0641 \\ 0.0355 \pm 0.0161 \\ 0.4784 \pm 0.0480 \\ 0.2699 \pm 0.0217 \\ 0.2844 \pm 0.0480 \\ 0.2699 \pm 0.0217 \\ 0.2844 \pm 0.0488 \\ 0.1629 \pm 0.0101 \\ 0.4032 \pm 0.0166 \\ 0.1299 \pm 2.4365 \\ 0.0760 \pm 0.0163 \\ 0.1649 \pm 0.0149 \\ 3.0998 \pm 0.2102 \\ 0.1806 \pm 0.0537 \\ 0.0029 \pm 0.0010 \\ 2.9943 \pm 0.3742 \\ 0.0760 \pm 0.0233 \\ 0.0029 \pm 0.0010 \\ 2.9943 \pm 0.3742 \\ 0.0760 \pm 0.0233 \\ 0.0029 \pm 0.0010 \\ 2.9943 \pm 0.3742 \\ 0.0760 \pm 0.0233 \\ 0.0029 \pm 0.0010 \\ 2.9943 \pm 0.3742 \\ 0.0760 \pm 0.0233 \\ 0.0029 \pm 0.0010 \\ 2.9943 \pm 0.3742 \\ 0.0026 \\ 0.0760 \pm 0.0233 \\ 0.0029 \pm 0.0010 \\ 2.9943 \pm 0.3742 \\ 0.0760 \pm 0.0233 \\ 0.0029 \pm 0.0010 \\ 2.9943 \pm 0.0741 \\ 0.9936 \\ 0.0760 \pm 0.0233 \\ 0.0760 \pm 0.0233 \\ 0.0029 \pm 0.0010 \\ 2.9943 \pm 0.0741 \\ 0.9936 \\ 0.0761 \pm 0.0037 \\ 0.0029 \pm 0.0010 \\ 0.9761 \pm 0.0037 \\ 0.0029 \pm 0.0010 \\ 0.9936 \\ 0.0761 \pm 0.0037 \\ 0.0029 \\ 0.0010 \\ 0.9936 \\ 0.0761 \pm 0.0037 \\ 0.0029 \\ 0.0010 \\ 0.9936 \\ 0.0029 \\ 0.0010 \\ 0.9936 \\ 0.0000 \\ 0.000$	$\begin{array}{l} {\rm KM} ++\\ 238.6506 \pm 4.5788\\ 0.7199 \pm 0.0093\\ 0.0190 \pm 0.0026\\ 0.8130 \pm 0.02249\\ 0.01162 \pm 0.0138\\ 0.3669 \pm 0.0151\\ \overline{0.4926} \pm 0.0151\\ \overline{0.4926} \pm 0.0475\\ 0.1809 \pm 0.0023\\ 0.809 \pm 0.0023\\ 0.8042 \pm 0.0336\\ 1.4157 \pm 0.4323\\ 0.2766 \pm 0.0149\\ 2.5976 \pm 0.0149\\ 2.5976 \pm 0.0149\\ 0.1561 \pm 0.0073\\ 0.0013 \pm 0.0003\\ 0.0013 \pm 0.0033\\ 23.8651 \pm 0.0528\\ 0.7240 \pm 0.0528\\ 0.7240 \pm 0.0528\\ 0.7240 \pm 0.0528\\ 0.7240 \pm 0.0528\\ 0.7257 \pm 0.0528\\ 0.7240 \pm 0.0528\\ 0.7357 \pm 0.0528\\ 0.0143 \pm 0.0085\\ 0.04028 \pm 0.0171\\ 0.0105 \pm 0.0149\\ 3.0147 \pm 0.2178\\ 0.027 \pm 0.0010\\ 2.6679 \pm 0.2418\\ 1.0071 \pm 0.2127\\ 0.0010 \pm 0.0237\\ 0.00012 \pm 0.0010\\ 0.4759 \pm 0.0248\\ 0.0759 \pm 0.$	$\begin{array}{c} \textbf{PKM} \\ \hline \textbf{2} \ \textbf{235.2651} \pm 0.7834 \\ \hline \textbf{0.7111} \pm 0.0025 \\ \hline \textbf{0.7111} \pm 0.0025 \\ \hline \textbf{0.7111} \pm 0.0045 \\ \hline \textbf{0.7111} \pm 0.0045 \\ \hline \textbf{0.7111} \pm 0.0045 \\ \hline \textbf{0.7115} \pm 0.0045 \\ \hline \textbf{0.7115} \pm 0.0045 \\ \hline \textbf{0.712} \pm 0.0074 \\ \hline \textbf{0.712} \pm 0.0074 \\ \hline \textbf{0.729} \pm 0.0476 \\ \hline \textbf{0.729} \pm 0.0074 \\ \hline \textbf{0.729} \pm 0.0076 \\ \hline \textbf{0.731} \pm 0.0139 \\ \hline \textbf{2.5910} \pm 0.0087 \\ \hline \textbf{0.757} \pm 0.0033 \\ \hline \textbf{0.014} \pm 0.0033 \\ \hline \textbf{0.014} \pm 0.0073 \\ \hline \textbf{23.5267} \pm 0.0783 \\ \hline \textbf{0.756} \pm 0.0256 \\ \hline \textbf{0.7486} \pm 0.0173 \\ \hline \textbf{23.5267} \pm 0.0783 \\ \hline \textbf{0.7950} \pm 0.0256 \\ \hline \textbf{0.7486} \pm 0.0111 \\ \hline \textbf{0.6722} \pm 0.0250 \\ \hline \textbf{FSC} \\ \hline \textbf{387.2978} \pm 11.7520 \\ \hline \textbf{0.0376} \pm 0.0337 \\ \hline \textbf{0.3218} \pm 0.0492 \\ \hline \textbf{0.0376} \pm 0.0156 \\ \hline \textbf{3.1296} \pm 1.1438 \\ \hline \textbf{0.0426} \pm 0.0156 \\ \hline \textbf{3.1296} \pm 1.1438 \\ \hline \textbf{0.0425} \pm 0.0150 \\ \hline \textbf{3.23554} \pm 0.050 \\ \hline \textbf{2.8654} \pm 0.5831 \\ \hline \textbf{0.2901} \pm 0.0076 \\ \hline \textbf{42.0430} \pm 0.4150 \\ \hline \textbf{0.16151} \pm 0.0003 \\ \hline \textbf{2.328} \pm 0.3616 \\ \hline \textbf{-3.8470} \pm 0.5176 \\ \hline \textbf{42.0430} \pm 0.4150 \\ \hline \textbf{0.16151} \pm 0.0003 \\ \hline \textbf{0.0019} \pm 0.0013 \\ \hline \textbf{0.2014} \pm 0.05176 \\ \hline \textbf{-0.2014} \pm 0.05176 $	$\begin{array}{c} \hline EWPKM \\ \hline 344.0539 \pm 5.0062 \\ 0.9429 \pm 0.0013 \\ 0.9429 \pm 0.0057 \\ 0.2000 \pm 0.0057 \\ 0.3780 \pm 0.0047 \\ 0.2000 \pm 0.0057 \\ 0.3780 \pm 0.0047 \\ 0.1278 \pm 0.0011 \\ 0.0885 \pm 0.0022 \\ 17.4298 \pm 2.3087 \\ 0.0089 \pm 0.0020 \\ 0.1053 \pm 0.0137 \\ 3.5609 \pm 0.0368 \\ 0.1059 \pm 0.0047 \\ 0.0030 \pm 0.0007 \\ 4.9440 \pm 0.2232 \\ -2.4247 \pm 0.0255 \\ 39.5425 \pm 0.0817 \\ 0.0150 \pm 0.0013 \\ 2PFCM \\ \hline 306.0312 \pm 0.0000 \\ 0.3468 \pm 0.0000 \\ 0.3468 \pm 0.0000 \\ 0.3468 \pm 0.0000 \\ 0.3464 \pm 0.0000 \\ 0.3408 \pm 0.0000 \\ 0.3408 \pm 0.0000 \\ 0.3408 \pm 0.0000 \\ 0.3405 \pm 0.0000 \\ 0.3405 \pm 0.0000 \\ 0.347 \pm 0.0000 \\ 0.3305 \pm 0.0000 \\ 0.1531 \pm 0.0000 \\ 0.3350 \pm 0.0000 \\ 0.350 \pm 0.0000 \\ 0.350 \pm 0.0000 \\ 0.350 \pm 0.0000 \\ 0.003 \pm 0$	$\begin{array}{c} SC \\ \hline 241.4227 \pm 0.0360 \\ 0.7281 \pm 0.0015 \\ 0.0231 \pm 0.0005 \\ 0.7793 \pm 0.0034 \\ 0.1251 \pm 0.0014 \\ 0.3568 \pm 0.0004 \\ 0.6619 \pm 0.0100 \\ 0.1785 \pm 0.0011 \\ 0.7446 \pm 0.0021 \\ 1.0344 \pm 0.0013 \\ 0.2740 \pm 0.0003 \\ 0.1733 \pm 0.0024 \\ 2.6041 \pm 0.0023 \\ 0.1733 \pm 0.0024 \\ 2.6041 \pm 0.0005 \\ \hline 0.0007 \pm 0.00005 \\ \hline 0.0007 \pm 0.00005 \\ \hline 0.0007 \pm 0.00003 \\ 0.7799 \pm 0.0003 \\ 0.8708 \pm 0.0006 \\ 0.7799 \pm 0.0003 \\ 0.7799 \pm 0.0003 \\ BFC \\ \hline 365.3603 \pm 7.7366 \\ 0.9824 \pm 0.0019 \\ 0.0517 \pm 0.0137 \\ 0.3344 \pm 0.0018 \\ 0.0024 \pm 0.0006 \\ 0.0244 \pm 0.0063 \\ 0.0244 \pm 0.0081 \\ 87.9181 \pm 47.4428 \\ 0.0000 \pm 0.0081 \\ 87.9181 \pm 47.4428 \\ 0.0000 \pm 0.0081 \\ 13.8393 \pm 2.0233 \\ -3.6155 \pm 0.2831 \\ 11.8754 \pm 0.3268 \\ 0.1200 \pm 0.0013 \\ 0.1204 \pm 0.0261 \\ 0.0264 \pm 0.0231 \\ 0.0066 \pm 0.0013 \\ 13.8393 \pm 2.0233 \\ -3.6155 \pm 0.2831 \\ 14.8754 \pm 0.3268 \\ 0.1200 \pm 0.0081 \\ 0.1200 \pm 0.0081 \\ 0.1200 \pm 0.0234 \\ 0.0201 \pm 0.0234 \\ 0.0264 \pm 0.0021 \\ 0.0066 \pm 0.0021 \\ 0.0066 \pm 0.0021 \\ 0.0066 \pm 0.0023 \\ 0.1200 \pm 0.0234 \\ 0.0200 \pm 0.0234 \\ 0.0200 \pm 0.0081 \\ 0.0066 \pm 0.0021 \\ 0.0066 \pm 0.0021 \\ 0.0066 \pm 0.0023 \\ 0.0$	$\begin{array}{l} \text{HC} \\ \text{HC} \\ \hline \text{HC} \\ 237,9126 \pm 0.00120 \\ \text{O} \\ \text{O} \\ 237,9126 \pm 0.0000 \\ \text{O} $	$\begin{array}{c} \textbf{CAPKM} + 2.0 \\ \hline \textbf{CAPKM} + 2.0 \\ \hline \textbf{234.8252} \pm 0.0000 \\ \textbf{0.7111} \pm 0.0000 \\ \textbf{0.0168} \pm 0.0000 \\ \textbf{0.307} \pm 0.0000 \\ \textbf{0.1659} \pm 0.0000 \\ \textbf{0.159} \pm 0.0000 \\ \textbf{0.1321} \pm 0.0000 \\ \textbf{0.1343} \pm 0.0000 \\ \textbf{0.1545} \pm 0.0001 \\ \textbf{0.1545} \pm 0.0001 \\ \textbf{0.0019} \pm 0.0000 \\ \textbf{23.4825} \pm 0.0000 \\ \textbf{0.7514} \pm 0.0000 \\ \textbf{0.7563} \pm 0.0000 \\ \textbf{0.7563} \pm 0.0000 \\ \textbf{0.7514} \pm 0.0000 \\ \textbf{0.7563} \pm 0.0000 \\ \textbf{0.7563} \pm 0.0000 \\ \textbf{0.7111} \pm 0.0000 \\ \textbf{0.6704} \pm 0.0000 \\ \textbf{0.6704} \pm 0.0000 \\ \textbf{0.6307} \pm 0.0000 \\ \textbf{0.3701} \pm 0.0000 \\ \textbf{0.3701} \pm 0.0000 \\ \textbf{0.3701} \pm 0.0000 \\ \textbf{0.1352} \pm 0.0000 \\ \textbf{0.1352} \pm 0.0000 \\ \textbf{0.1352} \pm 0.0000 \\ \textbf{0.139} \pm 0.0000 \\ \textbf{0.1544} \pm 0.0000 \\ 0.15$

