

# Appendix A

## Definition of Abbreviations

This appendix list abbreviations used in this thesis along with their explanations.

ACK : ACKnowledgement

ACO : Ant Colony Optimisation

ACS : Ant Colony System

ADC : Analogous to Digital Converter

ANSI : American National Standards Institute

AODV : Ad hoc On-demand Distance Vector

AP : Access Point

APC : AP Controller

ARQ : Automatic Repeat reQuest

ARQN : ARQ sequence Number

AS : Ant System

ASCII : American Standard Code for Information Interchange

ASP : Active Server Page

ATIM : Ad Hoc Traffic Indication Message

ATM : Asynchronous Transfer Mode

BSAMM : Boundless Simulation Area Mobility Model

BSC : Base Station Controller

BSS : Basic Service Set

CBR : Constant Bit Rate

CDM : Code Division Multiplexing

CDMA : Code Division Multiple Access

CDPD : Cellular Digital Packet Data

CMM : Column mobility model  
CPU : Central Processing Unit  
CRC : Cyclic Redundancy Check  
CSMA : Carrier Sense Multiple Access  
CSMA/CA : CSMA with Collision Avoidance  
CSMA/CD : CSMA with Collision Detection  
CSMM : City Section Mobility Model  
CSP : Constraint Satisfaction Problem  
CTS : Clear To Send  
CW : Contention Window  
DA : Destination Address  
DAG : Directed Acyclic Graph  
DCF : Distributed Coordination Function  
DCS : Digital Cellular System  
DNS : Domain Name System  
DPSM : Dynamic power saving mechanism  
DSDV : Destination Sequence Distance Vector  
DSMA : Digital Sense Multiple Access  
DSR : Dynamic Source Routing  
DTMF : Dual Tone Multiple Frequency  
DV : Distance Vector  
EA : Evolutionary Algorithms  
EC-MAC : Energy Conserving Medium Access Control  
ECRMM : Exponential correlated random mobility model  
EEMACOMC : Energy efficiency for mobile network using multi-objective ant colony  
optimisation, Multi-colony  
EEMACOMH : Energy Efficiency for mobile network using multi-objective ant colony  
optimisation, Multi-heuristic  
EEMACOMP : Energy Efficiency for mobile network using multi-objective ant colony  
optimisation, Multi-pheromone

EEMMASMH : Energy efficiency for mobile network using multi-objective MAX-MIN ant system optimisation, Multi-heuristic

EEMMASMP : Energy efficiency for mobile network using multi-objective MAX-MIN ant system optimisation, Multi-pheromone

EMO : Evolutionary Multi-objective Optimisation

ESS : Extended Service Set

FANT : Fast Ant System

FDM : Frequency Division Multiplexing

FDMA : Frequency Division Multiple Access

FEC : Forward Error Correction

FRTS : Future Request to Send

FSM : Frame Synchronisation Message

GMMM : Gauss-Markov Mobility Model

GPRS : General Packet Radio Service

GPS : Global Positioning System

IBSS : Independent Basic Service Set

IEEE : Institute of Electrical and Electronics Engineers

ILS : Iterated Local Search

IP : Internet Protocol

ISDN : Integrated Services Digital Network

ISO : International Organization for Standardization

LLC : Logical Link Control

MAC : Medium Access Control

MACA : Multiple Access with Collision Avoidance

MANET : Mobile Ad hoc NETWORK

Mbps: Megabit per second

MMAS : Max-Min Ant System

MNC : Maximum Node Cost

MOACO : Multi-Objective Ant Colony Optimisation

MOEA : Multi-Objective Evolutionary Algorithms

MOGA: Multi-Objective Genetic Algorithm  
MOO : Multi-Objective Optimisation  
MOP : Multi-Objective Problem  
MST : Minimum Spanning Trees  
NCMM : Nomadic community mobility model  
NPGA : Niche Pareto Genetic Algorithm  
NSGA : Non-dominated Sorting Genetic Algorithm  
OSI: Open Systems Interconnection  
PAES : Pareto Archived Evolution Strategy  
PAMAS : Power Aware Multi-Access Protocol  
PCF : Point Coordination Function  
PDN : Public Data Network  
PDU : Protocol Data Unit  
PEDAP : Power Efficient Data Gathering and Aggregation Protocol  
PEDAP-PA : Power Efficient Data Gathering and Aggregation Protocol-Power Aware  
PESA : Pareto Envelope-based Selection Algorithm  
PESA-II : Pareto Envelope-based Selection Algorithm-II  
PMM : Pursue mobility model  
PSM : Protocol/Service Multiplexor  
PSN : PDU Sequence Number  
PSPDN : Public Switched Packet Data Network  
PSTN : Public Switched Telephone Network  
PVRWMM : A Probabilistic Version of the Random Walk Mobility Model  
QAP : Quadratic Assignment Problem  
RDMM: Random direction mobility model  
RF : Radio Frequency  
RPGM : Reference Point Group Mobility Model  
RT : Radio Transceiver  
RTR : Radio Transmission and Reception  
RTS : Request To Send

RWMM :Random walk mobility model  
RWPM : Random waypoint mobility model  
SA : Simulated Annealing  
S-MAC : Sensors Medium Access Control  
SMTTP : Single Machine Total Tardiness Problem  
SPEA : Strength Pareto Evolutionary Algorithm  
SPI: Serial Peripheral Interface  
TBTT : Target Beacon Transmission Time  
TCP : Transmission Control Protocol  
TD-CDMA : Time Division-CDMA  
TDD : Time Division Duplex  
TDM : Time Division Multiplexing  
TDMA : Time Division Multiple Access  
T-MAC : Timeout Medium Access Control  
TNP : Time to Network Partition  
TS : Tabu search  
TSP : Travelling Salesman Problem  
UART : Universal Asynchronous Receiver Transmitter  
UBR : Unspecified Bit Rate  
UDP : User Datagram Protocol  
VBR : Variable Bit Rate  
VF : Variation Factor  
VRS : Volcano Routing Scheme  
WS : Wireless Sensor  
WSN : Wireless Sensor Network

# Appendix B

## Definition of Symbols

This appendix list symbols used in this thesis along with their explanations.

### Chapter 2: Energy Efficient Network Protocols for Mobile Ad-Hoc Networks

$\alpha_{max}$  : maximum angular change

$\mathbf{a}_{max}$  : maximum acceleration

$c_a$  : media dependent constant

$c_p$  : clock period

$C_s(T_s)$  : total edge weights in the spanning tree  $T_s$

$c_{s,uv}$  : weight of the edge  $(u, w)$

$d$  : distance travelled

$d_s$  : maximum propagation delay among all pairs of nodes

$d_{uw}$  : distance between node  $u$  and  $w$

$D_f$  : destination of the  $f$ -flow

$e_{min}^r$  : minimum residual energy from all the nodes in a path

$e_u^c$  : current energy of node  $u$

$e_u^m$  : energy needed by node  $u$  to transmit a message to its nearest neighbor

$e_u^r$  : residual energy of node  $u$

$E$  : energy consumed by a program

$E_u$  : initial energy of node  $u$

$E_{uw}$  : energy required to do a single-hop transmission from node  $u$  to node  $w$

$\theta$  : the MN's direction

$\theta x_t$  : random direction variable

$\bar{\theta}$  : mean direction

$\Delta\theta$  : change in direction

$G = (V, L)$  : directed graph with nodes  $V$  and links between nodes,  $L$

$h_d$  : constant between 2 and 4

$I_c$  : average current

$\kappa(u)$  : fraction of node's  $u$  initial energy that has been used so far

$N_c$  : number of clock cycles taken by a program

$p_t$  : tuning parameter

$P(a, b)$  : probability that a MN will go from state  $a$  to state  $b$

$P_u^f$  : potential associated with flow  $f$  at a given node  $u$

$P_o$  : average power

$r_x$  : random offset of a MN, in direction  $x$

$r_y$  : random offset of a MN, in direction  $y$

$\sigma$  : constant for admission control

$S_r$  : sending rate

$t$  : time interval

$t_x^g(t)$  :  $x$  position of a target

$t_y^g(t)$  :  $y$  position of a target

$\Delta t$  : time step

$T_e$  : execution time of the program

$T_s$  : spanning tree

$\mathbf{v}$  : the MN's velocity

$\Delta\mathbf{v}$  : change in velocity

$v_s$  : supply voltage

$v_{x_t}$  : random speed variable

$\bar{v}$  : mean speed value

$\mathbf{v}_{max}$  : maximum velocity

$\mathbf{x}_{j,i}(t)$  : location of the  $i$ -th node in the  $j$ -th group at time  $t$

$\mathbf{y}_{j,i}(t)$  : reference location of the  $i$ -th node in the  $j$ -th group at time  $t$

$\mathbf{z}_{j,i}(t)$  : local displacement of the  $i$ -th node in the  $j$ -th group at time  $t$

$\zeta$  : constant

### Chapter 3: Combinatorial Optimisation and Ant Colony Optimisation Meta-heuristic

$\alpha$ : pheromone amplification coefficient

$\beta$ : heuristic amplification coefficient

$f(x^k(t))$ : length of the solution  $x^k(t)$

$h$ : bias to using pheromone deposits in the decision process

$\eta_{ij}$ : heuristic preference of moving from node  $i$  to node  $j$

$n_k$ : number of ants

$n_l$ : number of nodes in the candidate list

$N_G$ : number of nodes

$N(\mathbf{x})$ : neighbourhood of  $\mathbf{x}$

$N_i^k(t)$ : set of feasible nodes connected to node  $i$ , for ant  $k$

$L_m$ : number of ants that have used the lower branch

$p_{ij}^k(t)$ : probability that ant  $k$  selects to move to node  $j$  from node  $i$

$\hat{p}$ : probability at which the best solution is constructed

$P_L(m)$ : probability with which the  $(m+1)$ -th ant chooses the lower branch

$P_U(m)$ : probability with which the  $(m+1)$ -th ant chooses the upper branch

$Q$ : positive constant used to weight influence of  $f$  in solution quality calculation

$r$ : random number

$r_0$ : tunable parameter to control exploration and exploitation

$\rho$ : evaporation coefficient

$\rho_l$ : evaporation coefficient governing local trail decay

$\Delta_{ij}(t)$ : total amount of pheromone deposited by all ants on edge  $(i, j)$

$\tau_0$ : small positive constant

$\tau_{ij}$ : pheromone concentration on link  $(i, j)$

$\tau_{min}$ : minimum allowed pheromone concentration

$\tau_{max}$ : maximum allowed pheromone concentration

$U_m$ : number of ants that have used the upper branch

$x^k(t)$ : solution found by ant  $k$  at time step  $t$

$x^+(t)$ : best tour since the beginning of the trial



$\tilde{x}(t)$  : iteration-best solution found at time step  $t$

$\hat{x}(t)$  : global-best solution found at time step  $t$

$z$  : degree of attraction of an unexplored branch

## Chapter 4: Multi-objective Optimisation

$\mathbf{x} \prec \mathbf{y}$  :  $\mathbf{x}$  strictly dominates  $\mathbf{y}$

$\prec_n$  : crowded comparison operator

$\#Col$  : number of ant colonies

$\#\tau$  : number of pheromone structures

$B_i$  : compensation at busbar  $i$

$c_c(i, j)$  : changeover costs that has to be paid when  $j$  is the direct successor of  $i$  in a schedule.

$c_{ij}$  : cost per bps of link  $(i, j)$

$C_j$  : completion time of job  $j$  in the current job sequence

$c_m$  : centroid for objective  $f_m$

$d_i$  : Euclidian distance between  $i$  and nearest solution in the  $PF^*$

$d_{ij}$  : propagation delay of link  $(i, j)$

$d_j^a$  : due date for job  $j$

$\bar{d}$  : mean of all  $d_i$

$\epsilon$  : constant

$f_d$  : density function

$\mathcal{F}$  : feasible space

$F_s$  : scalar function

$F_v(i)$  : fitness value of  $i$

$g_m$  : inequality constraints

$h_m$  : equality constraints

$i_{distance}$  : crowding distance of solution  $i$

$i_{rank}$  : non-domination front rank of solution  $i$

$\mathcal{I}$  : non-dominated set

$K$  : kernel function

$\lambda_l$  : weighs the relative importance of the  $l$ -th objective  
 $m_{best}$  : number of best ants in a colony  
 $n_k$  : number of ants  
 $n_o$  : number of objectives  
 $n_x$  : dimension of the decision vector  
 $n_{\mathcal{PF}}$  : number of solutions in the estimated Pareto front  
 $N$  : number of vectors in the set of non-dominated solutions  
 $N_G$  : number of nodes  
 $N_{maxgen}$  : maximum number of generations  
 $N_p$  : population size  
 $\mathcal{O}$  : objective space  
 $p_j$  : processing time for job  $j$   
 $P_0$  : initial random population  
 $P_s$  : Pareto set list for MOO power-aware problem  
 $P^*$  : Pareto-optimal set, containing non-dominated position vectors  
 $P\mathcal{F}^*$  : Pareto-optimal front containing non-dominated objective vectors  
 $Q_0$  : initial child population  
 $R_t$  : combined population of parent and a child, at generation  $t$   
 $S$  :  $n_x$  dimensional search space  
 $S_m$  : spread metric  
 $S_v(i)$  : strenght value of  $i$   
 $t_{ij}$  : current traffic of link  $(i, j)$   
 $t_i^g$  : ideal value of objective  $i$   
 $\mathbf{T}_k$  : solution build by ant  $k$   
 $T(s, N_r)$  : multicast tree with source in  $s$  and a set of destinations  $N_r$   
 $V_i$  : actual voltage at busbar  $i$   
 $V_i^*$  : desired voltage at busbar  $i$   
 $x_{mj}$  : value of the objective  $f_m$  in the  $j$ -th non-dominated solution  
 $\mathbf{x}^*$  : Pareto-optimal solution  
 $\mathcal{Z} = (\mathcal{Z}_1, \mathcal{Z}_2, \dots)$  : set of non-dominated fronts

## Chapter 5: Dynamic Optimisation

$\gamma_i$  : pheromone reset value for node  $i$

$d_{ij}^n$  : distance of node  $i$  to the nearest changed component  $j$  based on heuristic information

$d_{ij}^{\tau}$  : distance of node  $i$  to the nearest changed component  $j$  based on pheromone information

$\delta(t)$  : time-dependent objective function

$L^{best}(t)$  : best solution found up to iteration  $t$

$L_W^{best}(t)$  : best solution within the window  $W$

$L_W^{worst}(t)$  : worst solution within the window  $W$

$\lambda_E$  : strategy specific parameter

$\lambda_R$  : strategy specific parameter

$\lambda_{\tau}$  : strategy specific parameter

$n_c$  : number of changes of the fitness landscape during the run

$n_I$  : number of iterations between environment changes

$n_{PF}$  : number of solutions

$n_r$  : number of runs

$\mathbf{x}^*(\mathbf{t})$  : Pareto-optimal solution at time step  $t$

## Chapter 6: Multi-objective Optimisation Algorithms for Power-Aware Routing Metrics

$c_{ij}$  : link cost for link  $(i, j)$

$c^a(i, j)$  : capacity of the edge  $(i, j)$

$\gamma_{\nu_i}$  : variable proportionate to the nearest changed component  $j$  for objective EP

$\gamma_{\xi_i}$  : variable proportionate to the nearest changed component  $j$  for objective TNP