TABLE V MEAN VALUES AND STANDARD DEVIATIONS OF INTERNAL AND EXTERNAL CLUSTER VALIDITY INDICES RESULTING FROM CAFCM, AND THIRTEEN BASELINES ON EGS AND LR, WHERE N = 2 and M = 5 in CAPKM++2.0 and CAFCM on EGS, and N = 3 and M = 15 in CAPKM++2.0 AND CAFCM ON LR

ECC	Z A	VM.	DIZM	EWDIA	80	110	CADIMA: 2.0
EGS	КМ	KM++	PKM	EWPKM	SC	HC	CAPKM++2.0
WGSS↓	699.6124 ± 0.3592	699.5962 ± 0.3487	699.4982 ± 0.4711	699.6561 ± 0.0000	700.3543 ± 0.0001	708.1015 ± 0.0000	699.3998 ± 0.0000
$\begin{array}{c} \text{MRI} \downarrow \\ \text{GPI} \downarrow \\ \text{BHGI} \uparrow \\ \text{CI} \downarrow \\ \text{DGI} \uparrow \\ \text{CHI} \uparrow \\ \text{CHI} \uparrow \\ \text{WGI} \uparrow \\ \text{DI} \uparrow \\ \text{BHI} \uparrow \\ \text{PBMI} \uparrow \\ \text{XBI} \downarrow \\ \text{LSSRI} \uparrow \\ \text{WI} \end{array}$	$\begin{array}{c} 0.9233 \pm 0.0002\\ \hline 0.1883 \pm 0.0001\\ \hline 0.2466 \pm 0.0005\\ \hline 0.3640 \pm 0.0005\\ \hline 0.3640 \pm 0.0003\\ \hline 0.03843 \pm 0.0609\\ \hline 0.2231 \pm 0.0034\\ \hline 0.0834 \pm 0.0006\\ \hline 2.2960 \pm 0.0201\\ \hline 0.1232 \pm 0.0003\\ \hline 0.1005 \pm 0.0005\\ \hline 0.0015 \pm 0.0005\\ \hline 0.0015 \pm 0.0005\\ \hline 0.0015 \pm 0.0005\\ \hline 3.4269 \pm 0.0109\\ \hline -2.4836 \pm 0.0067\\ \hline 349.8062 \pm 0.1796\\ \hline \end{array}$	$\begin{array}{c} 0.9233 \pm 0.0002\\ \hline 0.1883 \pm 0.0001\\ \hline 0.2467 \pm 0.0004\\ \hline 0.3639 \pm 0.0004\\ \hline 0.3639 \pm 0.0004\\ \hline 0.1744 \pm 0.0003\\ \hline 0.03933 \pm 0.0570\\ \hline 0.2233 \pm 0.0033\\ \hline 0.0835 \pm 0.0005\\ \hline 2.9950 \pm 0.0195\\ \hline 0.1328 \pm 0.0005\\ \hline 0.1029 \pm 0.0105\\ \hline 0.0995 \pm 0.0005\\ \hline 0.0024 \pm 0.0005\\ \hline 0.0014 \pm 0.0005\\ \hline 0.0014 \pm 0.0006\\ \hline 3.4264 \pm 0.0106\\ -2.4833 \pm 0.0065\\ \hline 349.7981 \pm 0.1744\\ \end{array}$	$\begin{array}{r} 0.9233 \pm 0.0006\\ \overline{0.1883 \pm 0.0005}\\ \overline{0.2467 \pm 0.0018}\\ \overline{0.2467 \pm 0.0018}\\ \overline{0.3639 \pm 0.0010}\\ \overline{0.1745 \pm 0.0013}\\ \overline{0.3486 \pm 0.0017}\\ \overline{0.0836 \pm 0.0007}\\ \overline{0.2424 \pm 0.0017}\\ \overline{0.0836 \pm 0.0007}\\ \overline{0.9303 \pm 0.0008}\\ \overline{0.0903 \pm 0.00043}\\ \overline{0.0903 \pm 0.00043}\\ \overline{0.0017 \pm 0.0001}\\ \overline{3.4236 \pm 0.0154}\\ \overline{-2.4815 \pm 0.009}\\ \overline{3.4236 \pm 0.2099}\\ \overline{3.4236 \pm 0.2099}\\ \overline{3.4235 \pm 0.009}\\ \overline{3.4236 \pm 0.2099}\\ \overline{3.4235 \pm 0.0099}\\ \overline{3.4235 \pm 0.0099}\\ \overline{3.4235 \pm 0.0099}\\ \overline{3.4295 \pm 0.2099}\\ \overline{3.49}\\ \overline{5.0099}\\ \overline$	$\begin{array}{c} 0.9236 \pm 0.0000\\ 0.1887 \pm 0.0000\\ 0.2452 \pm 0.0000\\ 0.3645 \pm 0.0000\\ 0.1734 \pm 0.0000\\ 0.24257 \pm 0.0000\\ 0.2257 \pm 0.0000\\ 0.0833 \pm 0.0000\\ 0.3018 \pm 0.0000\\ 0.1322 \pm 0.0000\\ 0.1184 \pm 0.0000\\ 0.9996 \pm 0.0000\\ 0.0822 \pm 0.0000\\ 0.0812 \pm 0.0000\\ 0.34309 \pm 0.0000\\ 3.4309 \pm 0.0000\\ 3.4395 \pm 0.0000\\ 3.49855 \pm 0.0000\\ 3.49857 \pm 0.0000\\ 3.498557 \pm 0.0000\\ 3.498552 \pm 0.0000\\ 3.498552 \pm 0.0000\\ 3.49855 \pm 0.0000\\ 5.49855 \pm 0.0000\\ 5.498555 \pm 0.0000\\ 5.498555 \pm 0.0000\\ 5.4$	$\begin{array}{l} 0.9270 \pm 0.0000\\ 0.1914 \pm 0.0000\\ 0.2345 \pm 0.0000\\ 0.3708 \pm 0.0000\\ 0.3708 \pm 0.0000\\ 0.1658 \pm 0.0000\\ 0.2612 \pm 0.0000\\ 0.2613 \pm 0.0000\\ 0.0783 \pm 0.0000\\ 0.0783 \pm 0.0000\\ 0.1265 \pm 0.0000\\ 0.0677 \pm 0.0000\\ 0.0677 \pm 0.0000\\ 0.0774 \pm 0.0000\\ 0.0734 \pm 0.0000\\ 0.0734 \pm 0.0000\\ 0.3535 \pm 0.0000\\ 3.5355 \pm 0.0000\\ -2.5467 \pm 0.0000\\ -3.5467 \pm 0.0000\\ \end{array}$	$\begin{array}{l} 0.9643 \pm 0.0000\\ 0.2215 \pm 0.0000\\ 0.1109 \pm 0.0000\\ 0.4375 \pm 0.0000\\ 0.0783 \pm 0.0000\\ 0.5407 \pm 0.0000\\ 0.1528 \pm 0.0000\\ 0.0401 \pm 0.0000\\ 0.38545 \pm 0.0000\\ 0.0720 \pm 0.0000\\ 0.1427 \pm 0.0000\\ 0.0402 \pm 0.0000\\ 0.0422 \pm 0.0000\\ 0.0422 \pm 0.0000\\ 0.0422 \pm 0.0000\\ 4.7719 \pm 0.0000\\ 4.7719 \pm 0.0000\\ 4.7219 \pm 0.0000$	$\begin{array}{l} 0.9231 \pm 0.0000\\ 0.1882 \pm 0.0000\\ 0.1882 \pm 0.0000\\ 0.2471 \pm 0.0000\\ 0.3637 \pm 0.0000\\ 0.1747 \pm 0.0000\\ 0.3449 \pm 0.0000\\ 0.2246 \pm 0.0000\\ 0.2246 \pm 0.0000\\ 0.3838 \pm 0.0000\\ 0.3838 \pm 0.0000\\ 0.3921 \pm 0.0000\\ 0.992 \pm 0.0000\\ 0.992 \pm 0.0000\\ 0.0872 \pm 0.0000\\ 0.0872 \pm 0.0000\\ 0.0872 \pm 0.0000\\ 0.0017 \pm 0.0000\\ 3.4204 \pm 0.0000\\ -2.4796 \pm 0.0000\\ -2.4796 \pm 0.0000\\ \end{array}$
ACC↑ NMI↑ ARI↑	$\begin{array}{c} 0.6190 \pm 0.1107 \\ 0.0941 \pm 0.1468 \\ 0.1046 \pm 0.1599 \end{array}$	$\begin{array}{c} 0.6145 \pm 0.1085 \\ 0.0885 \pm 0.1443 \\ 0.0985 \pm 0.1572 \end{array}$		$\begin{array}{c} 0.5015 \pm 0.0000 \\ 0.0000 \pm 0.0000 \\ \text{-}0.0001 \pm 0.0000 \end{array}$	$\begin{array}{c} 0.7968 \pm 0.0001 \\ 0.3139 \pm 0.0001 \\ 0.3523 \pm 0.0002 \end{array}$	$\begin{array}{c} 0.6062 \pm 0.0000 \\ 0.0729 \pm 0.0000 \\ 0.0406 \pm 0.0000 \end{array}$	$\begin{array}{c} 0.5898 \pm 0.0001 \\ 0.0262 \pm 0.0000 \\ 0.0322 \pm 0.0001 \end{array}$
EGS	FCM	MEC	FSC	2PFCM	BFC	KFCM	CAFCM
WGSS↓	701.7638 ± 2.3880	707.6171 ± 3.8777	713.7808 ± 19.2256	700.2104 ± 0.0000	×	706.7937 ± 3.7233	699.3998 ± 0.0000
$\begin{array}{c} MRI\downarrow\\ GPI\downarrow\\ BHGI\uparrow\\ CI\downarrow\\ BHGI\uparrow\\ CI\downarrow\\ TI\uparrow\\ DGI\uparrow\\ RLI\uparrow\\ CHI\uparrow\\ WGI\uparrow\\ DI\uparrow\\ BHI\uparrow\\ BHI\uparrow\\ XBI\downarrow\\ LSSRI\uparrow\\ TWI\downarrow\\ \end{array}$	$\begin{array}{c} 0.9263 \pm 0.0033 \\ 0.1908 \pm 0.0028 \\ 0.2367 \pm 0.0110 \\ 0.3695 \pm 0.0060 \\ 0.1674 \pm 0.0078 \\ 0.3672 \pm 0.0345 \\ 0.2136 \pm 0.0106 \\ 0.0796 \pm 0.0041 \\ 3.1493 \pm 0.1793 \\ 0.1282 \pm 0.0051 \\ 0.0960 \pm 0.0096 \\ 0.9127 \pm 0.0035 \\ 0.0786 \pm 0.0040 \\ 3.5118 \pm 0.0791 \\ -2.5320 \pm 0.0533 \\ 351.0553 \pm 1.3317 \end{array}$	$\begin{array}{c} 0.9344 \pm 0.0048 \\ 0.1976 \pm 0.0040 \\ 0.2095 \pm 0.0162 \\ 0.3842 \pm 0.0088 \\ 0.1481 \pm 0.0114 \\ 0.3764 \pm 0.0380 \\ 0.1894 \pm 0.0158 \\ 0.0697 \pm 0.0059 \\ 0.1155 \pm 0.0076 \\ 0.0980 \pm 0.0104 \\ 0.9212 \pm 0.0051 \\ 0.0688 \pm 0.0058 \\ 0.0015 \pm 0.0003 \\ 3.7587 \pm 0.1605 \\ -2.6669 \pm 0.0823 \\ 354.3084 \pm 1.9544 \\ \end{array}$	$\begin{array}{c} 0.9493 \pm 0.0346 \\ 0.2091 \pm 0.0278 \\ 0.1630 \pm 0.1117 \\ 0.4100 \pm 0.0613 \\ 0.1152 \pm 0.0790 \\ 0.3746 \pm 0.0615 \\ 0.0522 \pm 0.0351 \\ 6.5073 \pm 141.6230 \\ 0.0853 \pm 0.0351 \\ 0.0981 \pm 0.0178 \\ 0.0981 \pm 0.0178 \\ 0.0983 \pm 0.0350 \\ 0.0052 \pm 0.0351 \\ 0.0732 \pm 12.121 \\ 0.3801 \pm 1.8519 \\ 360.6021 \pm 12.3114 \\ \end{array}$	$\begin{array}{c} 0.9244 \pm 0.0000 \\ 0.1893 \pm 0.0000 \\ 0.2427 \pm 0.0000 \\ 0.3659 \pm 0.0000 \\ 0.3659 \pm 0.0000 \\ 0.3716 \pm 0.0000 \\ 0.3322 \pm 0.0000 \\ 0.3324 \pm 0.0000 \\ 0.0823 \pm 0.0000 \\ 0.0825 \pm 0.0000 \\ 0.0865 \pm 0.0000 \\ 0.0865 \pm 0.0000 \\ 0.0812 \pm 0.0000 \\ 0.0019 \pm 0.0000 \\ 3.4507 \pm 0.0000 \\ 3.4507 \pm 0.0000 \\ 3.50.1689 \pm 0.0000 \end{array}$	× × × × × × × × × × × × × × × × × × × ×	$\begin{array}{l} 0.9334 \pm 0.0046 \\ 0.1968 \pm 0.0039 \\ 0.2129 \pm 0.0155 \\ 0.03824 \pm 0.0085 \\ 0.1505 \pm 0.0109 \\ 0.3769 \pm 0.0370 \\ 0.1923 \pm 0.0150 \\ 0.0709 \pm 0.0057 \\ 3.5469 \pm 0.2906 \\ 0.1171 \pm 0.0072 \\ 0.0979 \pm 0.0101 \\ 0.9202 \pm 0.0049 \\ 0.0700 \pm 0.0056 \\ 0.0015 \pm 0.0003 \\ 3.7253 \pm 0.1515 \\ -2.6492 \pm 0.0809 \\ 353.9031 \pm 1.8724 \\ \end{array}$	$\begin{array}{c} 0.9231 \pm 0.0000 \\ 0.1882 \pm 0.0000 \\ 0.2471 \pm 0.0000 \\ 0.3637 \pm 0.0000 \\ 0.3637 \pm 0.0000 \\ 0.3637 \pm 0.0000 \\ 0.3449 \pm 0.0000 \\ 0.2246 \pm 0.0000 \\ 0.2246 \pm 0.0000 \\ 0.338 \pm 0.0000 \\ 0.333 \pm 0.0000 \\ 0.921 \pm 0.0000 \\ 0.992 \pm 0.0000 \\ 0.992 \pm 0.0000 \\ 0.092 \pm 0.0000 \\ 0.092 \pm 0.0000 \\ 0.092 \pm 0.0000 \\ 0.0017 \pm 0.0000 \\ 0.0017 \pm 0.0000 \\ 3.4204 \pm 0.0000 \\ 3.4204 \pm 0.0000 \\ 34.6999 \pm 0.0000 \end{array}$
ACC↑ NMI↑	$\frac{0.6705 \pm 0.0998}{0.1361 \pm 0.1249}$	$\begin{array}{c} 0.6219 \pm 0.0712 \\ 0.0664 \pm 0.0659 \end{array}$	$\begin{array}{r} 0.6703 \pm 0.2042 \\ \underline{0.2577 \pm 0.361} \end{array}$	$\begin{array}{c} 0.5639 \pm 0.0000 \\ 0.0133 \pm 0.0000 \end{array}$	× ×	$\begin{array}{c} 0.6214 \pm 0.0813 \\ 0.0715 \pm 0.0817 \end{array}$	$\begin{array}{c} 0.5898 \pm 0.0000 \\ 0.0262 \pm 0.0000 \end{array}$
ARI↑	0.1553 ± 0.1377	0.0792 ± 0.0764	0.2784 ± 0.3861	0.0162 ± 0.0000	×	0.0848 ± 0.0940	0.0322 ± 0.0000
ARI↑ LR	0.1553 ± 0.1377 KM	0.0792 ± 0.0764 KM++	<u>0.2784 ± 0.3861</u> PKM	$\frac{0.0162 \pm 0.0000}{\text{EWPKM}}$	×	0.0848 ± 0.0940 HC	0.0322 ± 0.0000 CAPKM++2.0
ARI↑ LR WGSS↓	$\begin{array}{c} 0.1553 \pm 0.1377 \\ \hline \text{KM} \\ 172.2610 \pm 1.2342 \end{array}$	0.0792 ± 0.0764 KM++ 172.2106 ± 1.2526	$\frac{0.2784 \pm 0.3861}{\text{PKM}}$ 172.5354 \pm 0.8054	$\frac{0.0162 \pm 0.0000}{\text{EWPKM}}$ $\frac{285.7491 \pm 1.2048}{285.7491 \pm 0.0000}$	× SC 320.8225 ± 3.7651	$\frac{0.0848 \pm 0.0940}{\text{HC}}$ $\frac{177.5555 \pm 0.0000}{10000}$	0.0322 ± 0.0000 CAPKM++2.0 169.7897 ± 0.094