- $\gamma_{\pi_i}$  : variable proportionate to the nearest changed component  $j$  for objective VF
- $\gamma_{\rho_i}$  : variable proportionate to the nearest changed component  $j$  for objective CP
- $\gamma_{\varsigma_i}$  : variable proportionate to the nearest changed component  $j$  for objective MNC
- $C_{n_i}(t)$  : ratio of the total energy consumed up to time,  $t$ , over the initial energy,  $E_i$
- $e_i^e(t)$  : total energy expended by node  $i$  so far
- $\lambda_{\nu}$  : user-defined parameter which establish the importance of the objective EP in the search
- $\lambda_{\xi}$  : user-defined parameter which establish the importance of the objective TNP in the search
- $\lambda_{\pi}$  : user-defined parameter which establish the importance of the objective VF in the search
- $\lambda_{\rho}$  : user-defined parameter which establish the importance of the objective CP in the search
- $\lambda_{\varsigma}$  : user-defined parameter which establish the importance of the objective MNC in the search
- $\mu_L$  : average capacity for all edges  $L$
- $n_{k_c}$  : number of ants for  $c$  colony
- $N_e$  : constant, the first  $N_e$  fittest individuals from population  $P_{t+1}$
- $n_{ts}$  : number of time slices within the total simulation time
- $n_T$  : number of nodes in the solution  $T$
- $n_{pT}$  : total number of packets from source  $s$  to destination  $D$
- $\eta_{\nu}(ij)$  : heuristic desirability of the move from node  $i$  to node  $j$  associated with objective EP
- $\eta_{\xi}(ij)$  : heuristic desirability of the move from node  $i$  to node  $j$  associated with objective TNP
- $\eta_{\pi}(ij)$  : heuristic desirability of the move from node  $i$  to node  $j$  associated with objective VF
- $\eta_{\rho}(ij)$  : heuristic desirability of the move from node  $i$  to node  $j$  associated with objective CP
- $\eta_{\varsigma}(ij)$  : heuristic desirability of the move from node  $i$  to node  $j$  associated with objective MNC

$P_{as}$  : maximum archive size

$P_f$  : estimated Pareto set

$P_G$  : global archive containing solutions from all the colonies in a specific iteration

$R_g$  : radius from global centre

$R$  : number of shortest path routes

$R_i^p$  : residual power of a node  $i$

$S_{T_{tot}}$  : total simulation time

$T_{N_p}$  : routing table with  $N_p$  paths

$T_r$  : transmission range

$T_{sm}$  : pause time/time before applying the mobility model

$\tau_{max_\nu}$  : maximum allowed pheromone value for objective EP

$\tau_{max_\xi}$  : maximum allowed pheromone value for objective TNP

$\tau_{max_\pi}$  : maximum allowed pheromone value for objective VF

$\tau_{max_\rho}$  : maximum allowed pheromone value for objective CP

$\tau_{max_\varsigma}$  : maximum allowed pheromone value for objective MNC

$\tau_{min_\nu}$  : minimum allowed pheromone value for objective EP

$\tau_{min_\xi}$  : minimum allowed pheromone value for objective TNP

$\tau_{min_\pi}$  : minimum allowed pheromone value for objective VF

$\tau_{min_\rho}$  : minimum allowed pheromone value for objective CP

$\tau_{min_\varsigma}$  : minimum allowed pheromone value for objective MNC

## Chapter 7: Simulation and Empirical Analysis

$P_a$  : approximation of the true Pareto front

$\bar{n}_{alg}$ : average number of non-dominated solutions found by each algorithm

$\bar{\varrho}$ : average value of the spacing metric

$\bar{\xi}$ : average value of the hypervolume metric

$n_{alg}^w$  : number of times that an algorithm has a better  $\bar{n}_{alg}$  than the others, for each environment change

$\varrho^w$  : number of times that an algorithm has a better  $\bar{\varrho}$  than the others, for each environment change

$\xi^w$  : number of times that an algorithm has a better  $\bar{\xi}$  than the others, for each environment change

# Appendix C

## Definition of the Power-Aware Routing Problem

This appendix list symbols used in this thesis to formulate the multi-objective optimisation problem for power-aware routing metrics

$V$  : Set of nodes

$L$  : Set of links

$G = (V, L)$  : Directed graph

$(i, j) \in L$  : Link from node  $i$  to node  $j$ ;  $i, j \in V$ .

$E_{ij}$  : The energy expenditure for unit flow transmission over the link  $(i, j)$

$E_i$  : Initial energy at the transmitting node  $i$

$R_i$  : Residual energy at the transmitting node  $i$

$R_i^p$  : Residual power of a node  $i$ .

$x_1, x_2, x_3$  : nonnegative weighting factors

$c_{ij}$  : link cost for link  $i, j$

$c_{ij}$  is given by :  $c_{ij} = E_{ij}^{x_1} E_i^{x_2} R_i^{-x_3}$

$d_{ij}$  : Distance between the nodes  $i$  and  $j$

$c_i$  : cost of node  $i$ ,  $c_i = \frac{1}{R_i}$

$c^a(ij)$  : Capacity of link  $(i, j)$

$n_{pT}$  : Number of packets for a request

$n_k$  : Number of ants

$l_u$  : Load of node  $u$

$e_u^c$  : Current energy of node  $u$

$n_T$  : Number of nodes for path  $T$

$T(s, D)$  : path from source  $s$  to destination  $D = (n_1, n_2, \dots, n_{n_T})$   
with  $s = n_1$  and  $D = n_{n_T}$

$T_r$  : Transmission range

$z_i$  : denotes the measured voltage (that gives a good indication of the energy used thus far)

$0 < g(z_i) \leq 1.0$  : is the normalised remaining lifetime (or capacity) of the battery

# Appendix D

## Control Parameter Tables

This appendix contains the results of the empirical analysis of the ant-based algorithms control parameters. The empirical analysis is done for all scenario combinations of 30 nodes,  $T_{sm} \in \{1, 2, 3, 4, 5, 6\}$ , and  $R_g \in \{300, 500, 800\}$ .

Tables D.1-D.3, D.4-D.6, D.7-D.9, D.10-D.12, D.13-D.15, and D.16-D.18 illustrate the influence of parameters  $\beta_\psi$ ,  $r_0$ ,  $\rho_l$ ,  $\rho_g$ ,  $\alpha$ , and  $\lambda_E$  respectively, on the  $\bar{n}_{alg}$ ,  $\bar{Q}$  and  $\bar{\xi}$  metrics.



Table D.1: Influence of parameter  $\beta_\psi$  on the  $\bar{n}_{alg}$ ,  $\bar{\varrho}$  and  $\bar{\xi}$  metrics, for 30 nodes and  $R_g = 300$

(a)  $T_{sm} = 1$

$\beta_\psi$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$
$\beta_\nu = 1.0$	PEEMACOMP	50.38±5.89	0.213±0.024	45342.56±952.36
$\beta_\xi = 1.0$	PEEMACOMH	48.21±5.22	0.221±0.027	44567.23±961.78
$\beta_\pi = 1.0$	PEEMMASMP	53.41±5.14	0.218±0.029	44128.45±927.47
$\beta_\theta = 1.0$	PEEMMASMH	48.36±5.33	0.215±0.027	43567.38±966.96
$\beta_\zeta = 1.0$	PEEMACOMC	51.34±5.26	0.238±0.029	44528.09±975.72
$\beta_\nu = 3.0$	PEEMACOMP	50.34±5.35	0.187±0.023	46873.32±946.23
$\beta_\xi = 3.0$	PEEMACOMH	48.43±5.65	0.192±0.022	45568.27±957.32
$\beta_\pi = 3.0$	PEEMMASMP	49.37±5.57	0.211±0.023	46785.32±953.23
$\beta_\theta = 3.0$	PEEMMASMH	48.54±5.45	0.186±0.024	47467.28±964.32
$\beta_\zeta = 3.0$	PEEMACOMC	51.37±5.63	0.188±0.021	47843.31±976.38
$\beta_\nu = 3.5$	PEEMACOMP	84.67±4.49	0.053±0.008	62874.32±213.34
$\beta_\xi = 4.0$	PEEMACOMH	82.35±4.46	0.054±0.008	62543.64±221.43
$\beta_\pi = 4.5$	PEEMMASMP	79.65±4.74	0.057±0.009	62647.23±226.31
$\beta_\theta = 4.0$	PEEMMASMH	83.86±4.73	0.058±0.010	62568.22±236.74
$\beta_\zeta = 5.0$	PEEMACOMC	85.74±4.76	0.057±0.010	62657.82±223.52
$\beta_\nu = 4.5$	PEEMACOMP	84.37±4.32	0.054±0.009	62676.43±202.41
$\beta_\xi = 5.0$	PEEMACOMH	82.54±4.34	0.053±0.008	62217.32±213.52
$\beta_\pi = 3.5$	PEEMMASMP	78.42±4.69	0.055±0.009	62542.43±203.43
$\beta_\theta = 4.0$	PEEMMASMH	82.64±4.54	0.057±0.009	62653.61±192.53
$\beta_\zeta = 4.0$	PEEMACOMC	84.67±4.63	0.056±0.009	62562.31±223.43
$\beta_\nu = 5.0$	PEEMACOMP	83.76±4.46	0.052±0.008	62314.32±197.32
$\beta_\xi = 5.0$	PEEMACOMH	82.54±4.34	0.050±0.008	62435.21±214.65
$\beta_\pi = 5.0$	PEEMMASMP	76.32±4.89	0.051±0.009	62421.56±198.37
$\beta_\theta = 5.0$	PEEMMASMH	79.56±4.67	0.049±0.008	62652.27±187.43
$\beta_\zeta = 5.0$	PEEMACOMC	83.58±4.78	0.057±0.009	62467.48±215.76
$\beta_\nu = 7.0$	PEEMACOMP	67.43±4.67	0.047±0.007	44673.36±934.24
$\beta_\xi = 7.0$	PEEMACOMH	62.48±4.98	0.049±0.007	43456.22±956.76
$\beta_\pi = 7.0$	PEEMMASMP	66.48±4.78	0.049±0.006	43467.83±946.32
$\beta_\theta = 7.0$	PEEMMASMH	72.74±4.54	0.047±0.006	44612.38±975.32
$\beta_\zeta = 7.0$	PEEMACOMC	72.45±4.47	0.055±0.007	44132.64±896.34

(b)  $T_{sm} = 2$

$\beta_\psi$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$
$\beta_\nu = 1.0$	PEEMACOMP	54.67±5.13	0.186±0.022	47832.26±612.52
$\beta_\xi = 1.0$	PEEMACOMH	47.32±5.32	0.176±0.022	46348.69±864.23
$\beta_\pi = 1.0$	PEEMMASMP	54.76±5.21	0.195±0.024	46178.35±874.72
$\beta_\theta = 1.0$	PEEMMASMH	52.57±5.24	0.180±0.023	45674.86±849.78
$\beta_\zeta = 1.0$	PEEMACOMC	54.44±5.13	0.178±0.022	46234.12±875.92
$\beta_\nu = 3.0$	PEEMACOMP	52.54±5.42	0.144±0.019	48765.24±896.38
$\beta_\xi = 3.0$	PEEMACOMH	54.45±5.36	0.148±0.018	47654.34±876.36
$\beta_\pi = 3.0$	PEEMMASMP	52.67±5.41	0.154±0.017	47654.38±887.56
$\beta_\theta = 3.0$	PEEMMASMH	56.21±5.32	0.158±0.016	48756.34±895.45
$\beta_\zeta = 3.0$	PEEMACOMC	57.24±5.12	0.153±0.017	48765.43±850.39
$\beta_\nu = 3.5$	PEEMACOMP	87.32±3.68	0.039±0.007	62976.32±224.32
$\beta_\xi = 4.0$	PEEMACOMH	85.21±3.68	0.042±0.007	62158.94±234.44
$\beta_\pi = 4.5$	PEEMMASMP	82.43±3.59	0.040±0.007	62143.32±229.26
$\beta_\theta = 4.0$	PEEMMASMH	86.43±3.57	0.041±0.006	62234.65±242.76
$\beta_\zeta = 5.0$	PEEMACOMC	88.56±3.67	0.046±0.007	62214.32±226.83
$\beta_\nu = 4.5$	PEEMACOMP	86.72±3.58	0.041±0.007	62645.76±223.24
$\beta_\xi = 5.0$	PEEMACOMH	85.64±3.56	0.043±0.006	62228.56±217.57
$\beta_\pi = 3.5$	PEEMMASMP	82.56±3.29	0.041±0.006	62147.89±212.28
$\beta_\theta = 4.0$	PEEMMASMH	86.32±3.67	0.042±0.007	62145.65±198.47
$\beta_\zeta = 4.0$	PEEMACOMC	85.21±3.76	0.043±0.008	62346.76±216.19
$\beta_\nu = 5.0$	PEEMACOMP	86.73±3.24	0.038±0.006	62734.66±226.68
$\beta_\xi = 5.0$	PEEMACOMH	85.43±3.78	0.042±0.007	62134.67±232.93
$\beta_\pi = 5.0$	PEEMMASMP	78.43±4.14	0.042±0.008	62221.58±215.28
$\beta_\theta = 5.0$	PEEMMASMH	82.34±3.76	0.043±0.007	62352.25±197.47
$\beta_\zeta = 5.0$	PEEMACOMC	76.43±4.43	0.041±0.008	62367.44±232.19
$\beta_\nu = 7.0$	PEEMACOMP	74.65±4.34	0.043±0.007	47432.65±938.36
$\beta_\xi = 7.0$	PEEMACOMH	75.73±4.75	0.044±0.007	46783.43±949.27
$\beta_\pi = 7.0$	PEEMMASMP	72.47±4.76	0.042±0.007	46754.28±938.68
$\beta_\theta = 7.0$	PEEMMASMH	75.83±4.37	0.043±0.006	46672.21±965.23
$\beta_\zeta = 7.0$	PEEMACOMC	74.86±4.25	0.041±0.006	46178.63±845.19

(c)  $T_{sm} = 3$

$\beta_\psi$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$
$\beta_\nu = 1.0$	PEEMACOMP	56.78±4.32	0.157±0.015	49436.26±798.43
$\beta_\xi = 1.0$	PEEMACOMH	52.23±4.56	0.146±0.015	48654.28±837.43
$\beta_\pi = 1.0$	PEEMMASMP	56.32±4.76	0.161±0.017	48654.38±832.69
$\beta_\theta = 1.0$	PEEMMASMH	55.76±4.78	0.157±0.016	48685.36±826.79
$\beta_\zeta = 1.0$	PEEMACOMC	58.92±4.75	0.148±0.016	46678.54±823.56
$\beta_\nu = 3.0$	PEEMACOMP	54.65±4.65	0.117±0.013	50343.32±765.34
$\beta_\xi = 3.0$	PEEMACOMH	56.87±4.69	0.118±0.013	51345.65±768.45
$\beta_\pi = 3.0$	PEEMMASMP	56.73±4.76	0.123±0.013	51346.76±765.38
$\beta_\theta = 3.0$	PEEMMASMH	57.85±4.65	0.126±0.014	51657.34±758.34
$\beta_\zeta = 3.0$	PEEMACOMC	58.34±4.67	0.127±0.014	52348.97±763.10
$\beta_\nu = 3.5$	PEEMACOMP	89.45±3.47	0.036±0.006	63234.65±197.45
$\beta_\xi = 4.0$	PEEMACOMH	88.12±3.48	0.037±0.007	62108.45±239.65
$\beta_\pi = 4.5$	PEEMMASMP	87.32±3.87	0.034±0.005	62430.26±232.68
$\beta_\theta = 4.0$	PEEMMASMH	86.49±3.65	0.038±0.005	62450.32±238.46
$\beta_\zeta = 5.0$	PEEMACOMC	89.43±3.54	0.033±0.005	63346.65±187.58
$\beta_\nu = 4.5$	PEEMACOMP	88.32±3.68	0.038±0.006	63245.67±237.54
$\beta_\xi = 5.0$	PEEMACOMH	88.83±3.47	0.037±0.006	62128.90±226.78
$\beta_\pi = 3.5$	PEEMMASMP	87.32±3.64	0.036±0.006	62234.56±224.67
$\beta_\theta = 4.0$	PEEMMASMH	88.42±3.59	0.037±0.007	62456.53±218.56
$\beta_\zeta = 4.0$	PEEMACOMC	87.43±3.43	0.033±0.006	63241.58±189.54
$\beta_\nu = 5.0$	PEEMACOMP	88.65±3.85	0.037±0.005	63245.78±189.47
$\beta_\xi = 5.0$	PEEMACOMH	87.32±3.65	0.037±0.006	62234.69±226.78
$\beta_\pi = 5.0$	PEEMMASMP	88.34±3.89	0.038±0.007	62347.97±226.48
$\beta_\theta = 5.0$	PEEMMASMH	87.18±3.65	0.037±0.006	62569.35±225.54
$\beta_\zeta = 5.0$	PEEMACOMC	84.70±4.12	0.034±0.007	63257.89±196.37
$\beta_\nu = 7.0$	PEEMACOMP	87.54±4.12	0.038±0.006	51679.32±785.43
$\beta_\xi = 7.0$	PEEMACOMH	86.43±4.34	0.036±0.006	51125.43±754.23
$\beta_\pi = 7.0$	PEEMMASMP	86.23±4.23	0.039±0.006	49765.43±784.53
$\beta_\theta = 7.0$	PEEMMASMH	82.46±4.12	0.037±0.005	48965.38±768.43
$\beta_\zeta = 7.0$	PEEMACOMC	84.78±4.32	0.034±0.005	49875.34±743.36