$\begin{array}{c} \text{ARI}^{\uparrow} \\ \hline \textbf{LR} \\ \text{WGSS}_{\downarrow} \\ \text{GPI}_{\downarrow} \\ \text{GPI}_{\downarrow} \\ \text{BHGI}^{\uparrow} \\ \text{CI}_{\downarrow} \\ \text{TI}^{\uparrow} \\ \text{CHI}^{\uparrow} \\ \text{CHI}^{\uparrow} \\ \text{CHI}^{\uparrow} \\ \text{BHI}^{\uparrow} \\ \text{PBMI}^{\uparrow} \\ \text{XBI}_{\downarrow} \\ \text{LSSRI}^{\uparrow} \\ \text{TWI}_{\downarrow} \\ \end{array}$	$\begin{array}{c} 0.1553 \pm 0.1377 \\ \hline \\$	$\begin{array}{c} 0.0792 \pm 0.0764 \\ \hline \\ $	$\begin{array}{l} \underline{0.2784 \pm 0.3861} \\ \hline \underline{0.2784 \pm 0.3861} \\ \hline \mathbf{PKM} \\ \hline 172.5354 \pm 0.8054 \\ \underline{0.0844 \pm 0.0018} \\ \underline{0.0068 \pm 0.0001} \\ \underline{0.0068 \pm 0.0001} \\ \underline{0.1092 \pm 0.0021} \\ \underline{0.2382 \pm 0.0033} \\ \underline{0.2093 \pm 0.0046} \\ \underline{0.1529 \pm 0.0029} \\ \underline{1.7531 \pm 0.0129} \\ \underline{1.7531 \pm 0.0129} \\ \underline{1.4320 \pm 0.1503} \\ \underline{0.0456 \pm 0.0007} \\ \underline{0.0466 \pm 0.0007} \\ \underline{0.0461 \pm 0.0002} \\ \underline{0.061 \pm 0.0000} \\ \underline{1.7244 \pm 0.0275} \\ \underline{0.5614 \pm 0.00310} \\ \hline \end{array}$	$\begin{array}{c} 0.0162 \pm 0.0000 \\ \hline \\ \hline$	$\begin{array}{c} \times \\ \hline SC \\ \hline 320.8225 \pm 3.7651 \\ 0.8209 \pm 0.0086 \\ 0.1081 \pm 0.0113 \\ 0.4255 \pm 0.0235 \\ 0.2975 \pm 0.0098 \\ 0.2602 \pm 0.0107 \\ \hline 0.3352 \pm 0.0058 \\ 0.0817 \pm 0.0026 \\ 0.2304 \pm 0.0177 \\ 4.2300 \pm 0.3628 \\ 0.0891 \pm 0.0077 \\ 0.0623 \pm 0.0017 \\ 0.0623 \pm 0.0011 \\ 0.0572 \pm 0.0040 \\ 0.0040 \pm 0.0001 \\ 0.0009 \pm 0.0000 \\ 1.0860 \pm 0.0279 \\ -1.4710 \pm 0.0775 \\ 14.8516 \pm 0.2144 \\ \end{array}$	$\begin{array}{c} 0.0848 \pm 0.0940 \\ \hline 0.0848 \pm 0.0940 \\ \hline \text{HC} \\ \hline 177.5555 \pm 0.0000 \\ 0.6268 \pm 0.0000 \\ 0.131 \pm 0.0000 \\ 0.1304 \pm 0.0000 \\ 0.2590 \pm 0.0000 \\ 0.2590 \pm 0.0000 \\ 0.2590 \pm 0.0000 \\ 0.215 \pm 0.0000 \\ 1.4861 \pm 0.0000 \\ 1.4861 \pm 0.0000 \\ 0.1982 \pm 0.0000 \\ 0.1982 \pm 0.0000 \\ 0.1982 \pm 0.0000 \\ 0.0405 \pm 0.0000 \\ 0.0405 \pm 0.0000 \\ 0.0305 \pm 0.0000 \\ 0.0017 \pm 0.0000 \\ 0.3961 \pm 0.0000 \\ 7.3487 \pm 0.0000 \\ \hline \end{array}$	$\begin{array}{c} 0.0322 \pm 0.0000 \\ \hline 0.0322 \pm 0.0000 \\ \hline \text{CAPKM++2.0} \\ \hline 169.7897 \pm 0.094 \\ \hline 0.5804 \pm 0.0014 \\ \hline 0.0067 \pm 0.0002 \\ \hline 0.8458 \pm 0.0022 \\ \hline 0.1025 \pm 0.0009 \\ \hline 0.2497 \pm 0.0019 \\ \hline 0.2088 \pm 0.0011 \\ \hline 0.1534 \pm 0.0000 \\ \hline 1.7976 \pm 0.0015 \\ \hline 1.1236 \pm 0.0278 \\ \hline 0.0249 \pm 0.0021 \\ \hline 0.0446 \pm 0.0011 \\ \hline 0.0359 \pm 0.0000 \\ \hline 1.6366 \pm 0.0269 \\ \hline 0.5864 \pm 0.0036 \\ \hline \end{array}$
ARI↑ LR WGSS↓ MRI↓ GPI↓ BHG1↑ CL↓ TI↑ CL1↑ CH1↑ RL1↑ PBMI↓ DBI↓ DBI↓ LSSRI↑ TWI↓ ACC↑ NMI↑ ARI↑ LR	$\begin{array}{c} 0.1553 \pm 0.1377 \\ \hline \\ \text{KM} \\ \hline \\ 172.2610 \pm 1.2342 \\ 0.0847 \pm 0.0037 \\ 0.0070 \pm 0.0003 \\ 0.0070 \pm 0.0066 \\ 0.1072 \pm 0.0034 \\ 0.2446 \pm 0.0051 \\ 0.2866 \pm 0.0051 \\ 0.2866 \pm 0.0051 \\ 0.1528 \pm 0.0003 \\ 1.7576 \pm 0.0197 \\ 1.2844 \pm 0.1338 \\ 0.2420 \pm 0.0046 \\ 0.0455 \pm 0.0010 \\ 0.1399 \pm 0.0023 \\ \textbf{0.0016 \pm 0.0023} \\ \textbf{0.0016 \pm 0.0004} \\ 0.0016 \pm 0.0004 \\ 0.0016 \pm 0.0004 \\ 0.0016 \pm 0.0045 \\ 0.5639 \pm 0.0112 \\ 0.62561 \pm 0.0097 \\ 0.3562 \pm 0.0051 \\ 0.1319 \pm 0.0057 \\ \hline \\ \textbf{FCM} \\ \end{array}$	$\begin{array}{r} 0.0792 \pm 0.0764 \\ \hline \text{KM} + + \\ \hline 172.2106 \pm 1.2526 \\ 0.5843 \pm 0.0033 \\ 0.0070 \pm 0.0003 \\ 0.8382 \pm 0.0055 \\ 0.1063 \pm 0.0029 \\ 0.2466 \pm 0.0049 \\ 0.2084 \pm 0.0045 \\ 0.1529 \pm 0.0004 \\ 1.7584 \pm 0.0201 \\ 1.2616 \pm 0.1410 \\ 0.0456 \pm 0.0010 \\ 0.0456 \pm 0.0010 \\ 0.0456 \pm 0.0012 \\ 0.0061 \pm 0.0004 \\ 0.0015 \pm 0.0002 \\ 0.0061 \pm 0.0004 \\ 0.0015 \pm 0.0002 \\ 0.0061 \pm 0.0014 \\ 0.0015 \pm 0.0002 \\ 0.0055 \pm 0.0482 \\ 0.2582 \pm 0.0087 \\ 0.3538 \pm 0.0058 \\ 0.1317 \pm 0.0055 \\ \end{array}$	$\begin{array}{l} \underline{0.2784 \pm 0.3861} \\ \hline \underline{0.2784 \pm 0.3861} \\ \hline \\ $	$\begin{array}{c} 0.0162 \pm 0.0000 \\ \hline \hline \text{EWPKM} \\ \hline 285.7491 \pm 1.2048 \\ 0.8217 \pm 0.0012 \\ 0.0358 \pm 0.0006 \\ 0.3671 \pm 0.0028 \\ 0.3042 \pm 0.0011 \\ 0.1235 \pm 0.0014 \\ 0.1637 \pm 0.0007 \\ 0.1061 \pm 0.0002 \\ 0.4214 \pm 0.0020 \\ 18.7362 \pm 2.7223 \\ 0.0021 \pm 0.0004 \\ 0.0408 \pm 0.0000 \\ 0.2665 \pm 0.0020 \\ 0.0042 \pm 0.0002 \\ 0.0042 \pm 0.0002 \\ 0.0030 \pm 0.0000 \\ 0.1901 \pm 0.1554 \\ -0.8641 \pm 0.0018 \\ 12.8526 \pm 0.0118 \\ 0.0943 \pm 0.0011 \\ 0.0685 \pm 0.0012 \\ 0.0152 \pm 0.0003 \\ 2PFCM \\ \hline \end{array}$	$\begin{array}{c} \times \\ \hline SC \\ \hline 320.8225 \pm 3.7651 \\ 0.8209 \pm 0.0086 \\ 0.1081 \pm 0.0113 \\ 0.4255 \pm 0.0235 \\ 0.2975 \pm 0.0098 \\ 0.2602 \pm 0.0107 \\ 0.3352 \pm 0.0058 \\ 0.0817 \pm 0.0026 \\ 0.2304 \pm 0.0177 \\ 4.2300 \pm 0.3628 \\ 0.0891 \pm 0.0077 \\ 0.0623 \pm 0.0011 \\ 0.0623 \pm 0.0011 \\ 0.0623 \pm 0.0011 \\ 0.0624 \pm 0.0011 \\ 0.0626 \pm 0.0011 \\ 0.0272 \pm 0.0040 \\ 0.0040 \pm 0.0001 \\ 0.0009 \pm 0.0001 \\ 1.48516 \pm 0.2144 \\ 0.1279 \pm 0.0114 \\ 0.2703 \pm 0.0235 \\ 0.0075 \pm 0.0026 \\ BFC \\ \end{array}$	$\begin{array}{r} 0.0848 \pm 0.0940 \\ \hline 0.0848 \pm 0.0940 \\ \hline \text{HC} \\ \hline 177.5555 \pm 0.0000 \\ 0.6268 \pm 0.0000 \\ 0.0131 \pm 0.0000 \\ 0.7685 \pm 0.0000 \\ 0.1304 \pm 0.0000 \\ 0.2590 \pm 0.0000 \\ 0.2590 \pm 0.0000 \\ 0.215 \pm 0.0000 \\ 1.4861 \pm 0.0000 \\ 1.4861 \pm 0.0000 \\ 0.0405 \pm 0.0000 \\ 0.0405 \pm 0.0000 \\ 0.0405 \pm 0.0000 \\ 0.0017 \pm 0.0000 \\ 0.0017 \pm 0.0000 \\ 0.0017 \pm 0.0000 \\ 0.3961 \pm 0.0000 \\ 0.3961 \pm 0.0000 \\ 0.3961 \pm 0.0000 \\ 0.4082 \pm 0.0000 \\ 0.1293 \pm 0.0000 \\ 0.1293 \pm 0.0000 \\ \hline \text{KFCM} \\ \hline \end{array}$	$\begin{array}{c} 0.0322 \pm 0.0000 \\ \hline 0.0322 \pm 0.0000 \\ \hline \text{CAPKM++2.0} \\ \hline 169.7897 \pm 0.094 \\ \hline 0.0607 \pm 0.0002 \\ 0.8458 \pm 0.0012 \\ 0.0458 \pm 0.0012 \\ 0.2497 \pm 0.0019 \\ 0.2088 \pm 0.0011 \\ 0.1534 \pm 0.0000 \\ 1.7976 \pm 0.0015 \\ \hline 1.1236 \pm 0.0278 \\ 0.0446 \pm 0.0011 \\ 0.0454 \pm 0.0014 \\ 0.005 \pm 0.0014 \\ 0.0015 \pm 0.0014 \\ 0.005 \pm 0.0010 \\ 0.366 \pm 0.0269 \\ 0.5864 \pm 0.0036 \\ 0.2574 \pm 0.0048 \\ 0.3608 \pm 0.0011 \\ 0.1294 \pm 0.0024 \\ 0.0025 \\ 0.2574 \pm 0.0048 \\ 0.3608 \pm 0.0011 \\ 0.1294 \pm 0.0024 \\ 0.3608 \pm 0.0011 \\ 0.1294 \pm 0.0024 \\ 0.0024 \\ 0.0024 \\ 0.0026 \\ 0.2574 \pm 0.0048 \\ 0.3608 \pm 0.0011 \\ 0.1294 \pm 0.0024 \\ 0.0024 \\ 0.0024 \\ 0.0024 \\ 0.0024 \\ 0.0024 \\ 0.0048 \\ 0.0011 \\ 0.1294 \pm 0.0024 \\ 0.0024 \\ 0.0024 \\ 0.0024 \\ 0.0024 \\ 0.0048 \\ 0.0011 \\ 0.1294 \\ 0.0024 \\ 0.0024 \\ 0.0024 \\ 0.0024 \\ 0.0024 \\ 0.0048 \\ 0.0011 \\ 0.1294 \\ 0.0024 \\ 0.0024 \\ 0.0024 \\ 0.0024 \\ 0.0048 \\ 0.0011 \\ 0.1294 \\ 0.0024 \\ 0.0024 \\ 0.0024 \\ 0.0048 \\ 0.0011 \\ 0.1294 \\ 0.0024 \\ 0.0024 \\ 0.0024 \\ 0.0048 \\ 0.0011 \\ 0.0048 \\ 0.0011 \\ 0.0048 \\ 0.0011 \\ 0.0048 \\ 0.0011 \\ 0.0048 \\ 0.0011 \\ 0.0048 \\ 0.0011 \\ 0.0048 \\ 0.0011 \\ 0.0048 \\ 0.0011 \\ 0.0048 \\ 0.0011 \\ 0.0048 \\ 0.0011 \\ 0.0028 \\ 0.0011 \\ 0.0028 \\ 0.0011 \\ 0.0028 \\ 0.0011 \\ 0.0028 \\ 0.0011 \\ 0.0028 \\ 0.0011 \\ 0.0028 \\ 0.0011 \\ 0.0028 \\ 0.0011 \\ 0.0028 \\ 0.0011 \\ 0.0028 \\ 0.0028 \\ 0.0011 \\ 0.0028 \\ 0.0028 \\ 0.0011 \\ 0.0028 \\ 0.0011 \\ 0.0028 \\ 0.0011 \\ 0.0028 \\ 0.0011 \\ 0.0028 \\ 0.0011 \\ 0.0028 \\ 0.0011 \\ 0.0028 \\ 0.0018 \\ 0.0011 \\ 0.0028 \\ 0.0018 \\ 0.0018 \\ 0.0011 \\ 0.0028 \\ 0.0018 \\$
ARI↑ LR WGSS↓ MRI↓ GPI↓ BHGI↑ CL↓ TI↑ CLI↑ CHI↑ RLI↑ CHI↑ RI↓ DGI↑ BHI↑ DGI↑ BHI↑ DBI↓ LSSRI↑ TWI↓ ACC↑ ARI↑ LR WGSS↓	$\begin{array}{c} 0.1553 \pm 0.1377 \\ \hline \\ \textbf{KM} \\ \hline \\ 172.2610 \pm 1.2342 \\ 0.0847 \pm 0.0037 \\ 0.0070 \pm 0.0003 \\ 0.0070 \pm 0.0006 \\ 0.1072 \pm 0.0034 \\ 0.2446 \pm 0.0051 \\ 0.2866 \pm 0.0051 \\ 0.1282 \pm 0.0003 \\ 1.7576 \pm 0.0197 \\ 1.2844 \pm 0.1338 \\ 0.2420 \pm 0.0046 \\ 0.0455 \pm 0.0010 \\ 0.1399 \pm 0.0023 \\ \textbf{0.0061 \pm 0.0023} \\ \textbf{0.0061 \pm 0.0004} \\ 0.0016 \pm 0.0004 \\ 0.0016 \pm 0.0045 \\ 0.0016 \pm 0.0075 \\ 0.2561 \pm 0.0097 \\ 0.3562 \pm 0.0051 \\ 0.1319 \pm 0.0057 \\ \hline \\ \textbf{FCM} \\ \hline \end{array}$	$\begin{array}{r} 0.0792 \pm 0.0764 \\ \hline \text{KM} + + \\ \hline 172.2106 \pm 1.2526 \\ 0.5843 \pm 0.0033 \\ 0.0070 \pm 0.0003 \\ 0.08382 \pm 0.0055 \\ 0.1063 \pm 0.0029 \\ 0.2466 \pm 0.0049 \\ 0.2084 \pm 0.0045 \\ 0.1529 \pm 0.0004 \\ 1.7584 \pm 0.0201 \\ 1.2616 \pm 0.1410 \\ 0.0456 \pm 0.0010 \\ 0.0456 \pm 0.0010 \\ 0.0456 \pm 0.0012 \\ 0.0061 \pm 0.0004 \\ 0.0015 \pm 0.0022 \\ 0.0061 \pm 0.0004 \\ 0.0015 \pm 0.0022 \\ 0.0061 \pm 0.0014 \\ 0.0015 \pm 0.0022 \\ 0.0055 \pm 0.0482 \\ 0.2582 \pm 0.0087 \\ 0.3538 \pm 0.0058 \\ 