(d)  $T_{sm} = 4$

$\beta_\psi$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$
$\beta_\nu = 1.0$	PEEMACOMP	58.54±4.32	0.136±0.014	52134.14±727.58
$\beta_\xi = 1.0$	PEEMACOMH	56.32±4.56	0.131±0.014	51235.95±764.36
$\beta_\pi = 1.0$	PEEMMASMP	57.73±4.76	0.134±0.015	49875.65±745.49
$\beta_\theta = 1.0$	PEEMMASMH	59.27±4.78	0.136±0.016	48765.86±734.56
$\beta_\zeta = 1.0$	PEEMACOMC	61.85±4.75	0.132±0.015	46678.54±732.45
$\beta_\nu = 3.0$	PEEMACOMP	61.87±4.65	0.102±0.013	52785.36±674.53
$\beta_\xi = 3.0$	PEEMACOMH	59.34±4.69	0.111±0.013	53456.25±687.32
$\beta_\pi = 3.0$	PEEMMASMP	58.43±4.76	0.114±0.012	53456.78±638.56
$\beta_\theta = 3.0$	PEEMMASMH	61.54±4.65	0.112±0.012	54326.53±643.25
$\beta_\zeta = 3.0$	PEEMACOMC	61.68±4.67	0.117±0.012	54367.43±658.54
$\beta_\nu = 3.5$	PEEMACOMP	95.47±1.47	0.033±0.005	63156.75±185.38
$\beta_\xi = 4.0$	PEEMACOMH	98.35±1.14	0.035±0.006	62136.54±215.76
$\beta_\pi = 4.5$	PEEMMASMP	96.84±1.37	0.030±0.004	62342.56±226.57
$\beta_\theta = 4.0$	PEEMMASMH	98.49±1.12	0.030±0.004	62269.09±234.56
$\beta_\zeta = 5.0$	PEEMACOMC	94.79±1.54	0.032±0.005	64356.43±185.43
$\beta_\nu = 4.5$	PEEMACOMP	94.47±1.68	0.034±0.005	63096.54±198.65
$\beta_\xi = 5.0$	PEEMACOMH	95.37±1.47	0.036±0.006	62132.34±223.73
$\beta_\pi = 3.5$	PEEMMASMP	97.86±1.24	0.031±0.005	62326.78±216.74
$\beta_\theta = 4.0$	PEEMMASMH	96.44±1.39	0.032±0.005	62347.84±202.45
$\beta_\zeta = 4.0$	PEEMACOMC	95.34±1.45	0.029±0.004	64217.86±183.24
$\beta_\nu = 5.0$	PEEMACOMP	96.74±1.45	0.033±0.005	63246.26±196.43
$\beta_\xi = 5.0$	PEEMACOMH	95.45±1.65	0.032±0.006	62028.68±216.98
$\beta_\pi = 5.0$	PEEMMASMP	94.24±1.69	0.034±0.006	62369.02±212.38
$\beta_\theta = 5.0$	PEEMMASMH	93.32±1.85	0.033±0.005	62346.32±218.65
$\beta_\zeta = 5.0$	PEEMACOMC	92.34±1.96	0.032±0.005	64341.56±185.73
$\beta_\nu = 7.0$	PEEMACOMP	90.45±3.12	0.034±0.006	51467.65±643.67
$\beta_\xi = 7.0$	PEEMACOMH	88.90±3.54	0.032±0.005	53457.32±689.02
$\beta_\pi = 7.0$	PEEMMASMP	91.78±3.23	0.033±0.005	52368.65±654.32
$\beta_\theta = 7.0$	PEEMMASMH	90.37±3.10	0.034±0.004	50231.68±689.54
$\beta_\zeta = 7.0$	PEEMACOMC	89.45±3.32	0.030±0.004	52355.75±653.45

Table D.1: Influence of parameter  $\beta_\psi$  on the  $\bar{n}_{alg}$ ,  $\bar{\varrho}$  and  $\bar{\xi}$  metrics, for 30 nodes and  $R_g = 300$  (cont.)

(e)  $T_{sm} = 5$

(f)  $T_{sm} = 6$

$\beta_\psi$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$	$\beta_\psi$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$
$\beta_\nu = 1.0$	P <sub>EEMACOMP</sub>	60.34±3.60	0.117±0.011	52879.32±683.45	$\beta_\nu = 1.0$	P <sub>EEMACOMP</sub>	62.48±2.78	0.089±0.010	54879.23±568.39
$\beta_\xi = 1.0$	P <sub>EEMACOMH</sub>	58.64±3.86	0.126±0.012	51786.43±678.54	$\beta_\xi = 1.0$	P <sub>EEMACOMH</sub>	63.47±2.78	0.102±0.011	53568.65±589.26
$\beta_\pi = 1.0$	P <sub>EEMMASMP</sub>	58.65±3.86	0.126±0.012	50326.67±635.67	$\beta_\pi = 1.0$	P <sub>EEMMASMP</sub>	62.47±2.68	0.113±0.011	53324.68±538.75
$\beta_\varrho = 1.0$	P <sub>EEMMASMH</sub>	60.32±3.47	0.133±0.013	50546.43±657.43	$\beta_\varrho = 1.0$	P <sub>EEMMASMH</sub>	64.54±2.46	0.115±0.012	55497.43±568.64
$\beta_\zeta = 1.0$	P <sub>EEMACOMC</sub>	62.45±3.87	0.128±0.013	49647.54±643.54	$\beta_\zeta = 1.0$	P <sub>EEMACOMC</sub>	64.67±2.75	0.117±0.012	55665.78±589.43
$\beta_\nu = 3.0$	P <sub>EEMACOMP</sub>	63.45±3.58	0.096±0.010	53567.43±654.32	$\beta_\nu = 3.0$	P <sub>EEMACOMP</sub>	63.89±2.48	0.087±0.009	56745.32±568.54
$\beta_\xi = 3.0$	P <sub>EEMACOMH</sub>	63.48±3.68	0.089±0.009	53345.89±537.89	$\beta_\xi = 3.0$	P <sub>EEMACOMH</sub>	65.76±2.69	0.085±0.008	56453.23±575.68
$\beta_\pi = 3.0$	P <sub>EEMMASMP</sub>	61.37±3.88	0.094±0.010	54583.24±548.79	$\beta_\pi = 3.0$	P <sub>EEMMASMP</sub>	64.68±2.84	0.082±0.007	56554.82±586.74
$\beta_\varrho = 3.0$	P <sub>EEMMASMH</sub>	63.68±3.56	0.092±0.011	54789.32±547.87	$\beta_\varrho = 3.0$	P <sub>EEMMASMH</sub>	64.79±2.58	0.081±0.008	57894.32±536.57
$\beta_\zeta = 3.0$	P <sub>EEMACOMC</sub>	63.87±3.45	0.108±0.012	54786.54±547.86	$\beta_\zeta = 3.0$	P <sub>EEMACOMC</sub>	64.58±2.57	0.092±0.010	56778.45±556.90
$\beta_\nu = 3.5$	P <sub>EEMACOMP</sub>	97.43±1.68	0.028±0.002	63236.43±192.34	$\beta_\nu = 3.5$	P <sub>EEMACOMP</sub>	98.75±0.42	0.028±0.002	63215.43±187.45
$\beta_\xi = 4.0$	P <sub>EEMACOMH</sub>	98.43±1.34	0.031±0.003	62096.56±217.65	$\beta_\xi = 4.0$	P <sub>EEMACOMH</sub>	98.64±0.38	0.031±0.003	62226.53±209.84
$\beta_\pi = 4.5$	P <sub>EEMMASMP</sub>	97.65±1.54	0.029±0.003	62247.86±227.86	$\beta_\pi = 4.5$	P <sub>EEMMASMP</sub>	98.65±0.52	0.028±0.002	62453.76±223.46
$\beta_\varrho = 4.0$	P <sub>EEMMASMH</sub>	98.78±1.76	0.029±0.003	62436.78±226.78	$\beta_\varrho = 4.0$	P <sub>EEMMASMH</sub>	98.67±0.51	0.027±0.002	62432.45±210.65
$\beta_\zeta = 5.0$	P <sub>EEMACOMC</sub>	96.78±1.67	0.028±0.002	64786.54±176.54	$\beta_\zeta = 5.0$	P <sub>EEMACOMC</sub>	98.75±0.46	0.029±0.002	64879.07±186.74
$\beta_\nu = 4.5$	P <sub>EEMACOMP</sub>	97.65±1.74	0.027±0.002	63245.67±183.42	$\beta_\nu = 4.5$	P <sub>EEMACOMP</sub>	98.41±0.57	0.027±0.002	63198.04±176.84
$\beta_\xi = 5.0$	P <sub>EEMACOMH</sub>	96.54±1.54	0.031±0.003	62158.65±216.54	$\beta_\xi = 5.0$	P <sub>EEMACOMH</sub>	98.63±0.43	0.030±0.003	62137.64±196.74
$\beta_\pi = 3.5$	P <sub>EEMMASMP</sub>	96.78±1.76	0.030±0.003	62457.89±192.34	$\beta_\pi = 3.5$	P <sub>EEMMASMP</sub>	97.84±0.58	0.031±0.003	62327.89±186.59
$\beta_\varrho = 4.0$	P <sub>EEMMASMH</sub>	97.98±1.67	0.030±0.003	62458.64±186.75	$\beta_\varrho = 4.0$	P <sub>EEMMASMH</sub>	98.75±0.58	0.029±0.002	62532.46±178.65
$\beta_\zeta = 4.0$	P <sub>EEMACOMC</sub>	96.78±1.54	0.029±0.002	64658.54±175.67	$\beta_\zeta = 4.0$	P <sub>EEMACOMC</sub>	98.76±0.48	0.028±0.002	64784.56±168.54
$\beta_\nu = 5.0$	P <sub>EEMACOMP</sub>	97.86±1.89	0.026±0.002	62785.45±194.56	$\beta_\nu = 5.0$	P <sub>EEMACOMP</sub>	98.75±0.45	0.028±0.002	63246.53±183.47
$\beta_\xi = 5.0$	P <sub>EEMACOMH</sub>	95.90±1.67	0.029±0.002	62216.54±209.63	$\beta_\xi = 5.0$	P <sub>EEMACOMH</sub>	98.76±0.49	0.029±0.003	62068.65±187.08
$\beta_\pi = 5.0$	P <sub>EEMMASMP</sub>	98.64±1.35	0.028±0.002	62439.97±196.75	$\beta_\pi = 5.0$	P <sub>EEMMASMP</sub>	98.75±0.52	0.028±0.002	62513.40±194.56
$\beta_\varrho = 5.0$	P <sub>EEMMASMH</sub>	96.43±1.67	0.029±0.003	62215.46±197.85	$\beta_\varrho = 5.0$	P <sub>EEMMASMH</sub>	97.83±0.47	0.028±0.003	62456.78±195.78
$\beta_\zeta = 5.0$	P <sub>EEMACOMC</sub>	97.85±1.22	0.028±0.002	64217.87±176.54	$\beta_\zeta = 5.0$	P <sub>EEMACOMC</sub>	98.54±0.43	0.027±0.002	64479.65±185.60
$\beta_\nu = 7.0$	P <sub>EEMACOMP</sub>	90.45±4.12	0.028±0.002	52546.54±563.45	$\beta_\nu = 7.0$	P <sub>EEMACOMP</sub>	94.58±1.28	0.030±0.003	55591.23±467.87
$\beta_\xi = 7.0$	P <sub>EEMACOMH</sub>	88.90±4.34	0.031±0.002	55748.75±579.35	$\beta_\xi = 7.0$	P <sub>EEMACOMH</sub>	96.54±1.35	0.029±0.002	56489.78±487.98
$\beta_\pi = 7.0$	P <sub>EEMMASMP</sub>	91.78±4.23	0.028±0.002	53678.76±567.89	$\beta_\pi = 7.0$	P <sub>EEMMASMP</sub>	96.78±1.41	0.031±0.002	55830.65±538.76
$\beta_\varrho = 7.0$	P <sub>EEMMASMH</sub>	90.37±4.12	0.029±0.003	52358.54±578.90	$\beta_\varrho = 7.0$	P <sub>EEMMASMH</sub>	94.56±1.34	0.028±0.003	54679.43±587.65
$\beta_\zeta = 7.0$	P <sub>EEMACOMC</sub>	89.45±4.32	0.028±0.003	53687.54±543.87	$\beta_\zeta = 7.0$	P <sub>EEMACOMC</sub>	95.64±1.42	0.027±0.002	55892.36±564.38

Table D.2: Influence of parameter  $\beta_\psi$  on the  $\bar{n}_{alg}$ ,  $\bar{\varrho}$  and  $\bar{\xi}$  metrics, for 30 nodes and  $R_g = 500$

(a)  $T_{sm} = 1$

$\beta_\psi$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$
$\beta_\nu = 1.0$	PEEMACOMP	48.32±5.59	0.235±0.024	44569.87±965.43
$\beta_\xi = 1.0$	PEEMACOMH	46.34±5.71	0.242±0.024	42357.98±987.39
$\beta_\pi = 1.0$	PEEMMASMP	48.64±5.63	0.229±0.023	42671.70±908.12
$\beta_\theta = 1.0$	PEEMMASMH	46.74±5.57	0.245±0.025	40178.68±957.52
$\beta_\zeta = 1.0$	PEEMACOMC	47.21±5.79	0.254±0.025	43678.12±945.68
$\beta_\nu = 3.0$	PEEMACOMP	49.53±5.49	0.217±0.023	44568.93±938.50
$\beta_\xi = 3.0$	PEEMACOMH	46.74±5.82	0.229±0.023	43476.90±929.02
$\beta_\pi = 3.0$	PEEMMASMP	47.54±5.49	0.245±0.025	43412.96±949.25
$\beta_\theta = 3.0$	PEEMMASMH	45.32±5.67	0.221±0.022	44678.98±927.54
$\beta_\zeta = 3.0$	PEEMACOMC	47.21±5.83	0.246±0.024	43528.95±965.43
$\beta_\nu = 3.5$	PEEMACOMP	80.57±4.27	0.062±0.008	63257.87±238.69
$\beta_\xi = 4.0$	PEEMACOMH	76.53±4.31	0.065±0.009	63456.87±239.78
$\beta_\pi = 4.5$	PEEMMASMP	73.57±4.37	0.064±0.008	63468.96±243.74
$\beta_\theta = 4.0$	PEEMMASMH	76.43±4.29	0.067±0.010	63578.98±239.39
$\beta_\zeta = 5.0$	PEEMACOMC	78.65±4.37	0.078±0.012	63412.96±243.29
$\beta_\nu = 4.5$	PEEMACOMP	83.12±4.26	0.064±0.009	63689.09±238.20
$\beta_\xi = 4.0$	PEEMACOMH	81.45±4.10	0.063±0.008	63578.95±258.93
$\beta_\pi = 3.5$	PEEMMASMP	77.65±4.53	0.062±0.008	63689.02±232.78
$\beta_\theta = 4.0$	PEEMMASMH	78.61±4.34	0.069±0.010	63689.06±265.32
$\beta_\zeta = 4.0$	PEEMACOMC	80.43±4.26	0.076±0.011	63789.01±243.21
$\beta_\nu = 5.0$	PEEMACOMP	79.54±4.39	0.060±0.007	63687.86±245.89
$\beta_\xi = 5.0$	PEEMACOMH	78.78±4.38	0.063±0.008	63687.98±252.90
$\beta_\pi = 5.0$	PEEMMASMP	79.68±4.48	0.062±0.008	63678.98±268.95
$\beta_\theta = 5.0$	PEEMMASMH	78.59±4.63	0.065±0.009	63768.38±234.78
$\beta_\zeta = 5.0$	PEEMACOMC	82.43±4.72	0.075±0.012	63768.47±246.85
$\beta_\nu = 7.0$	PEEMACOMP	62.37±4.89	0.059±0.008	43483.85±977.58
$\beta_\xi = 7.0$	PEEMACOMH	65.43±5.27	0.064±0.009	42568.87±948.69
$\beta_\pi = 7.0$	PEEMMASMP	64.68±4.98	0.062±0.008	43578.89±967.74
$\beta_\theta = 7.0$	PEEMMASMH	67.54±4.67	0.065±0.008	42316.89±917.95
$\beta_\zeta = 7.0$	PEEMACOMC	67.43±4.75	0.075±0.009	42478.87±898.64