0.1317 \pm 0.0055 \\ \hline \text{MEC} \\ \hline 257.0694 \pm 8.1591 \\ \hline \end{array}$	$\begin{array}{l} 0.2784 \pm 0.3861 \\ \hline 0.2784 \pm 0.3861 \\ \hline \text{PKM} \\ \hline 172.5354 \pm 0.8054 \\ 0.5844 \pm 0.0018 \\ 0.0068 \pm 0.0001 \\ 0.8341 \pm 0.0040 \\ 0.1092 \pm 0.0021 \\ 0.2382 \pm 0.0033 \\ 0.2032 \pm 0.0046 \\ \hline 0.1529 \pm 0.0002 \\ 1.7531 \pm 0.0129 \\ 1.4320 \pm 0.1503 \\ 0.2391 \pm 0.0029 \\ 0.0456 \pm 0.0007 \\ \hline 0.1409 \pm 0.0012 \\ 0.0061 \pm 0.0002 \\ 0.0016 \pm 0.0002 \\ 0.0061 \pm 0.0002 \\ 0.0061 \pm 0.0012 \\ 0.0061 \pm 0.0073 \\ 0.6361 \pm 0.0310 \\ 0.2621 \pm 0.0037 \\ 0.1367 \pm 0.0035 \\ \text{FSC} \\ \hline 313.2757 \pm 13.1218 \end{array}$	$\begin{array}{c} 0.0162 \pm 0.0000 \\ \hline \hline \text{EWPKM} \\ \hline 285.7491 \pm 1.2048 \\ 0.8217 \pm 0.0012 \\ 0.0358 \pm 0.0006 \\ 0.3058 \pm 0.0002 \\ 0.3042 \pm 0.0011 \\ 0.1235 \pm 0.0014 \\ 0.1637 \pm 0.0007 \\ 0.1061 \pm 0.0002 \\ 0.4214 \pm 0.0020 \\ 1.8.7362 \pm 2.7223 \\ 0.0021 \pm 0.0004 \\ 0.0408 \pm 0.0000 \\ 0.2665 \pm 0.0020 \\ 0.0042 \pm 0.0002 \\ 0.0042 \pm 0.0002 \\ 0.0042 \pm 0.0002 \\ 0.0042 \pm 0.0002 \\ 0.0030 \pm 0.0000 \\ 0.2665 \pm 0.0020 \\ 0.0043 \pm 0.0011 \\ 0.0685 \pm 0.0012 \\ 0.0152 \pm 0.0003 \\ \hline 2PFCM \\ \hline 314.2095 \pm 0.0000 \\ \hline \end{array}$	$\begin{array}{c} \times \\ \hline SC \\ \hline 320.8225 \pm 3.7651 \\ 0.8209 \pm 0.0086 \\ 0.1081 \pm 0.0113 \\ 0.4255 \pm 0.0235 \\ 0.2975 \pm 0.0098 \\ 0.2602 \pm 0.0107 \\ 0.3352 \pm 0.0058 \\ 0.0817 \pm 0.0026 \\ 0.2304 \pm 0.0177 \\ 4.2300 \pm 0.3628 \\ 0.0891 \pm 0.0077 \\ 0.0623 \pm 0.0011 \\ 0.0624 \pm 0.0011 \\ 0.0272 \pm 0.0040 \\ 0.0040 \pm 0.0010 \\ 1.48516 \pm 0.2144 \\ 0.1279 \pm 0.0114 \\ 0.1279 \pm 0.0114 \\ 0.2703 \pm 0.0235 \\ 0.0075 \pm 0.0026 \\ BFC \\ \hline 300.3002 \pm 15.1015 \\ \hline \end{array}$	$\begin{array}{r} 0.0848 \pm 0.0940 \\ \hline 0.0848 \pm 0.0940 \\ \hline \text{HC} \\ \hline 177.5555 \pm 0.0000 \\ 0.6268 \pm 0.0000 \\ 0.0131 \pm 0.0000 \\ 0.7685 \pm 0.0000 \\ 0.1304 \pm 0.0000 \\ 0.2590 \pm 0.0000 \\ 0.2590 \pm 0.0000 \\ 0.1481 \pm 0.0000 \\ 1.4861 \pm 0.0000 \\ 1.4861 \pm 0.0000 \\ 0.0405 \pm 0.0000 \\ 0.0405 \pm 0.0000 \\ 0.0405 \pm 0.0000 \\ 0.0017 \pm 0.0000 \\ 0.0017 \pm 0.0000 \\ 0.0017 \pm 0.0000 \\ 0.3961 \pm 0.0000 \\ 0.3961 \pm 0.0000 \\ 0.1293 \pm 0.0000 \\ 0.1293 \pm 0.0000 \\ \text{KFCM} \\ \hline 240.5271 \pm 7.1036 \\ \hline \end{array}$	$\begin{array}{c} 0.0322 \pm 0.0000 \\ \hline 0.0322 \pm 0.0000 \\ \hline \text{CAPKM++2.0} \\ \hline 169.7897 \pm 0.094 \\ \hline 0.0607 \pm 0.0002 \\ 0.8458 \pm 0.0012 \\ 0.0458 \pm 0.0022 \\ 0.1025 \pm 0.0009 \\ \hline 0.2497 \pm 0.0019 \\ 0.2088 \pm 0.0011 \\ 0.1534 \pm 0.0000 \\ 1.7976 \pm 0.0015 \\ \hline 1.1236 \pm 0.0278 \\ \hline 0.0446 \pm 0.0021 \\ 0.0446 \pm 0.0011 \\ 0.0359 \pm 0.0014 \\ 0.0015 \pm 0.0000 \\ 1.6366 \pm 0.0269 \\ \hline 0.5864 \pm 0.0036 \\ \hline 0.2574 \pm 0.0048 \\ 0.3608 \pm 0.0011 \\ 0.1294 \pm 0.0024 \\ \hline CAFCM \\ \hline 169.6638 \pm 0.0000 \\ \hline \end{array}$
$\begin{array}{c c} ARI \uparrow \\ \hline \\ RI \downarrow \\ \hline \\ WGSS \downarrow \\ \hline \\ MRI \downarrow \\ GPI \downarrow \\ DGI \uparrow \\ RLI \uparrow \\ TI \uparrow \\ DGI \uparrow \\ RLI \uparrow \\ RTI \downarrow \\ WGI \uparrow \\ RHI \uparrow \\ XBI \downarrow \\ LSSRI \uparrow \\ TWI \downarrow \\ \hline \\ ARI \uparrow \\ CHI \uparrow \\ RHI \downarrow \\ RHI I \\ RHI $	$\begin{array}{c} 0.1553 \pm 0.1377 \\ \hline \\$	$\begin{array}{r} 0.0792 \pm 0.0764 \\ \hline \text{KM} ++ \\ \hline 172.2106 \pm 1.2526 \\ 0.5843 \pm 0.0033 \\ 0.0070 \pm 0.0003 \\ 0.0070 \pm 0.0003 \\ 0.0026 \pm 0.0029 \\ 0.2466 \pm 0.0049 \\ 0.2084 \pm 0.0045 \\ 0.1529 \pm 0.0004 \\ 1.7584 \pm 0.0201 \\ 1.2616 \pm 0.1410 \\ 0.2434 \pm 0.0054 \\ 0.0061 \pm 0.0000 \\ 1.395 \pm 0.0022 \\ 0.0061 \pm 0.0001 \\ 0.0005 \pm 0.0002 \\ 0.0061 \pm 0.0000 \\ 1.6787 \pm 0.0419 \\ 0.0564 \pm 0.0114 \\ 6.6235 \pm 0.0482 \\ 0.2532 \pm 0.0087 \\ 0.3538 \pm 0.0058 \\ 0.1317 \pm 0.0055 \\ \hline \text{MEC} \\ 257.0694 \pm 8.1591 \\ 0.8017 \pm 0.0136 \\ 0.1117 \pm 0.0165 \\ 0.4440 \pm 0.0293 \\ 0.2571 \pm 0.0129 \\ 0.2796 \pm 0.0117 \\ 0.1806 \pm 0.0065 \\ 0.1234 \pm 0.0079 \\ 0.1615 \pm 0.4018 \\ 0.0068 \pm 0.0066 \\ 0.0368 \pm 0.0060 \\ 0.0358 \pm 0.0091 \\ 0.27479 \pm 0.2600 \\ 0.2749 \pm 0.5243 \\ 0.0092 \pm 0.0123 \\ 0.0962 \pm 0.0122 \\ \end{array}$	$\begin{array}{l} 0.2784 \pm 0.3861 \\ \hline 0.2784 \pm 0.3861 \\ \hline \text{PKM} \\ \hline 172.5354 \pm 0.8054 \\ 0.5844 \pm 0.0018 \\ 0.0068 \pm 0.0001 \\ 0.8341 \pm 0.0040 \\ 0.1092 \pm 0.0021 \\ 0.2382 \pm 0.0033 \\ 0.2093 \pm 0.0046 \\ \hline 0.1529 \pm 0.0002 \\ 1.7531 \pm 0.0129 \\ 1.4320 \pm 0.1503 \\ 0.2391 \pm 0.0029 \\ 0.0456 \pm 0.0007 \\ 0.1409 \pm 0.0012 \\ 0.0061 \pm 0.0020 \\ 0.0061 \pm 0.0000 \\ 1.7244 \pm 0.0275 \\ 0.05614 \pm 0.0073 \\ 6.6361 \pm 0.0310 \\ 0.3528 \pm 0.0035 \\ \text{FSC} \\ \hline 313.2757 \pm 13.1218 \\ 0.9774 \pm 0.0202 \\ 0.01657 \pm 0.0108 \\ 0.0455 \pm 0.0018 \\ 0.0253 \pm 0.0247 \\ 0.1476 \pm 0.0085 \\ 0.0635 \pm 0.0047 \\ 0.1476 \pm 0.0085 \\ 0.0088 \pm 0.0047 \\ 0.1262 \pm 0.0118 \\ 0.0088 \pm 0.0047 \\ 0.0263 \pm 0.0247 \\ 0.1476 \pm 0.0015 \\ 27.6427 \pm 11.5610 \\ 0.0008 \pm 0.0000 \\ 0.2294 \pm 0.0011 \\ 0.0034 \pm 0.0011 \\ 0.0034 \pm 0.0011 \\ 0.0039 \pm 0.0000 \\ 0.2843 \pm 0.4879 \\ -2.4892 \pm 0.1160 \\ 16.8622 \pm 0.1510 \\ 0.1166 \pm 0.0086 \\ \hline \end{array}$	$\begin{array}{c} 0.0162 \pm 0.0000 \\ \hline 0.0162 \pm 0.0000 \\ \hline EWPKM \\ \hline 285.7491 \pm 1.2048 \\ 0.8217 \pm 0.0012 \\ 0.0358 \pm 0.0006 \\ 0.3671 \pm 0.0028 \\ 0.3042 \pm 0.0011 \\ 0.1235 \pm 0.0014 \\ 0.1637 \pm 0.0007 \\ 0.1061 \pm 0.0002 \\ 0.0021 \pm 0.0004 \\ 0.0021 \pm 0.0004 \\ 0.0021 \pm 0.0000 \\ 0.04214 \pm 0.0000 \\ 0.04214 \pm 0.0000 \\ 0.0042 \pm 0.0000 \\ 0.0042 \pm 0.0000 \\ 0.0042 \pm 0.0000 \\ 0.0042 \pm 0.0000 \\ 0.0043 \pm 0.0000 \\ 0.1034 \pm 0.0011 \\ 0.0685 \pm 0.0011 \\ 0.0685 \pm 0.0011 \\ 0.0685 \pm 0.0012 \\ 0.0152 \pm 0.0003 \\ 2PFCM \\ \hline 314.2095 \pm 0.0000 \\ 0.307 \pm 0.0000 \\ 0.0239 \pm 0.0000 \\ 0.0239 \pm 0.0000 \\ 0.01752 \pm 0.0000 \\ 0.0751 \pm 0.0000 \\ 0.0351 \pm 0.0000 \\ 0.0032 \pm 0.0000 \\ 0.0032 \pm 0.0000 \\ 0.0031 \pm 0.0000 \\ 0.0031 \pm 0.0000 \\ 0.0031 \pm 0.0000 \\ 0.0031 \pm 0.0000 \\ 0.0034 \pm 0.0000 \\ 0.0034 \pm 0.0000 \\ 0.0034 \pm 0.0000 \\ 0.0032 \pm 0.0000 \\ 0.0031 \pm 0.0000 \\ 0.0034 \pm 0.0000 \\ 0.0034 \pm 0.0000 \\ 0.0034 \pm 0.0000 \\ 0.0034 \pm 0.0000 \\ 0.0032 \pm 0.0000 \\ 0.0031 \pm 0.0000 \\ 0.0031 \pm 0.0000 \\ 0.0034 \pm 0.0000 \\ $	$ \begin{array}{c} \times \\ \hline SC \\ \hline 320.8225 \pm 3.7651 \\ 0.8209 \pm 0.0086 \\ 0.1081 \pm 0.0113 \\ 0.4255 \pm 0.0235 \\ 0.2975 \pm 0.0098 \\ 0.2602 \pm 0.0107 \\ 0.3352 \pm 0.0058 \\ 0.0817 \pm 0.0026 \\ 0.2304 \pm 0.0177 \\ 0.0230 \pm 0.0026 \\ 0.02304 \pm 0.0177 \\ 0.0623 \pm 0.0011 \\ 0.0572 \pm 0.0040 \\ 0.0040 \pm 0.0001 \\ 0.0040 \pm 0.0001 \\ 0.0040 \pm 0.0001 \\ 1.0860 \pm 0.0279 \\ 1.4710 \pm 0.0775 \\ 14.8516 \pm 0.2144 \\ 0.1279 \pm 0.0114 \\ 0.2703 \pm 0.0026 \\ BFC \\ \hline 300.3002 \pm 15.1015 \\ 0.9356 \pm 0.0113 \\ 0.0353 \pm 0.0012 \\ 0.0380 \pm 0.0066 \\ 129.7907 \pm 73.5306 \\ 0.00000 \pm 0.0000 \\ 0.0000 \pm 0.0000 \\ 11.0919 \pm 2.4470 \\ 12.2470 \\ -2.2693 \pm 0.2487 \\ 16.5212 \pm 0.3803 \\ 0.1052 \pm 0.0105 \\ \hline \end{array} $	$\begin{array}{l} 0.0848 \pm 0.0940 \\ \hline 0.0848 \pm 0.0940 \\ \hline \text{HC} \\ \hline 177.5555 \pm 0.0000 \\ 0.6268 \pm 0.0000 \\ 0.0131 \pm 0.0000 \\ 0.2590 \pm 0.0000 \\ 0.1481 \pm 0.0000 \\ 0.1481 \pm 0.0000 \\ 0.1982 \pm 0.0000 \\ 0.0198 \pm 0.0000 \\ 0.0198 \pm 0.0000 \\ 0.0059 \pm 0.0000 \\ 0.0000 \pm 0.0000 \\ 0.0052 \pm 0.0000 \\ 0.0000 \pm 0.0000 \\ 0.0260 \pm 0.0000 \\ 0.3724 \pm 0.0000 \\ 0.1293 \pm 0.0000 \\ 0.7822 \pm 0.0172 \\ 240.5271 \pm 7.1036 \\ 0.7822 \pm 0.0181 \\ 0.4781 \pm 0.0358 \\ 0.2450 \pm 0.0148 \\ 0.2582 \pm 0.0158 \\ 0.1861 \pm 0.0091 \\ 0.1252 \pm 0.0061 \\ 0.1152 \pm 0.0000 \\ 0.0126 \pm 0.0092 \\ 0.0376 \pm 0.0012 \\ 0.0154 \pm 0.0101 \\ 0.0026 \pm 0.0001 \\ 2.4005 \pm 0.1712 \\ -0.4841 \pm 0.1146 \\ 11.2964 \pm 0.4874 \\ 0.1259 \pm 0.0135 \end{array}$	$\begin{array}{c} 0.0322 \pm 0.0000 \\ \hline 0.0322 \pm 0.0000 \\ \hline \text{CAPKM++2.0} \\ \hline 169.7897 \pm 0.094 \\ \hline 0.5804 \pm 0.0014 \\ \hline 0.0067 \pm 0.0009 \\ \hline 0.0067 \pm 0.0009 \\ \hline 0.2497 \pm 0.0019 \\ \hline 0.2497 \pm 0.0019 \\ \hline 0.2494 \pm 0.0011 \\ \hline 0.1534 \pm 0.0000 \\ \hline 1.7976 \pm 0.0012 \\ \hline 0.02494 \pm 0.0024 \\ \hline 0.0466 \pm 0.0011 \\ \hline 0.0394 \pm 0.0024 \\ \hline 0.0466 \pm 0.0011 \\ \hline 0.0394 \pm 0.0000 \\ \hline 1.6366 \pm 0.0269 \\ \hline 0.5864 \pm 0.0009 \\ \hline 0.5864 \pm 0.0000 \\ \hline 0.5805 \pm 0.0000 \\ \hline 0.0068 \pm 0.0000 \\ \hline 0.0058 \pm 0.0000 \\ \hline 0.1534 \pm 0.0000 \\ \hline 0.0055 \pm 0.0000 \\ \hline 0.5255 \pm 0.0000 \\ \hline 0.250 \pm 0.0000 \\ \hline 0.0005 \pm 0.0000 \\ \hline 0.00$