(b)  $T_{sm} = 2$

$\beta_\psi$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$
$\beta_\nu = 1.0$	PEEMACOMP	51.23±5.38	0.201±0.022	46873.21±864.29
$\beta_\xi = 1.0$	PEEMACOMH	49.47±5.81	0.228±0.023	44578.27±827.84
$\beta_\pi = 1.0$	PEEMMASMP	49.54±5.37	0.217±0.022	44587.23±873.52
$\beta_\theta = 1.0$	PEEMMASMH	48.79±5.23	0.236±0.024	43568.26±827.48
$\beta_\zeta = 1.0$	PEEMACOMC	49.32±5.47	0.234±0.024	46237.53±824.56
$\beta_\nu = 3.0$	PEEMACOMP	48.31±5.57	0.174±0.018	46587.32±857.48
$\beta_\xi = 3.0$	PEEMACOMH	49.37±5.51	0.182±0.019	46542.76±837.21
$\beta_\pi = 3.0$	PEEMMASMP	48.43±5.41	0.169±0.019	44528.43±853.28
$\beta_\theta = 3.0$	PEEMMASMH	49.42±5.38	0.186±0.019	46632.94±836.71
$\beta_\zeta = 3.0$	PEEMACOMC	48.31±5.49	0.158±0.018	44551.23±853.21
$\beta_\nu = 3.5$	PEEMACOMP	84.59±3.84	0.050±0.007	63835.31±242.58
$\beta_\xi = 4.0$	PEEMACOMH	82.45±3.78	0.054±0.008	63765.38±229.36
$\beta_\pi = 4.5$	PEEMMASMP	85.32±3.74	0.052±0.008	63698.35±249.54
$\beta_\theta = 4.0$	PEEMMASMH	87.41±3.51	0.051±0.008	63854.32±232.35
$\beta_\zeta = 5.0$	PEEMACOMC	83.67±3.48	0.058±0.009	63764.28±231.56
$\beta_\nu = 4.5$	PEEMACOMP	86.31±3.75	0.052±0.007	63785.34±242.78
$\beta_\xi = 5.0$	PEEMACOMH	85.83±3.60	0.053±0.008	63875.32±229.51
$\beta_\pi = 3.5$	PEEMMASMP	82.47±3.87	0.052±0.008	63865.31±243.76
$\beta_\theta = 4.0$	PEEMMASMH	83.68±3.74	0.050±0.008	63879.32±242.75
$\beta_\zeta = 4.0$	PEEMACOMC	84.59±3.67	0.057±0.009	63879.41±253.75
$\beta_\nu = 5.0$	PEEMACOMP	83.76±3.87	0.051±0.007	63876.32±246.28
$\beta_\xi = 5.0$	PEEMACOMH	82.47±3.60	0.050±0.007	63764.21±242.64
$\beta_\pi = 5.0$	PEEMMASMP	82.39±3.59	0.053±0.008	63287.48±264.76
$\beta_\theta = 5.0$	PEEMMASMH	83.60±3.68	0.049±0.006	63872.46±231.64
$\beta_\zeta = 5.0$	PEEMACOMC	84.65±3.89	0.058±0.009	63897.36±227.85
$\beta_\nu = 7.0$	PEEMACOMP	65.56±5.23	0.052±0.007	46783.21±847.32
$\beta_\xi = 7.0$	PEEMACOMH	68.43±5.06	0.053±0.008	45612.67±816.93
$\beta_\pi = 7.0$	PEEMMASMP	67.40±4.94	0.051±0.008	45783.54±814.54
$\beta_\theta = 7.0$	PEEMMASMH	68.72±4.28	0.050±0.007	45734.21±823.74
$\beta_\zeta = 7.0$	PEEMACOMC	69.03±4.43	0.056±0.008	46474.32±784.53

(c)  $T_{sm} = 3$

$\beta_\psi$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$
$\beta_\nu = 1.0$	PEEMACOMP	53.42±5.28	0.178±0.017	48725.32±708.32
$\beta_\xi = 1.0$	PEEMACOMH	52.31±5.41	0.203±0.018	47432.65±742.54
$\beta_\pi = 1.0$	PEEMMASMP	52.34±5.26	0.202±0.017	46743.28±764.52
$\beta_\theta = 1.0$	PEEMMASMH	53.48±5.12	0.212±0.019	46734.19±791.36
$\beta_\zeta = 1.0$	PEEMACOMC	53.45±5.27	0.209±0.018	48684.32±754.18
$\beta_\nu = 3.0$	PEEMACOMP	54.32±5.54	0.152±0.015	49321.32±758.32
$\beta_\xi = 3.0$	PEEMACOMH	56.78±5.28	0.163±0.016	48987.54±798.43
$\beta_\pi = 3.0$	PEEMMASMP	54.67±5.43	0.142±0.014	48743.12±783.21
$\beta_\theta = 3.0$	PEEMMASMH	53.68±5.42	0.158±0.015	49876.54±768.34
$\beta_\zeta = 3.0$	PEEMACOMC	52.78±5.21	0.147±0.015	44843.25±756.32
$\beta_\nu = 3.5$	PEEMACOMP	87.43±3.65	0.045±0.006	64321.43±186.32
$\beta_\xi = 4.0$	PEEMACOMH	86.87±3.52	0.048±0.006	64762.43±189.32
$\beta_\pi = 4.5$	PEEMMASMP	87.32±3.42	0.049±0.007	64528.96±183.27
$\beta_\theta = 4.0$	PEEMMASMH	88.45±3.31	0.045±0.006	64876.32±168.32
$\beta_\zeta = 5.0$	PEEMACOMC	86.72±3.25	0.048±0.006	64326.54±179.34
$\beta_\nu = 4.5$	PEEMACOMP	88.92±3.27	0.043±0.005	64679.03±189.43
$\beta_\xi = 5.0$	PEEMACOMH	87.21±3.46	0.045±0.005	64328.54±183.46
$\beta_\pi = 3.5$	PEEMMASMP	86.43±3.29	0.048±0.006	64578.21±197.32
$\beta_\theta = 4.0$	PEEMMASMH	85.87±3.45	0.046±0.006	64789.21±192.42
$\beta_\zeta = 4.0$	PEEMACOMC	87.62±3.32	0.047±0.006	64231.65±193.45
$\beta_\nu = 5.0$	PEEMACOMP	86.73±3.61	0.045±0.004	64231.85±197.54
$\beta_\xi = 5.0$	PEEMACOMH	85.82±3.42	0.047±0.006	64326.42±178.43
$\beta_\pi = 5.0$	PEEMMASMP	86.74±3.32	0.048±0.006	64167.42±189.34
$\beta_\theta = 5.0$	PEEMMASMH	87.32±3.41	0.049±0.007	64231.42±185.32
$\beta_\zeta = 5.0$	PEEMACOMC	86.83±3.34	0.046±0.005	63897.36±194.32
$\beta_\nu = 7.0$	PEEMACOMP	73.26±4.41	0.044±0.006	48653.23±749.85
$\beta_\xi = 7.0$	PEEMACOMH	74.38±4.21	0.047±0.006	48864.28±738.21
$\beta_\pi = 7.0$	PEEMMASMP	73.57±4.45	0.048±0.005	47632.13±732.51
$\beta_\theta = 7.0$	PEEMMASMH	72.65±4.21	0.046±0.006	48235.24±725.43
$\beta_\zeta = 7.0$	PEEMACOMC	73.31±4.13	0.047±0.006	47234.21±724.35

(d)  $T_{sm} = 4$

$\beta_\psi$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$
$\beta_\nu = 1.0$	PEEMACOMP	56.32±4.65	0.154±0.015	51367.42±524.67
$\beta_\xi = 1.0$	PEEMACOMH	54.52±4.76	0.168±0.017	51523.78±563.28
$\beta_\pi = 1.0$	PEEMMASMP	55.21±4.86	0.174±0.016	51478.32±568.24
$\beta_\theta = 1.0$	PEEMMASMH	54.87±4.54	0.178±0.018	52367.81±537.82
$\beta_\zeta = 1.0$	PEEMACOMC	55.76±4.32	0.173±0.016	52418.34±572.36
$\beta_\nu = 3.0$	PEEMACOMP	58.54±4.23	0.137±0.013	51764.34±528.54
$\beta_\xi = 3.0$	PEEMACOMH	58.64±4.56	0.148±0.014	51378.41±548.39
$\beta_\pi = 3.0$	PEEMMASMP	58.36±4.54	0.137±0.012	51378.78±537.27
$\beta_\theta = 3.0$	PEEMMASMH	57.33±4.79	0.142±0.013	52317.48±549.23
$\beta_\zeta = 3.0$	PEEMACOMC	57.64±4.37	0.141±0.013	48487.43±578.43
$\beta_\nu = 3.5$	PEEMACOMP	91.32±1.23	0.043±0.004	64893.56±169.32
$\beta_\xi = 4.0$	PEEMACOMH	92.54±1.28	0.044±0.005	64732.18±179.32
$\beta_\pi = 4.5$	PEEMMASMP	92.45±1.52	0.044±0.005	64643.28±184.28
$\beta_\theta = 4.0$	PEEMMASMH	92.45±1.27	0.042±0.004	64743.28±165.87
$\beta_\zeta = 5.0$	PEEMACOMC	94.41±1.18	0.046±0.006	64769.32±167.32
$\beta_\nu = 4.5$	PEEMACOMP	92.34±1.42	0.040±0.004	64784.39±179.32
$\beta_\xi = 5.0$	PEEMACOMH	92.31±1.48	0.042±0.005	64328.54±167.42
$\beta_\pi = 3.5$	PEEMMASMP	93.42±1.28	0.043±0.005	64652.81±158.36
$\beta_\theta = 4.0$	PEEMMASMH	91.24±1.59	0.043±0.005	64692.40±175.32
$\beta_\zeta = 4.0$	PEEMACOMC	92.84±1.56	0.046±0.006	64467.28±183.56
$\beta_\nu = 5.0$	PEEMACOMP	92.45±1.42	0.041±0.004	64683.68±187.35
$\beta_\xi = 5.0$	PEEMACOMH	93.56±1.69	0.043±0.005	64573.89±168.43
$\beta_\pi = 5.0$	PEEMMASMP	94.31±1.58	0.044±0.004	64358.28±175.23
$\beta_\theta = 5.0$	PEEMMASMH	93.45±1.42	0.043±0.005	64487.29±168.34
$\beta_\zeta = 5.0$	PEEMACOMC	94.21±1.23	0.045±0.005	64468.37±176.26
$\beta_\nu = 7.0$	PEEMACOMP	76.42±3.48	0.043±0.004	52678.38±548.84
$\beta_\xi = 7.0$	PEEMACOMH	77.53±3.67	0.044±0.005	51278.39±532.65
$\beta_\pi = 7.0$	PEEMMASMP	76.27±3.53	0.042±0.004	52689.30±548.27
$\beta_\theta = 7.0$	PEEMMASMH	75.43±3.67	0.043±0.005	52378.87±546.32
$\beta_\zeta = 7.0$	PEEMACOMC	77.25±3.45	0.046±0.005	51379.43±568.32

Table D.2: Influence of parameter  $\beta_\psi$  on the  $\bar{n}_{alg}$ ,  $\bar{\varrho}$  and  $\bar{\xi}$  metrics, for 30 nodes and  $R_g = 500$  (cont.)

(e)  $T_{sm} = 5$

$\beta_\psi$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$
$\beta_\nu = 1.0$	P <sub>EEMACOMP</sub>	62.36±3.68	0.136±0.012	52468.32±462.63
$\beta_\xi = 1.0$	P <sub>EEMACOMH</sub>	60.36±3.87	0.142±0.013	51679.43±478.32
$\beta_\pi = 1.0$	P <sub>EEMMASMP</sub>	59.41±3.75	0.141±0.013	51743.28±482.46
$\beta_\varrho = 1.0$	P <sub>EEMMASMH</sub>	58.95±3.68	0.138±0.012	53458.21±457.21
$\beta_\zeta = 1.0$	P <sub>EEMACOMC</sub>	58.45±3.64	0.139±0.012	53679.21±458.43
$\beta_\nu = 3.0$	P <sub>EEMACOMP</sub>	60.43±3.59	0.113±0.011	53578.54±437.85
$\beta_\xi = 3.0$	P <sub>EEMACOMH</sub>	61.69±3.53	0.121±0.011	53532.89±468.42
$\beta_\pi = 3.0$	P <sub>EEMMASMP</sub>	62.78±3.67	0.116±0.010	52476.32±478.34
$\beta_\varrho = 3.0$	P <sub>EEMMASMH</sub>	63.47±3.73	0.123±0.010	53648.21±437.84
$\beta_\zeta = 3.0$	P <sub>EEMACOMC</sub>	62.40±3.65	0.117±0.009	52678.32±462.74
$\beta_\nu = 3.5$	P <sub>EEMACOMP</sub>	94.53±1.16	0.040±0.004	65135.84±162.48
$\beta_\xi = 4.0$	P <sub>EEMACOMH</sub>	94.79±1.14	0.042±0.004	64876.35±160.34
$\beta_\pi = 4.5$	P <sub>EEMMASMP</sub>	94.78±1.21	0.042±0.005	64967.43±168.36
$\beta_\varrho = 4.0$	P <sub>EEMMASMH</sub>	94.76±1.13	0.043±0.004	64978.32±157.21
$\beta_\zeta = 5.0$	P <sub>EEMACOMC</sub>	95.67±1.02	0.044±0.005	64896.85±158.32
$\beta_\nu = 4.5$	P <sub>EEMACOMP</sub>	95.28±1.32	0.041±0.004	64876.48±168.03
$\beta_\xi = 5.0$	P <sub>EEMACOMH</sub>	96.73±1.28	0.042±0.005	64768.36±179.32
$\beta_\pi = 3.5$	P <sub>EEMMASMP</sub>	95.67±1.28	0.041±0.004	64785.35±169.21
$\beta_\varrho = 4.0$	P <sub>EEMMASMH</sub>	94.61±1.41	0.041±0.004	64895.54±175.32
$\beta_\zeta = 4.0$	P <sub>EEMACOMC</sub>	95.72±1.23	0.042±0.004	64869.45±178.42
$\beta_\nu = 5.0$	P <sub>EEMACOMP</sub>	94.68±1.25	0.041±0.004	65130.74±185.74
$\beta_\xi = 5.0$	P <sub>EEMACOMH</sub>	95.73±1.23	0.042±0.004	64768.32±162.69
$\beta_\pi = 5.0$	P <sub>EEMMASMP</sub>	95.48±1.12	0.044±0.006	64673.40±172.68
$\beta_\varrho = 5.0$	P <sub>EEMMASMH</sub>	94.68±1.03	0.041±0.004	64789.48±171.28
$\beta_\zeta = 5.0$	P <sub>EEMACOMC</sub>	96.71±1.02	0.041±0.005	64867.43±172.43
$\beta_\nu = 7.0$	P <sub>EEMACOMP</sub>	78.43±2.96	0.042±0.005	53674.32±445.32
$\beta_\xi = 7.0$	P <sub>EEMACOMH</sub>	78.32±2.68	0.041±0.004	54527.85±476.43
$\beta_\pi = 7.0$	P <sub>EEMMASMP</sub>	78.35±2.89	0.041±0.004	54749.32±487.45
$\beta_\varrho = 7.0$	P <sub>EEMMASMH</sub>	77.93±2.74	0.042±0.004	54638.32±478.45
$\beta_\zeta = 7.0$	P <sub>EEMACOMC</sub>	79.42±2.56	0.041±0.005	53689.32±468.47

(f)  $T_{sm} = 6$

$\beta_\psi$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$
$\beta_\nu = 1.0$	P <sub>EEMACOMP</sub>	66.47±2.59	0.117±0.012	53470.53±354.72
$\beta_\xi = 1.0$	P <sub>EEMACOMH</sub>	64.21±2.68	0.125±0.013	52548.54±381.43
$\beta_\pi = 1.0$	P <sub>EEMMASMP</sub>	62.83±2.96	0.121±0.012	52876.49±378.43
$\beta_\varrho = 1.0$	P <sub>EEMMASMH</sub>	64.89±2.86	0.119±0.011	54679.36±375.32
$\beta_\zeta = 1.0$	P <sub>EEMACOMC</sub>	64.56±2.75	0.123±0.011	55428.21±368.46
$\beta_\nu = 3.0$	P <sub>EEMACOMP</sub>	65.32±2.73	0.087±0.010	55769.32±378.54
$\beta_\xi = 3.0$	P <sub>EEMACOMH</sub>	64.75±2.54	0.086±0.008	54628.32±359.56
$\beta_\pi = 3.0$	P <sub>EEMMASMP</sub>	66.48±2.95	0.092±0.009	53528.49±367.39
$\beta_\varrho = 3.0$	P <sub>EEMMASMH</sub>	65.69±2.86	0.086±0.009	54619.43±376.39
$\beta_\zeta = 3.0$	P <sub>EEMACOMC</sub>	65.37±2.68	0.067±0.008	54783.91±387.43
$\beta_\nu = 3.5$	P <sub>EEMACOMP</sub>	98.43±0.36	0.038±0.004	65132.56±173.24
$\beta_\xi = 4.0$	P <sub>EEMACOMH</sub>	98.65±0.36	0.040±0.004	64917.65±166.43
$\beta_\pi = 4.5$	P <sub>EEMMASMP</sub>	98.63±0.32	0.039±0.005	65108.41±172.54
$\beta_\varrho = 4.0$	P <sub>EEMMASMH</sub>	98.32±0.28	0.039±0.005	64995.48±164.38
$\beta_\zeta = 5.0$	P <sub>EEMACOMC</sub>	97.63±0.35	0.040±0.005	65216.75±168.32
$\beta_\nu = 4.5$	P <sub>EEMACOMP</sub>	97.85±0.38	0.039±0.005	65218.28±168.21
$\beta_\xi = 5.0$	P <sub>EEMACOMH</sub>	98.43±0.42	0.041±0.005	64875.49±182.46
$\beta_\pi = 3.5$	P <sub>EEMMASMP</sub>	97.54±0.39	0.039±0.004	64842.18±172.47
$\beta_\varrho = 4.0$	P <sub>EEMMASMH</sub>	98.43±0.43	0.039±0.004	64978.42±179.21
$\beta_\zeta = 4.0$	P <sub>EEMACOMC</sub>	97.43±0.38	0.040±0.005	65237.65±164.28
$\beta_\nu = 5.0$	P <sub>EEMACOMP</sub>	98.56±0.38	0.040±0.004	65174.29±174.53
$\beta_\xi = 5.0$	P <sub>EEMACOMH</sub>	97.54±0.37	0.040±0.005	64875.34±157.42
$\beta_\pi = 5.0$	P <sub>EEMMASMP</sub>	98.38±0.36	0.041±0.005	64843.76±164.86
$\beta_\varrho = 5.0$	P <sub>EEMMASMH</sub>	96.94±0.34	0.039±0.004	64875.39±168.43
$\beta_\zeta = 5.0$	P <sub>EEMACOMC</sub>	98.45±0.32	0.038±0.005	65328.52±167.43
$\beta_\nu = 7.0$	P <sub>EEMACOMP</sub>	82.54±1.70	0.039±0.005	55734.85±379.42
$\beta_\xi = 7.0$	P <sub>EEMACOMH</sub>	84.53±1.59	0.039±0.004	56387.51±372.59
$\beta_\pi = 7.0$	P <sub>EEMMASMP</sub>	82.38±1.48	0.040±0.005	55841.74±347.89
$\beta_\varrho = 7.0$	P <sub>EEMMASMH</sub>	84.32±1.67	0.041±0.005	55874.32±386.42
$\beta_\zeta = 7.0$	P <sub>EEMACOMC</sub>	83.28±1.78	0.040±0.004	55278.32±365.74

Table D.3: Influence of parameter  $\beta_\psi$  on the  $\bar{n}_{alg}$ ,  $\bar{\varrho}$  and  $\bar{\xi}$  metrics, for 30 nodes and  $R_g = 800$

(a)  $T_{sm} = 1$

$\beta_\psi$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$
$\beta_\nu = 1.0$	PEEMACOMP	44.65±5.92	0.264±0.027	42316.37±942.54
$\beta_\xi = 1.0$	PEEMACOMH	41.68±5.97	0.278±0.028	41235.65±960.32
$\beta_\pi = 1.0$	PEEMMASMP	45.78±6.12	0.247±0.026	41674.23±957.36
$\beta_e = 1.0$	PEEMMASMH	45.37±6.27	0.259±0.027	39123.45±976.21
$\beta_\zeta = 1.0$	PEEMACOMC	46.57±6.31	0.239±0.025	41345.43±967.32
$\beta_\nu = 3.0$	PEEMACOMP	47.34±6.13	0.232±0.023	42456.21±939.42
$\beta_\xi = 3.0$	PEEMACOMH	40.32±5.38	0.255±0.026	41326.48±942.65
$\beta_\pi = 3.0$	PEEMMASMP	45.78±6.26	0.245±0.024	41267.74±953.48
$\beta_e = 3.0$	PEEMMASMH	44.12±6.23	0.234±0.023	41356.27±937.21
$\beta_\zeta = 3.0$	PEEMACOMC	43.56±5.97	0.257±0.026	42347.21±987.46
$\beta_\nu = 3.5$	PEEMACOMP	77.43±3.82	0.121±0.013	62457.75±256.32
$\beta_\xi = 4.0$	PEEMACOMH	51.38±5.68	0.158±0.021	62453.27±253.21
$\beta_\pi = 4.5$	PEEMMASMP	76.84±3.75	0.118±0.012	62435.67±260.34
$\beta_e = 4.0$	PEEMMASMH	74.38±3.85	0.117±0.012	62456.87±263.52
$\beta_\zeta = 5.0$	PEEMACOMC	75.76±3.95	0.145±0.019	62121.45±264.32
$\beta_\nu = 4.5$	PEEMACOMP	78.34±3.25	0.124±0.012	62347.21±268.32
$\beta_\xi = 5.0$	PEEMACOMH	52.65±5.45	0.157±0.021	62413.67±276.32
$\beta_\pi = 3.5$	PEEMMASMP	76.38±3.76	0.123±0.012	62437.12±265.32
$\beta_e = 4.0$	PEEMMASMH	73.76±3.98	0.120±0.013	62357.24±246.32
$\beta_\zeta = 4.0$	PEEMACOMC	75.83±3.68	0.147±0.019	62179.58±259.32
$\beta_\nu = 5.0$	PEEMACOMP	76.48±3.79	0.123±0.013	62318.43±252.31
$\beta_\xi = 5.0$	PEEMACOMH	49.36±5.62	0.160±0.020	62568.43±263.20
$\beta_\pi = 5.0$	PEEMMASMP	72.57±3.87	0.124±0.013	62537.95±267.34
$\beta_e = 5.0$	PEEMMASMH	74.69±3.86	0.122±0.013	62457.32±252.43
$\beta_\zeta = 5.0$	PEEMACOMC	76.38±3.92	0.152±0.018	62168.65±258.43
$\beta_\nu = 7.0$	PEEMACOMP	60.27±4.42	0.122±0.013	41357.43±921.54
$\beta_\xi = 7.0$	PEEMACOMH	45.65±5.93	0.162±0.019	40235.42±907.43
$\beta_\pi = 7.0$	PEEMMASMP	61.28±4.32	0.118±0.013	42315.32±975.75
$\beta_e = 7.0$	PEEMMASMH	63.67±4.42	0.117±0.012	41562.78±932.43
$\beta_\zeta = 7.0$	PEEMACOMC	62.67±4.46	0.147±0.017	41246.32±923.84

(b)  $T_{sm} = 2$

$\beta_\psi$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$
$\beta_\nu = 1.0$	PEEMACOMP	44.75±5.23	0.242±0.024	44572.48±875.32
$\beta_\xi = 1.0$	PEEMACOMH	38.27±4.78	0.258±0.026	42568.32±865.34
$\beta_\pi = 1.0$	PEEMMASMP	44.37±5.78	0.229±0.023	44684.32±874.23
$\beta_e = 1.0$	PEEMMASMH	43.28±5.56	0.227±0.023	42168.38±891.25
$\beta_\zeta = 1.0$	PEEMACOMC	44.89±5.23	0.218±0.021	43451.56±864.29
$\beta_\nu = 3.0$	PEEMACOMP	48.34±5.78	0.221±0.020	45628.92±875.43
$\beta_\xi = 3.0$	PEEMACOMH	41.85±5.61	0.238±0.022	44567.38±859.32
$\beta_\pi = 3.0$	PEEMMASMP	46.87±5.43	0.221±0.021	45672.49±867.32
$\beta_e = 3.0$	PEEMMASMH	46.38±5.74	0.216±0.019	43563.81±879.43
$\beta_\zeta = 3.0$	PEEMACOMC	46.39±5.53	0.236±0.023	44671.49±869.32
$\beta_\nu = 3.5$	PEEMACOMP	80.43±2.56	0.101±0.014	63215.37±198.56
$\beta_\xi = 4.0$	PEEMACOMH	44.65±5.34	0.162±0.017	63458.39±187.34
$\beta_\pi = 4.5$	PEEMMASMP	79.54±2.79	0.106±0.012	63451.87±189.46
$\beta_e = 4.0$	PEEMMASMH	77.31±2.67	0.107±0.011	63486.83±196.36
$\beta_\zeta = 5.0$	PEEMACOMC	76.38±2.58	0.134±0.018	63151.78±197.34
$\beta_\nu = 4.5$	PEEMACOMP	79.87±2.58	0.105±0.013	63268.54±185.64
$\beta_\xi = 5.0$	PEEMACOMH	46.32±5.32	0.164±0.018	63478.85±179.54
$\beta_\pi = 3.5$	PEEMMASMP	79.32±2.79	0.108±0.012	63679.36±193.45
$\beta_e = 4.0$	PEEMMASMH	76.86±2.48	0.106±0.011	63589.27±196.38
$\beta_\zeta = 4.0$	PEEMACOMC	77.43±2.58	0.132±0.018	63479.26±185.32
$\beta_\nu = 5.0$	PEEMACOMP	78.65±2.58	0.103±0.012	63456.28±189.34
$\beta_\xi = 5.0$	PEEMACOMH	45.21±5.23	0.161±0.017	63268.48±178.43
$\beta_\pi = 5.0$	PEEMMASMP	77.54±2.76	0.107±0.012	63467.28±179.32
$\beta_e = 5.0$	PEEMMASMH	79.76±2.48	0.104±0.011	63542.67±168.04
$\beta_\zeta = 5.0$	PEEMACOMC	78.43±2.56	0.135±0.017	63417.43±185.39
$\beta_\nu = 7.0$	PEEMACOMP	64.35±4.12	0.105±0.012	44576.32±823.45
$\beta_\xi = 7.0$	PEEMACOMH	47.21±5.46	0.164±0.018	42478.32±826.74
$\beta_\pi = 7.0$	PEEMMASMP	64.73±4.08	0.110±0.013	43578.31±858.32
$\beta_e = 7.0$	PEEMMASMH	63.89±4.25	0.103±0.011	44562.38±854.10
$\beta_\zeta = 7.0$	PEEMACOMC	63.78±4.13	0.132±0.016	44267.21±843.76

(c)  $T_{sm} = 3$

$\beta_\psi$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$
$\beta_\nu = 1.0$	PEEMACOMP	47.43±5.32	0.213±0.019	46432.78±764.35
$\beta_\xi = 1.0$	PEEMACOMH	42.87±5.67	0.224±0.021	45648.35±785.84
$\beta_\pi = 1.0$	PEEMMASMP	48.32±5.59	0.213±0.020	45876.48±748.63
$\beta_e = 1.0$	PEEMMASMH	46.52±5.48	0.208±0.020	44675.39±743.56
$\beta_\zeta = 1.0$	PEEMACOMC	47.32±5.64	0.203±0.019	45673.28±785.32
$\beta_\nu = 3.0$	PEEMACOMP	49.32±5.31	0.204±0.019	47845.21±754.28
$\beta_\xi = 3.0$	PEEMACOMH	43.58±5.73	0.210±0.020	47641.09±765.36
$\beta_\pi = 3.0$	PEEMMASMP	49.32±5.63	0.196±0.019	46539.27±785.34
$\beta_e = 3.0$	PEEMMASMH	48.31±5.47	0.189±0.018	46638.28±786.34
$\beta_\zeta = 3.0$	PEEMACOMC	48.65±5.31	0.175±0.018	46861.28±756.28
$\beta_\nu = 3.5$	PEEMACOMP	87.23±2.37	0.090±0.013	64231.57±187.45
$\beta_\xi = 4.0$	PEEMACOMH	61.32±4.87	0.117±0.015	64523.87±189.43
$\beta_\pi = 4.5$	PEEMMASMP	85.64±2.68	0.092±0.014	64376.21±178.34
$\beta_e = 4.0$	PEEMMASMH	87.32±2.46	0.093±0.013	64231.76±172.72
$\beta_\zeta = 5.0$	PEEMACOMC	87.34±2.43	0.113±0.016	64326.75±178.43
$\beta_\nu = 4.5$	PEEMACOMP	88.34±2.38	0.089±0.014	64532.62±183.35
$\beta_\xi = 5.0$	PEEMACOMH	62.81±4.75	0.121±0.016	64325.66±189.12
$\beta_\pi = 3.5$	PEEMMASMP	84.19±2.57	0.095±0.015	64512.64±190.32
$\beta_e = 4.0$	PEEMMASMH	85.23±2.42	0.097±0.015	64235.68±191.23
$\beta_\zeta = 4.0$	PEEMACOMC	86.31±2.43	0.116±0.015	64325.57±186.64
$\beta_\nu = 5.0$	PEEMACOMP	88.74±2.21	0.093±0.013	64231.65±192.54
$\beta_\xi = 5.0$	PEEMACOMH	63.71±4.73	0.123±0.016	64321.67±178.32
$\beta_\pi = 5.0$	PEEMMASMP	87.43±2.45	0.097±0.013	64317.54±187.24
$\beta_e = 5.0$	PEEMMASMH	85.63±2.32	0.098±0.014	64326.64±172.43
$\beta_\zeta = 5.0$	PEEMACOMC	84.36±2.34	0.118±0.017	64587.21±185.39
$\beta_\nu = 7.0$	PEEMACOMP	69.37±4.49	0.096±0.013	46367.21±734.23
$\beta_\xi = 7.0$	PEEMACOMH	53.58±5.56	0.126±0.018	45427.34±768.34
$\beta_\pi = 7.0$	PEEMMASMP	67.39±4.68	0.096±0.012	44532.76±758.32
$\beta_e = 7.0$	PEEMMASMH	66.37±4.47	0.095±0.012	44562.38±784.20
$\beta_\zeta = 7.0$	PEEMACOMC	64.75±4.32	0.116±0.017	45789.32±754.32