Fig. 6. Snapshots of the fuzzy objective function values of $f_m(\mu, \Theta)$ in (2) with m = 1.5 in the FCM clustering loop of CAFCM (Steps 6–10) on the six datasets. (a) NCI9. (b) WarpPIE10P. (c) WineQuality-White. (d) PageBlock. (e) Texture. (f) Optdigits.

3 second-best means (i.e., 13.69% and 15.48%). Fig. 8 depicts the counts of the best and best plus second-best index mean values by using CAFCM and the thirteen baselines. As shown in Fig. 8, CAFCM, CAPKM+++2.0, and SC rank in the first three places in terms of the counts of the best index mean values. CAFCM, CAPKM+++2.0, and PKM rank in the first three places in terms of the counts of best plus second-best index mean values. In addition, the standard deviations of the results using CAFCM are zero, indicating the highest consistency of the algorithm.

E. Complexity Analysis

As shown in Tables I and Table S-II in the Supplementary Materials, the suitable number of modules N is 2 or 3, for 18 datasets with various values of n, p, and k. As N is a small constant, the spatial complexity of CAFCM is the same as FCM (i.e., O((n + p)k) [66]).

The time complexity is empirically estimated via nonnegative least-squares regression using the numbers of iterations on the 18 datasets

$$\min_{w} ||Cw - T||_{2}^{2}$$

s.t. $w \ge 0$,



Fig. 7. Descending objective function values of $f(\Theta)$ in the annealing loop of CAFCM (Steps 2–33) on the six datasets. (a) NCI9 (N = 2 and M = 10). (b) WarpPIE10P (N = 2 and M = 5). (c) WineQuality-White (N = 2 and M = 15). (d) PageBlocks (N = 2 and M = 5). (e) Texture (N = 3 and M = 15). (f) Optidigits (N = 2 and M = 5).



Fig. 8. Counts of the best and best plus second-best index mean values using CAFCM and the thirteen baselines.

where $w \in \Re^{38}$ is the weight vector of the terms, $T \in \Re^{18}$ is the vector of iteration counts, and $C \in \Re^{18 \times 38}$ is the matrix of 38 combinations of polynomials and logarithms of n, m, and p. Table S-VIII in the Supplementary Materials lists the 38 combinations of polynomials and logarithms of n, m, and p, and their estimated coefficients. By neglecting the terms with their coefficients w smaller than 0.0001, the resulting estimate is $2 \ 288 \ 239 \ k^2 n p + 351 \ 783 \ k^2 n p \log(p)$. As the second term is of higher order, the estimated time complexity of CAFCM is

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 $O(k^2 np \log(p))$. As the time complexity of FCM is $O(k^2 np)$ per iteration [66], it is $\log(p)$ times that of FCM.

V. CONCLUSION

In this paper, a collaborative annealing fuzzy c-means clustering algorithm is proposed. The experimental results on eight datasets demonstrate that the proposed algorithm with only two or three modules statistically outperforms thirteen competing algorithms in terms of many cluster validity indices. The proposed method achieves superior performance, owing to the adoption of the annealing procedure to phase out fuzziness, as well as collaborative modules to maximize clustering quality and eliminate the influence of initial solutions on clustering performance. Further research may include improving the efficiency of the proposed method, extending it for robust clustering to cluster data in the presence of noises or outliers, extending it for semisupervised clustering to leverage information from labeled and unlabeled data, extending it for multiview clustering to take into account multiple perspectives or representations of data, and applying it to specific problems in science and engineering.

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