(d)  $T_{sm} = 4$

$\beta_\psi$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$
$\beta_\nu = 1.0$	PEEMACOMP	52.43±4.23	0.178±0.018	48569.34±645.28
$\beta_\xi = 1.0$	PEEMACOMH	43.48±4.54	0.186±0.017	47834.23±648.23
$\beta_\pi = 1.0$	PEEMMASMP	51.67±4.32	0.202±0.019	47562.39±648.34
$\beta_e = 1.0$	PEEMMASMH	48.32±4.38	0.197±0.019	46739.32±648.23
$\beta_\zeta = 1.0$	PEEMACOMC	48.17±4.42	0.186±0.018	46893.58±657.21
$\beta_\nu = 3.0$	PEEMACOMP	51.28±4.25	0.172±0.017	47987.34±674.23
$\beta_\xi = 3.0$	PEEMACOMH	48.63±4.41	0.164±0.016	47876.23±679.24
$\beta_\pi = 3.0$	PEEMMASMP	51.28±4.23	0.186±0.018	46876.32±648.23
$\beta_e = 3.0$	PEEMMASMH	51.67±4.31	0.188±0.018	47634.18±648.62
$\beta_\zeta = 3.0$	PEEMACOMC	52.48±4.27	0.162±0.017	47892.43±657.34
$\beta_\nu = 3.5$	PEEMACOMP	90.24±1.78	0.080±0.008	65324.74±167.34
$\beta_\xi = 4.0$	PEEMACOMH	48.79±4.34	0.145±0.015	64875.23±169.32
$\beta_\pi = 4.5$	PEEMMASMP	90.24±1.67	0.083±0.008	65123.54±172.46
$\beta_e = 4.0$	PEEMMASMH	91.68±1.65	0.084±0.009	64897.32±182.34
$\beta_\zeta = 5.0$	PEEMACOMC	91.43±1.72	0.106±0.009	64875.93±164.67
$\beta_\nu = 4.5$	PEEMACOMP	91.54±1.56	0.081±0.008	65134.26±157.21
$\beta_\xi = 5.0$	PEEMACOMH	49.23±4.34	0.147±0.016	64587.21±186.39
$\beta_\pi = 3.5$	PEEMMASMP	90.23±1.47	0.082±0.008	65236.28±175.31
$\beta_e = 4.0$	PEEMMASMH	90.45±1.38	0.083±0.009	64468.19±176.34
$\beta_\zeta = 4.0$	PEEMACOMC	89.38±1.42	0.107±0.009	64673.82±184.52
$\beta_\nu = 5.0$	PEEMACOMP	91.54±1.35	0.079±0.008	65126.38±183.41
$\beta_\xi = 5.0$	PEEMACOMH	48.25±4.45	0.151±0.016	64437.75±176.34
$\beta_\pi = 5.0$	PEEMMASMP	91.32±1.36	0.083±0.008	65178.34±178.34
$\beta_e = 5.0$	PEEMMASMH	89.43±1.37	0.083±0.008	64258.54±164.28
$\beta_\zeta = 5.0$	PEEMACOMC	88.45±1.27	0.108±0.009	64731.84±163.58
$\beta_\nu = 7.0$	PEEMACOMP	91.48±1.38	0.076±0.007	48356.75±623.58
$\beta_\xi = 7.0$	PEEMACOMH	50.32±4.37	0.154±0.015	47834.28±628.56
$\beta_\pi = 7.0$	PEEMMASMP	91.45±1.37	0.085±0.008	46735.18±684.32
$\beta_e = 7.0$	PEEMMASMH	87.23±1.42	0.087±0.009	46438.29±672.38
$\beta_\zeta = 7.0$	PEEMACOMC	92.42±1.48	0.109±0.010	46849.03±673.61

Table D.3: Influence of parameter  $\beta_\psi$  on the  $\bar{n}_{alg}$ ,  $\bar{\varrho}$  and  $\bar{\xi}$  metrics, for 30 nodes and  $R_g = 800$  (cont.)

(e)  $T_{sm} = 5$

$\beta_\psi$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$
$\beta_\nu = 1.0$	P <sub>EEMACOMP</sub>	56.89±3.78	0.153±0.016	51678.29±546.58
$\beta_\xi = 1.0$	P <sub>EEMACOMH</sub>	46.48±4.43	0.156±0.015	52368.21±548.28
$\beta_\pi = 1.0$	P <sub>EEMMASMP</sub>	54.87±3.65	0.180±0.018	50158.38±528.49
$\beta_\varrho = 1.0$	P <sub>EEMMASMH</sub>	57.59±3.58	0.165±0.017	48689.21±538.42
$\beta_\zeta = 1.0$	P <sub>EEMACOMC</sub>	57.47±3.58	0.164±0.017	51674.39±538.27
$\beta_\nu = 3.0$	P <sub>EEMACOMP</sub>	56.28±3.68	0.134±0.014	52479.35±547.89
$\beta_\xi = 3.0$	P <sub>EEMACOMH</sub>	51.73±4.27	0.145±0.015	53478.94±538.91
$\beta_\pi = 3.0$	P <sub>EEMMASMP</sub>	57.38±3.48	0.157±0.016	52368.73±527.38
$\beta_\varrho = 3.0$	P <sub>EEMMASMH</sub>	57.43±3.84	0.143±0.015	52379.68±539.32
$\beta_\zeta = 3.0$	P <sub>EEMACOMC</sub>	56.32±3.75	0.141±0.015	52198.48±528.84
$\beta_\nu = 3.5$	P <sub>EEMACOMP</sub>	94.35±1.54	0.076±0.007	65247.12±157.41
$\beta_\xi = 4.0$	P <sub>EEMACOMH</sub>	67.37±2.50	0.111±0.010	65108.26±162.37
$\beta_\pi = 4.5$	P <sub>EEMMASMP</sub>	95.21±1.45	0.080±0.008	65121.54±167.23
$\beta_\varrho = 4.0$	P <sub>EEMMASMH</sub>	94.78±1.53	0.078±0.008	64978.32±158.37
$\beta_\zeta = 5.0$	P <sub>EEMACOMC</sub>	95.67±1.48	0.104±0.011	64984.32±148.27
$\beta_\nu = 4.5$	P <sub>EEMACOMP</sub>	94.68±1.62	0.078±0.007	65247.12±152.59
$\beta_\xi = 5.0$	P <sub>EEMACOMH</sub>	68.32±2.48	0.112±0.012	65141.58±176.32
$\beta_\pi = 3.5$	P <sub>EEMMASMP</sub>	95.68±1.68	0.081±0.008	65126.78±165.23
$\beta_\varrho = 4.0$	P <sub>EEMMASMH</sub>	94.38±1.64	0.080±0.008	64789.23±168.34
$\beta_\zeta = 4.0$	P <sub>EEMACOMC</sub>	94.68±1.53	0.102±0.010	64853.68±178.31
$\beta_\nu = 5.0$	P <sub>EEMACOMP</sub>	93.68±1.57	0.074±0.008	65331.56±167.32
$\beta_\xi = 5.0$	P <sub>EEMACOMH</sub>	69.32±2.56	0.110±0.013	65135.61±165.32
$\beta_\pi = 5.0$	P <sub>EEMMASMP</sub>	95.78±1.47	0.078±0.007	65231.67±168.32
$\beta_\varrho = 5.0$	P <sub>EEMMASMH</sub>	94.67±1.48	0.078±0.007	65109.43±154.29
$\beta_\zeta = 5.0$	P <sub>EEMACOMC</sub>	95.32±1.32	0.104±0.010	65123.56±153.28
$\beta_\nu = 7.0$	P <sub>EEMACOMP</sub>	92.63±1.42	0.074±0.008	52338.41±623.58
$\beta_\xi = 7.0$	P <sub>EEMACOMH</sub>	68.32±2.57	0.108±0.012	50279.32±538.35
$\beta_\pi = 7.0$	P <sub>EEMMASMP</sub>	93.87±1.48	0.081±0.007	50368.88±536.21
$\beta_\varrho = 7.0$	P <sub>EEMMASMH</sub>	92.59±1.47	0.082±0.008	48378.28±537.28
$\beta_\zeta = 7.0$	P <sub>EEMACOMC</sub>	91.87±1.31	0.103±0.009	48765.46±543.61

(f)  $T_{sm} = 6$

$\beta_\psi$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$
$\beta_\nu = 1.0$	P <sub>EEMACOMP</sub>	57.12±3.47	0.132±0.014	53468.68±487.45
$\beta_\xi = 1.0$	P <sub>EEMACOMH</sub>	48.41±4.26	0.135±0.014	52367.94±475.27
$\beta_\pi = 1.0$	P <sub>EEMMASMP</sub>	57.46±3.54	0.147±0.016	52346.76±458.42
$\beta_\varrho = 1.0$	P <sub>EEMMASMH</sub>	58.94±3.43	0.146±0.016	51237.54±467.38
$\beta_\zeta = 1.0$	P <sub>EEMACOMC</sub>	58.67±3.47	0.137±0.015	52678.45±438.73
$\beta_\nu = 3.0$	P <sub>EEMACOMP</sub>	58.34±3.62	0.127±0.013	53683.64±468.32
$\beta_\xi = 3.0$	P <sub>EEMACOMH</sub>	52.67±3.79	0.125±0.013	54328.38±472.39
$\beta_\pi = 3.0$	P <sub>EEMMASMP</sub>	58.43±3.45	0.131±0.014	53678.75±473.84
$\beta_\varrho = 3.0$	P <sub>EEMMASMH</sub>	59.43±3.12	0.132±0.014	53681.43±468.22
$\beta_\zeta = 3.0$	P <sub>EEMACOMC</sub>	58.21±3.23	0.123±0.013	54128.62±438.50
$\beta_\nu = 3.5$	P <sub>EEMACOMP</sub>	96.78±0.41	0.073±0.006	65283.23±153.57
$\beta_\xi = 4.0$	P <sub>EEMACOMH</sub>	76.65±2.47	0.106±0.009	65139.49±157.28
$\beta_\pi = 4.5$	P <sub>EEMMASMP</sub>	96.32±0.48	0.078±0.007	65246.81±148.75
$\beta_\varrho = 4.0$	P <sub>EEMMASMH</sub>	95.78±0.47	0.079±0.008	65160.05±149.41
$\beta_\zeta = 5.0$	P <sub>EEMACOMC</sub>	96.87±0.51	0.092±0.008	65237.17±146.18
$\beta_\nu = 4.5$	P <sub>EEMACOMP</sub>	97.45±0.35	0.074±0.007	65358.38±148.96
$\beta_\xi = 5.0$	P <sub>EEMACOMH</sub>	77.84±2.34	0.109±0.010	65185.33±154.32
$\beta_\pi = 3.5$	P <sub>EEMMASMP</sub>	97.54±0.25	0.080±0.008	65268.44±159.36
$\beta_\varrho = 4.0$	P <sub>EEMMASMH</sub>	95.68±0.47	0.078±0.007	65148.43±151.82
$\beta_\zeta = 4.0$	P <sub>EEMACOMC</sub>	97.65±0.57	0.095±0.009	65206.66±159.43
$\beta_\nu = 5.0$	P <sub>EEMACOMP</sub>	97.54±0.27	0.075±0.007	65368.24±151.26
$\beta_\xi = 5.0$	P <sub>EEMACOMH</sub>	78.11±2.67	0.106±0.010	65247.48±148.53
$\beta_\pi = 5.0$	P <sub>EEMMASMP</sub>	96.54±0.66	0.076±0.007	65369.17±151.48
$\beta_\varrho = 5.0$	P <sub>EEMMASMH</sub>	95.67±0.49	0.079±0.007	65369.32±152.48
$\beta_\zeta = 5.0$	P <sub>EEMACOMC</sub>	97.82±0.58	0.097±0.009	65138.49±156.99
$\beta_\nu = 7.0$	P <sub>EEMACOMP</sub>	94.43±1.37	0.073±0.007	54163.47±543.73
$\beta_\xi = 7.0$	P <sub>EEMACOMH</sub>	73.19±2.78	0.107±0.010	52479.76±547.54
$\beta_\pi = 7.0$	P <sub>EEMMASMP</sub>	93.92±1.52	0.075±0.007	52689.43±549.21
$\beta_\varrho = 7.0$	P <sub>EEMMASMH</sub>	92.45±1.36	0.078±0.008	47864.57±568.32
$\beta_\zeta = 7.0$	P <sub>EEMACOMC</sub>	93.78±1.31	0.098±0.010	47894.22±563.89

Table D.4: Influence of parameter  $r_0$  on the  $\bar{n}_{alg}$ ,  $\bar{\varrho}$  and  $\bar{\xi}$  metrics, for 30 nodes and  $R_g = 300$

(a) $T_{sm} = 1$					(b) $T_{sm} = 2$				
$r_0$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$	$r_0$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$
0.1	P <sub>EEMACOMP</sub>	58.32±5.23	0.216±0.021	45123.28±1211.21	0.1	P <sub>EEMACOMP</sub>	64.21±4.12	0.149±0.016	45123.28±1165.13
	P <sub>EEMACOMH</sub>	55.17±6.23	0.238±0.023	43234.19±1326.15		P <sub>EEMACOMH</sub>	60.28±3.89	0.198±0.018	46234.12±1026.45
	P <sub>EEMACOMC</sub>	52.29±6.48	0.272±0.025	46156.21±1129.75		P <sub>EEMACOMC</sub>	59.34±4.25	0.223±0.022	48234.15±1089.43
0.3	P <sub>EEMACOMP</sub>	61.35±4.26	0.176±0.015	47657.56±1123.69	0.3	P <sub>EEMACOMP</sub>	68.23±3.12	0.134±0.013	48123.24±1024.12
	P <sub>EEMACOMH</sub>	58.87±5.76	0.197±0.017	45864.43±1178.28		P <sub>EEMACOMH</sub>	63.45±4.16	0.153±0.015	46987.23±1054.23
	P <sub>EEMACOMC</sub>	54.38±5.97	0.251±0.023	48234.76±1031.65		P <sub>EEMACOMC</sub>	66.13±3.26	0.178±0.013	49134.73±1012.34
0.5	P <sub>EEMACOMP</sub>	86.28±1.36	0.062±0.005	59649.56± 823.69	0.5	P <sub>EEMACOMP</sub>	92.12±1.12	0.058±0.005	57876.43± 834.12
	P <sub>EEMACOMH</sub>	83.75±1.34	0.065±0.006	58284.28± 864.32		P <sub>EEMACOMH</sub>	90.12±1.12	0.063±0.005	58724.45± 812.33
	P <sub>EEMACOMC</sub>	82.38±1.97	0.067±0.006	55127.83± 776.23		P <sub>EEMACOMC</sub>	89.28±1.27	0.061±0.006	58827.14± 761.41
0.7	P <sub>EEMACOMP</sub>	89.72±1.02	0.067±0.006	58124.34± 975.87	0.7	P <sub>EEMACOMP</sub>	95.24±0.89	0.062±0.006	58824.12± 946.56
	P <sub>EEMACOMH</sub>	87.65±1.03	0.069±0.006	59658.24± 675.21		P <sub>EEMACOMH</sub>	90.43±0.98	0.068±0.007	57239.15± 667.21
	P <sub>EEMACOMC</sub>	87.72±1.57	0.073±0.007	54354.12± 855.12		P <sub>EEMACOMC</sub>	91.34±1.02	0.065±0.006	56431.12± 765.13
0.9	P <sub>EEMACOMP</sub>	91.75±1.34	0.082±0.007	54287.38± 876.82	0.9	P <sub>EEMACOMP</sub>	93.84±0.76	0.071±0.006	56128.13± 898.83
	P <sub>EEMACOMH</sub>	88.23±1.65	0.079±0.008	53129.12± 995.34		P <sub>EEMACOMH</sub>	89.11±1.02	0.073±0.007	55321.26± 965.12
	P <sub>EEMACOMC</sub>	87.97±1.12	0.079±0.007	52876.21± 954.12		P <sub>EEMACOMC</sub>	89.12±1.05	0.074±0.006	54132.15± 875.11
(c) $T_{sm} = 3$					(d) $T_{sm} = 4$				
$r_0$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$	$r_0$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$
0.1	P <sub>EEMACOMP</sub>	85.23±1.23	0.028±0.005	48234.35± 897.56	0.1	P <sub>EEMACOMP</sub>	99.34±0.14	0.025±0.002	56235.43±687.43
	P <sub>EEMACOMH</sub>	80.35±1.69	0.032±0.006	51167.54± 896.37		P <sub>EEMACOMH</sub>	99.45±0.18	0.029±0.003	57832.12±567.23
	P <sub>EEMACOMC</sub>	76.12±2.12	0.031±0.006	52342.28± 897.45		P <sub>EEMACOMC</sub>	99.34±0.21	0.026±0.003	58432.25±563.21
0.3	P <sub>EEMACOMP</sub>	86.34±1.06	0.030±0.006	52347.32±1012.23	0.3	P <sub>EEMACOMP</sub>	98.89±0.87	0.028±0.003	56886.31±761.26
	P <sub>EEMACOMH</sub>	82.87±1.23	0.034±0.007	49258.87±1017.85		P <sub>EEMACOMH</sub>	97.87±1.03	0.030±0.004	59112.21±623.75
	P <sub>EEMACOMC</sub>	84.18±1.18	0.037±0.005	53276.34± 987.23		P <sub>EEMACOMC</sub>	98.32±1.07	0.027±0.005	59124.41±682.65
0.5	P <sub>EEMACOMP</sub>	96.19±0.89	0.032±0.003	62345.17± 342.67	0.5	P <sub>EEMACOMP</sub>	99.89±0.07	0.029±0.003	63126.26±298.12
	P <sub>EEMACOMH</sub>	94.24±1.04	0.035±0.003	62126.65± 342.43		P <sub>EEMACOMH</sub>	98.76±1.14	0.031±0.003	62234.67±307.21
	P <sub>EEMACOMC</sub>	92.45±1.08	0.034±0.004	61897.24± 376.43		P <sub>EEMACOMC</sub>	99.43±0.38	0.027±0.002	64123.32±187.23
0.7	P <sub>EEMACOMP</sub>	98.32±0.81	0.039±0.005	61763.28± 432.17	0.7	P <sub>EEMACOMP</sub>	99.21±0.45	0.038±0.005	63654.21±321.21
	P <sub>EEMACOMH</sub>	96.67±0.91	0.042±0.006	61348.68± 327.56		P <sub>EEMACOMH</sub>	98.97±0.67	0.040±0.005	62312.35±235.65
	P <sub>EEMACOMC</sub>	93.38±0.99	0.043±0.006	60897.74± 467.36		P <sub>EEMACOMC</sub>	99.25±0.63	0.041±0.006	63897.45±256.32
0.9	P <sub>EEMACOMP</sub>	94.83±0.76	0.048±0.008	58321.46± 459.31	0.9	P <sub>EEMACOMP</sub>	96.87±0.93	0.045±0.008	60123.34±378.54
	P <sub>EEMACOMH</sub>	92.45±0.83	0.062±0.009	57387.54± 543.26		P <sub>EEMACOMH</sub>	96.56±0.87	0.048±0.010	61234.32±231.33
	P <sub>EEMACOMC</sub>	90.89±0.89	0.065±0.008	56428.43± 543.35		P <sub>EEMACOMC</sub>	97.78±1.25	0.057±0.010	58765.34±431.29
(e) $T_{sm} = 5$					(f) $T_{sm} = 6$				
$r_0$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$	$r_0$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$
0.1	P <sub>EEMACOMP</sub>	99.42±0.17	0.024±0.002	56198.78±679.53	0.1	P <sub>EEMACOMP</sub>	99.65±0.12	0.024±0.003	56987.24±613.65
	P <sub>EEMACOMH</sub>	99.64±0.13	0.028±0.004	57832.12±558.98		P <sub>EEMACOMH</sub>	99.78±0.09	0.027±0.003	58182.41±521.45
	P <sub>EEMACOMC</sub>	99.57±0.12	0.026±0.003	58532.67±560.76		P <sub>EEMACOMC</sub>	99.86±0.02	0.025±0.003	59326.48±489.49
0.3	P <sub>EEMACOMP</sub>	99.81±0.16	0.026±0.003	56897.34±743.21	0.3	P <sub>EEMACOMP</sub>	99.88±0.02	0.026±0.002	56896.32±761.26
	P <sub>EEMACOMH</sub>	99.78±0.15	0.029±0.004	59123.13±617.45		P <sub>EEMACOMH</sub>	99.89±0.01	0.028±0.004	59123.12±623.75
	P <sub>EEMACOMC</sub>	98.99±0.59	0.026±0.004	59123.41±676.46		P <sub>EEMACOMC</sub>	99.98±0.01	0.027±0.003	59123.41±682.65
0.5	P <sub>EEMACOMP</sub>	99.67±0.28	0.026±0.002	63561.36±264.39	0.5	P <sub>EEMACOMP</sub>	99.90±0.02	0.026±0.002	63673.29±264.25
	P <sub>EEMACOMH</sub>	99.45±0.46	0.030±0.004	62247.56±275.34		P <sub>EEMACOMH</sub>	99.68±0.07	0.027±0.003	62345.12±219.28
	P <sub>EEMACOMC</sub>	99.76±0.04	0.026±0.002	65234.12± 97.24		P <sub>EEMACOMC</sub>	99.81±0.05	0.025±0.002	63592.15± 87.34
0.7	P <sub>EEMACOMP</sub>	99.26±0.37	0.036±0.004	63654.43±302.13	0.7	P <sub>EEMACOMP</sub>	99.83±0.07	0.033±0.005	63687.32±276.12
	P <sub>EEMACOMH</sub>	99.78±0.08	0.038±0.006	62415.45±212.34		P <sub>EEMACOMH</sub>	99.82±0.09	0.034±0.005	62234.23±201.21
	P <sub>EEMACOMC</sub>	99.64±0.06	0.039±0.005	63912.34±203.31		P <sub>EEMACOMC</sub>	99.78±0.07	0.036±0.006	63943.21±178.32
0.9	P <sub>EEMACOMP</sub>	99.75±0.07	0.045±0.008	60896.12±371.23	0.9	P <sub>EEMACOMP</sub>	99.82±0.03	0.041±0.007	60993.49±389.45
	P <sub>EEMACOMH</sub>	99.76±0.06	0.048±0.010	61431.34±212.38		P <sub>EEMACOMH</sub>	99.79±0.04	0.044±0.009	61431.87±209.21
	P <sub>EEMACOMC</sub>	99.68±0.12	0.057±0.010	59249.23±397.32		P <sub>EEMACOMC</sub>	99.84±0.03	0.050±0.009	59789.67±334.98



Table D.5: Influence of parameter  $r_0$  on the  $\bar{n}_{alg}$ ,  $\bar{\varrho}$  and  $\bar{\xi}$  metrics, for 30 nodes and  $R_g = 500$

(a) $T_{sm} = 1$					(b) $T_{sm} = 2$				
$r_0$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$	$r_0$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$
0.1	P <sub>EEMACOMP</sub>	56.23±6.14	0.227±0.025	46234.96±1236.24	0.1	P <sub>EEMACOMP</sub>	62.11±4.59	0.168±0.015	46239.37±1053.24
	P <sub>EEMACOMH</sub>	54.19±6.38	0.259±0.027	45534.36±1298.32		P <sub>EEMACOMH</sub>	58.23±3.98	0.234±0.019	48341.65±1012.32
	P <sub>EEMACOMC</sub>	51.67±6.68	0.279±0.029	48342.32±1129.75		P <sub>EEMACOMC</sub>	57.21±4.76	0.243±0.024	49431.43±1074.21
0.3	P <sub>EEMACOMP</sub>	60.12±4.49	0.192±0.016	49765.32±1139.31	0.3	P <sub>EEMACOMP</sub>	67.12±3.19	0.149±0.019	49763.46±1013.34
	P <sub>EEMACOMH</sub>	55.43±5.89	0.204±0.016	46743.46±1145.32		P <sub>EEMACOMH</sub>	62.36±4.36	0.165±0.017	48754.25±1034.27
	P <sub>EEMACOMC</sub>	52.32±6.32	0.264±0.022	49876.87±1012.61		P <sub>EEMACOMC</sub>	64.28±3.69	0.184±0.019	49986.24±1003.65
0.5	P <sub>EEMACOMP</sub>	96.43±1.03	0.062±0.006	63843.61±321.24	0.5	P <sub>EEMACOMP</sub>	95.35±1.09	0.047±0.006	63639.29±254.29
	P <sub>EEMACOMH</sub>	94.65±1.26	0.064±0.008	63875.32±349.38		P <sub>EEMACOMH</sub>	94.22±1.02	0.050±0.006	64567.65±223.76
	P <sub>EEMACOMC</sub>	96.39±1.05	0.074±0.008	62784.56±356.26		P <sub>EEMACOMC</sub>	96.43±0.96	0.053±0.008	63730.62±261.23
0.7	P <sub>EEMACOMP</sub>	97.65±0.89	0.078±0.007	59234.74±621.74	0.7	P <sub>EEMACOMP</sub>	96.25±1.15	0.076±0.013	58598.45±431.23
	P <sub>EEMACOMH</sub>	96.56±1.01	0.079±0.009	58421.32±666.23		P <sub>EEMACOMH</sub>	94.09±1.05	0.072±0.011	57123.32±436.43
	P <sub>EEMACOMC</sub>	97.36±1.02	0.082±0.009	56389.32±701.32		P <sub>EEMACOMC</sub>	93.89±1.17	0.068±0.009	56428.23±452.31
0.9	P <sub>EEMACOMP</sub>	93.34±1.23	0.089±0.009	56235.42±654.23	0.9	P <sub>EEMACOMP</sub>	92.34±0.87	0.078±0.012	58238.27±496.23
	P <sub>EEMACOMH</sub>	92.32±1.25	0.082±0.011	55981.21±674.21		P <sub>EEMACOMH</sub>	91.23±1.28	0.076±0.011	57431.38±654.28
	P <sub>EEMACOMC</sub>	90.61±1.30	0.084±0.013	54238.27±687.32		P <sub>EEMACOMC</sub>	91.38±1.28	0.079±0.012	56458.49±658.90
(c) $T_{sm} = 3$					(d) $T_{sm} = 4$				
$r_0$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$	$r_0$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$
0.1	P <sub>EEMACOMP</sub>	82.34±1.45	0.041±0.005	50234.76±867.32	0.1	P <sub>EEMACOMP</sub>	98.12±0.25	0.032±0.002	58234.34±634.21
	P <sub>EEMACOMH</sub>	78.76±1.78	0.036±0.004	53568.98±865.32		P <sub>EEMACOMH</sub>	97.13±0.24	0.033±0.003	59876.26±583.76
	P <sub>EEMACOMC</sub>	75.14±2.14	0.034±0.005	53476.28±854.27		P <sub>EEMACOMC</sub>	97.34±0.28	0.030±0.002	59128.45±524.23
0.3	P <sub>EEMACOMP</sub>	84.76±1.28	0.042±0.006	54127.54±895.64	0.3	P <sub>EEMACOMP</sub>	97.83±0.82	0.034±0.003	58983.24±687.12
	P <sub>EEMACOMH</sub>	81.83±1.43	0.041±0.005	52378.74±934.21		P <sub>EEMACOMH</sub>	97.57±1.17	0.034±0.003	60862.42±568.23
	P <sub>EEMACOMC</sub>	83.12±1.22	0.039±0.005	55274.71±953.43		P <sub>EEMACOMC</sub>	97.64±1.37	0.032±0.002	61347.68±547.89
0.5	P <sub>EEMACOMP</sub>	94.54±0.94	0.042±0.005	65325.63±154.78	0.5	P <sub>EEMACOMP</sub>	98.86±0.45	0.038±0.004	64897.34±265.37
	P <sub>EEMACOMH</sub>	94.69±1.13	0.041±0.006	65378.32±162.84		P <sub>EEMACOMH</sub>	99.27±0.17	0.043±0.005	64523.46±289.31
	P <sub>EEMACOMC</sub>	93.42±1.17	0.040±0.006	65673.82±175.24		P <sub>EEMACOMC</sub>	98.96±0.43	0.046±0.005	65236.24±167.27
0.7	P <sub>EEMACOMP</sub>	97.98±0.23	0.044±0.008	64512.65±248.54	0.7	P <sub>EEMACOMP</sub>	98.14±0.64	0.041±0.004	63865.23±196.78
	P <sub>EEMACOMH</sub>	95.46±0.45	0.043±0.007	64256.27±234.63		P <sub>EEMACOMH</sub>	98.24±0.62	0.046±0.005	62896.48±227.34
	P <sub>EEMACOMC</sub>	92.45±0.57	0.040±0.006	63459.29±257.38		P <sub>EEMACOMC</sub>	98.64±0.57	0.048±0.008	63985.34±223.47
0.9	P <sub>EEMACOMP</sub>	92.65±0.79	0.046±0.009	60342.11±345.35	0.9	P <sub>EEMACOMP</sub>	95.75±1.03	0.053±0.007	61325.87±282.56
	P <sub>EEMACOMH</sub>	91.78±0.87	0.058±0.012	59472.12±389.32		P <sub>EEMACOMH</sub>	95.72±1.23	0.062±0.006	61657.12±264.24
	P <sub>EEMACOMC</sub>	90.65±1.16	0.061±0.013	59765.23±397.45		P <sub>EEMACOMC</sub>	96.34±1.39	0.067±0.007	60321.56±368.43
(e) $T_{sm} = 5$					(f) $T_{sm} = 6$				
$r_0$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$	$r_0$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$
0.1	P <sub>EEMACOMP</sub>	99.80±0.06	0.028±0.003	58145.25±647.23	0.1	P <sub>EEMACOMP</sub>	99.90±0.01	0.027±0.002	58123.43±516.37
	P <sub>EEMACOMH</sub>	99.72±0.07	0.029±0.004	58754.23±517.28		P <sub>EEMACOMH</sub>	99.92±0.02	0.028±0.003	59282.39±503.68
	P <sub>EEMACOMC</sub>	99.65±0.15	0.027±0.003	59846.26±543.76		P <sub>EEMACOMC</sub>	99.99±0.01	0.028±0.003	59835.76±496.52
0.3	P <sub>EEMACOMP</sub>	99.92±0.06	0.032±0.005	58754.38±712.35	0.3	P <sub>EEMACOMP</sub>	99.93±0.03	0.030±0.003	58126.39±524.42
	P <sub>EEMACOMH</sub>	99.82±0.09	0.034±0.006	59876.26±617.45		P <sub>EEMACOMH</sub>	99.94±0.01	0.031±0.003	59581.18±512.32
	P <sub>EEMACOMC</sub>	99.12±0.08	0.036±0.007	59976.39±643.43		P <sub>EEMACOMC</sub>	99.90±0.01	0.033±0.004	59765.36±534.27
0.5	P <sub>EEMACOMP</sub>	99.86±0.28	0.036±0.006	65147.76±145.13	0.5	P <sub>EEMACOMP</sub>	99.94±0.03	0.035±0.004	65238.56±154.23
	P <sub>EEMACOMH</sub>	99.48±0.36	0.040±0.007	65432.67±172.34		P <sub>EEMACOMH</sub>	99.79±0.04	0.037±0.004	65276.89±152.31
	P <sub>EEMACOMC</sub>	99.70±0.13	0.042±0.008	65435.14±99.86		P <sub>EEMACOMC</sub>	99.83±0.04	0.036±0.005	65394.26±123.54
0.7	P <sub>EEMACOMP</sub>	99.43±0.34	0.042±0.008	64567.81±231.21	0.7	P <sub>EEMACOMP</sub>	99.67±0.09	0.040±0.006	63876.35±223.41
	P <sub>EEMACOMH</sub>	99.83±0.09	0.045±0.008	64541.26±216.31		P <sub>EEMACOMH</sub>	99.63±0.11	0.045±0.007	62784.43±213.41
	P <sub>EEMACOMC</sub>	99.72±0.08	0.044±0.009	64125.36±213.24		P <sub>EEMACOMC</sub>	99.56±0.12	0.047±0.008	63978.27±147.23
0.9	P <sub>EEMACOMP</sub>	99.85±0.06	0.052±0.012	62312.26±293.24	0.9	P <sub>EEMACOMP</sub>	99.73±0.03	0.051±0.008	61239.58±325.26
	P <sub>EEMACOMH</sub>	99.87±0.06	0.057±0.014	62456.28±228.65		P <sub>EEMACOMH</sub>	99.72±0.03	0.054±0.009	61674.89±288.45
	P <sub>EEMACOMC</sub>	99.88±0.06	0.064±0.015	61387.37±304.18		P <sub>EEMACOMC</sub>	99.80±0.02	0.062±0.010	59893.72±328.86



Table D.6: Influence of parameter  $r_0$  on the  $\bar{n}_{alg}$ ,  $\bar{\varrho}$  and  $\bar{\xi}$  metrics, for 30 nodes and  $R_g = 800$

(a) $T_{sm} = 1$					(b) $T_{sm} = 2$				
$r_0$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$	$r_0$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$
0.1	P <sub>EEMACOMP</sub>	43.12±4.12	0.257±0.022	44123.34±1248.68	0.1	P <sub>EEMACOMP</sub>	45.25±4.49	0.235±0.021	44123.76±1076.45
	P <sub>EEMACOMH</sub>	34.76±5.23	0.278±0.024	43126.32±1305.34		P <sub>EEMACOMH</sub>	36.19±3.88	0.256±0.022	46237.57±1042.74
	P <sub>EEMACOMC</sub>	44.36±4.56	0.286±0.023	46651.67±1158.65		P <sub>EEMACOMC</sub>	46.63±4.77	0.264±0.024	47891.46±1097.63
0.3	P <sub>EEMACOMP</sub>	46.57±4.87	0.217±0.020	46238.52±1146.31	0.3	P <sub>EEMACOMP</sub>	52.98±3.65	0.189±0.019	49123.62±1021.53
	P <sub>EEMACOMH</sub>	38.24±6.03	0.232±0.021	44297.42±1167.29		P <sub>EEMACOMH</sub>	38.85±4.80	0.205±0.023	48124.74±1042.52
	P <sub>EEMACOMC</sub>	48.98±5.34	0.204±0.020	47147.65±1065.21		P <sub>EEMACOMC</sub>	61.37±3.98	0.198±0.016	48342.38±1023.53
0.5	P <sub>EEMACOMP</sub>	96.31±0.86	0.116±0.014	63573.38±363.25	0.5	P <sub>EEMACOMP</sub>	95.43±1.32	0.094±0.008	63436.89±265.73
	P <sub>EEMACOMH</sub>	62.34±3.01	0.153±0.017	63743.85±356.38		P <sub>EEMACOMH</sub>	47.67±1.89	0.152±0.012	64194.75±212.53
	P <sub>EEMACOMC</sub>	96.85±0.87	0.144±0.015	62341.52±387.41		P <sub>EEMACOMC</sub>	97.28±1.32	0.129±0.009	63456.68±282.48
0.7	P <sub>EEMACOMP</sub>	96.87±0.84	0.135±0.015	56128.39±628.39	0.7	P <sub>EEMACOMP</sub>	97.38±1.24	0.112±0.012	57428.85±542.53
	P <sub>EEMACOMH</sub>	61.28±3.06	0.176±0.018	56217.42±675.84		P <sub>EEMACOMH</sub>	46.67±1.87	0.162±0.014	58024.76±548.59
	P <sub>EEMACOMC</sub>	96.84±0.91	0.163±0.017	57120.43±613.61		P <sub>EEMACOMC</sub>	97.58±1.32	0.143±0.011	56197.76±567.89
0.9	P <sub>EEMACOMP</sub>	90.54±1.25	0.139±0.014	55742.67±658.54	0.9	P <sub>EEMACOMP</sub>	92.27±1.32	0.104±0.014	56743.91±598.96
	P <sub>EEMACOMH</sub>	58.32±2.36	0.173±0.018	56236.28±689.45		P <sub>EEMACOMH</sub>	46.28±1.28	0.158±0.013	57101.56±587.43
	P <sub>EEMACOMC</sub>	89.45±1.45	0.165±0.019	53760.31±698.42		P <sub>EEMACOMC</sub>	91.38±1.28	0.138±0.011	56142.53±579.21
(c) $T_{sm} = 3$					(d) $T_{sm} = 4$				
$r_0$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$	$r_0$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$
0.1	P <sub>EEMACOMP</sub>	80.34±1.25	0.078±0.010	50142.09±887.31	0.1	P <sub>EEMACOMP</sub>	82.33±1.16	0.065±0.004	51421.08±815.23
	P <sub>EEMACOMH</sub>	70.32±1.86	0.103±0.012	52386.48±884.29		P <sub>EEMACOMH</sub>	45.12±1.76	0.096±0.011	52876.62±835.75
	P <sub>EEMACOMC</sub>	73.70±1.98	0.101±0.012	52568.36±867.32		P <sub>EEMACOMC</sub>	74.81±1.84	0.081±0.009	52879.57±843.19
0.3	P <sub>EEMACOMP</sub>	82.79±1.18	0.081±0.010	53127.59±907.23	0.3	P <sub>EEMACOMP</sub>	84.56±1.03	0.068±0.006	53864.62±863.28
	P <sub>EEMACOMH</sub>	72.74±1.47	0.108±0.010	51124.78±948.49		P <sub>EEMACOMH</sub>	46.52±1.62	0.100±0.013	51671.49±931.76
	P <sub>EEMACOMC</sub>	82.45±1.28	0.106±0.010	53682.68±964.18		P <sub>EEMACOMC</sub>	83.56±1.28	0.096±0.013	53783.18±918.38
0.5	P <sub>EEMACOMP</sub>	92.72±0.76	0.089±0.008	64897.65±164.73	0.5	P <sub>EEMACOMP</sub>	98.67±0.64	0.078±0.009	65154.39±142.75
	P <sub>EEMACOMH</sub>	75.78±1.34	0.117±0.010	64161.46±168.31		P <sub>EEMACOMH</sub>	50.34±1.61	0.103±0.013	65329.01±158.29
	P <sub>EEMACOMC</sub>	90.43±1.05	0.111±0.009	64678.54±189.52		P <sub>EEMACOMC</sub>	98.65±0.72	0.105±0.011	65874.84±163.90
0.7	P <sub>EEMACOMP</sub>	98.27±0.17	0.098±0.009	62893.56±267.71	0.7	P <sub>EEMACOMP</sub>	97.89±0.13	0.098±0.009	63162.30±178.23
	P <sub>EEMACOMH</sub>	73.43±1.51	0.138±0.012	62784.23±245.76		P <sub>EEMACOMH</sub>	50.03±1.68	0.124±0.015	63812.28±164.23
	P <sub>EEMACOMC</sub>	97.84±0.62	0.123±0.011	62172.58±268.81		P <sub>EEMACOMC</sub>	97.97±0.32	0.116±0.013	63976.23±168.13
0.9	P <sub>EEMACOMP</sub>	95.89±0.73	0.126±0.011	60194.33±367.30	0.9	P <sub>EEMACOMP</sub>	96.12±0.70	0.112±0.010	61328.76±367.30
	P <sub>EEMACOMH</sub>	71.67±1.95	0.148±0.012	58634.87±395.44		P <sub>EEMACOMH</sub>	47.48±2.13	0.137±0.015	59205.19±395.44
	P <sub>EEMACOMC</sub>	90.12±1.12	0.135±0.012	58025.76±403.29		P <sub>EEMACOMC</sub>	92.61±1.23	0.130±0.013	58785.54±403.29
(e) $T_{sm} = 5$					(f) $T_{sm} = 6$				
$r_0$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$	$r_0$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$
0.1	P <sub>EEMACOMP</sub>	84.42±1.23	0.062±0.005	52241.12±764.27	0.1	P <sub>EEMACOMP</sub>	86.32±1.16	0.060±0.005	53441.17±715.76
	P <sub>EEMACOMH</sub>	56.55±1.87	0.097±0.010	52985.93±798.45		P <sub>EEMACOMH</sub>	64.56±1.65	0.094±0.012	53142.56±767.43
	P <sub>EEMACOMC</sub>	76.76±1.42	0.088±0.009	53129.52±754.18		P <sub>EEMACOMC</sub>	79.84±1.37	0.082±0.008	53897.43±735.36
0.3	P <sub>EEMACOMP</sub>	86.45±1.01	0.066±0.006	54198.37±812.54	0.3	P <sub>EEMACOMP</sub>	89.76±0.97	0.064±0.005	56321.43±765.23
	P <sub>EEMACOMH</sub>	58.89±1.84	0.101±0.011	52468.65±902.36		P <sub>EEMACOMH</sub>	67.43±1.65	0.100±0.009	54568.23±679.43
	P <sub>EEMACOMC</sub>	85.58±1.12	0.099±0.010	54513.76±846.37		P <sub>EEMACOMC</sub>	88.75±1.03	0.087±0.008	58376.21±627.47
0.5	P <sub>EEMACOMP</sub>	98.87±0.31	0.068±0.007	65253.36±134.76	0.5	P <sub>EEMACOMP</sub>	99.90±0.05	0.068±0.005	65731.34±132.56
	P <sub>EEMACOMH</sub>	68.23±1.54	0.102±0.010	65367.28±146.78		P <sub>EEMACOMH</sub>	77.90±1.32	0.101±0.009	65302.24±138.21
	P <sub>EEMACOMC</sub>	98.83±0.32	0.103±0.010	65886.36±154.67		P <sub>EEMACOMC</sub>	99.82±0.06	0.088±0.008	65285.43±146.27
0.7	P <sub>EEMACOMP</sub>	96.86±0.63	0.074±0.007	63329.53±169.24	0.7	P <sub>EEMACOMP</sub>	98.83±0.08	0.076±0.006	63473.17±156.72
	P <sub>EEMACOMH</sub>	65.23±1.74	0.107±0.011	63883.34±166.28		P <sub>EEMACOMH</sub>	75.34±1.45	0.108±0.011	63912.45±161.45
	P <sub>EEMACOMC</sub>	96.62±0.67	0.109±0.011	63998.29±162.67		P <sub>EEMACOMC</sub>	97.85±0.13	0.097±0.009	64087.43±143.82
0.9	P <sub>EEMACOMP</sub>	97.23±0.62	0.070±0.007	61678.43±345.56	0.9	P <sub>EEMACOMP</sub>	97.23±0.34	0.065±0.006	62061.43±327.31
	P <sub>EEMACOMH</sub>	64.42±1.86	0.110±0.012	59987.14±378.27		P <sub>EEMACOMH</sub>	64.42±1.67	0.097±0.009	60129.65±356.73
	P <sub>EEMACOMC</sub>	94.67±1.01	0.113±0.013	59326.83±382.88		P <sub>EEMACOMC</sub>	94.67±0.97	0.086±0.010	60459.37±362.78

Table D.7: Influence of parameter  $\rho_l$  on the  $\bar{n}_{alg}$ ,  $\bar{\varrho}$  and  $\bar{\xi}$  metrics, for 30 nodes and  $R_g = 300$

(a) $T_{sm} = 1$					(b) $T_{sm} = 2$				
$\rho_l$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$	$\rho_l$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$
0.1	P <sub>EEMACOMP</sub>	55.34±5.12	0.203±0.021	44683.37±1237.31	0.1	P <sub>EEMACOMP</sub>	60.45±3.99	0.188±0.017	45893.24±1102.12
	P <sub>EEMACOMH</sub>	52.43±6.13	0.218±0.027	42478.34±1359.27		P <sub>EEMACOMH</sub>	61.34±3.65	0.205±0.019	46673.28±1003.37
	P <sub>EEMACOMC</sub>	50.67±6.22	0.248±0.022	45678.26±1198.47		P <sub>EEMACOMC</sub>	57.48±4.12	0.214±0.025	48657.27±1067.23
0.3	P <sub>EEMACOMP</sub>	60.59±4.02	0.163±0.012	48976.09±1179.18	0.3	P <sub>EEMACOMP</sub>	66.34±2.65	0.142±0.015	49985.34±1013.45
	P <sub>EEMACOMH</sub>	56.47±4.98	0.183±0.014	46390.56±1272.47		P <sub>EEMACOMH</sub>	61.32±3.69	0.162±0.016	48987.58±1034.63
	P <sub>EEMACOMC</sub>	52.69±5.16	0.224±0.020	49346.21±1078.43		P <sub>EEMACOMC</sub>	64.37±3.12	0.171±0.018	49896.47±1024.63
0.5	P <sub>EEMACOMP</sub>	93.59±1.09	0.065±0.006	62549.20± 210.37	0.5	P <sub>EEMACOMP</sub>	94.47±1.02	0.040±0.006	62984.23± 249.31
	P <sub>EEMACOMH</sub>	92.45±1.16	0.063±0.005	61843.22± 222.67		P <sub>EEMACOMH</sub>	90.38±1.15	0.039±0.006	61575.23± 275.52
	P <sub>EEMACOMC</sub>	91.75±1.21	0.062±0.007	62734.23± 185.48		P <sub>EEMACOMC</sub>	91.32±1.35	0.044±0.007	63473.28± 214.71
0.7	P <sub>EEMACOMP</sub>	87.62±1.06	0.060±0.006	62139.56± 187.25	0.7	P <sub>EEMACOMP</sub>	94.27±0.69	0.038±0.004	63243.56± 187.45
	P <sub>EEMACOMH</sub>	85.69±1.11	0.064±0.007	61372.73± 231.45		P <sub>EEMACOMH</sub>	91.82±0.85	0.040±0.005	61187.53± 197.37
	P <sub>EEMACOMC</sub>	87.12±1.12	0.063±0.007	63719.63± 145.62		P <sub>EEMACOMC</sub>	90.26±0.87	0.043±0.005	63385.32± 124.84
0.9	P <sub>EEMACOMP</sub>	84.24±1.28	0.096±0.008	50165.23± 887.41	0.9	P <sub>EEMACOMP</sub>	91.63±0.83	0.076±0.007	54127.83± 612.43
	P <sub>EEMACOMH</sub>	86.38±1.22	0.087±0.008	52345.78± 934.26		P <sub>EEMACOMH</sub>	85.28±1.07	0.078±0.007	55873.63± 603.45
	P <sub>EEMACOMC</sub>	86.72±1.17	0.088±0.009	53485.26± 976.25		P <sub>EEMACOMC</sub>	85.69±1.08	0.081±0.008	53486.28± 624.47
(c) $T_{sm} = 3$					(d) $T_{sm} = 4$				
$\rho_l$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$	$\rho_l$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$
0.1	P <sub>EEMACOMP</sub>	72.29±2.54	0.167±0.015	47468.49±1043.32	0.1	P <sub>EEMACOMP</sub>	84.65±2.34	0.132±0.012	50238.42±1043.32
	P <sub>EEMACOMH</sub>	73.45±2.43	0.186±0.017	48654.12± 973.52		P <sub>EEMACOMH</sub>	83.89±2.37	0.151±0.017	50123.52± 962.53
	P <sub>EEMACOMC</sub>	68.64±2.05	0.194±0.021	47643.15±1023.54		P <sub>EEMACOMC</sub>	89.85±2.13	0.153±0.016	48532.19±1023.54
0.3	P <sub>EEMACOMP</sub>	79.32±2.34	0.122±0.012	50237.54± 926.32	0.3	P <sub>EEMACOMP</sub>	81.32±2.13	0.114±0.011	51429.73± 875.34
	P <sub>EEMACOMH</sub>	74.56±2.67	0.135±0.013	49675.32± 963.28		P <sub>EEMACOMH</sub>	86.87±2.43	0.126±0.011	50873.28± 879.45
	P <sub>EEMACOMC</sub>	76.63±3.03	0.162±0.015	51254.52± 912.74		P <sub>EEMACOMC</sub>	80.63±2.67	0.139±0.013	52389.29± 861.38
0.5	P <sub>EEMACOMP</sub>	96.53±0.49	0.033±0.002	63421.43± 236.41	0.5	P <sub>EEMACOMP</sub>	98.43±0.38	0.029±0.002	63428.52± 167.29
	P <sub>EEMACOMH</sub>	94.31±0.45	0.036±0.004	61142.32± 312.42		P <sub>EEMACOMH</sub>	96.84±0.42	0.033±0.003	62314.53± 173.59
	P <sub>EEMACOMC</sub>	91.74±0.89	0.035±0.003	63372.15± 238.21		P <sub>EEMACOMC</sub>	94.76±0.43	0.030±0.003	63753.41± 165.25
0.7	P <sub>EEMACOMP</sub>	95.12±0.53	0.037±0.002	62134.63± 237.83	0.7	P <sub>EEMACOMP</sub>	96.72±0.47	0.034±0.002	62236.73± 194.23
	P <sub>EEMACOMH</sub>	92.52±0.74	0.040±0.003	60287.16± 257.48		P <sub>EEMACOMH</sub>	94.41±0.52	0.038±0.003	60574.29± 223.56
	P <sub>EEMACOMC</sub>	92.24±0.76	0.041±0.003	62315.36± 223.64		P <sub>EEMACOMC</sub>	93.28±0.61	0.036±0.002	62639.29± 196.49
0.9	P <sub>EEMACOMP</sub>	92.89±0.83	0.070±0.006	56367.32± 532.16	0.9	P <sub>EEMACOMP</sub>	93.56±0.66	0.065±0.006	58894.29± 438.09
	P <sub>EEMACOMH</sub>	88.84±1.07	0.071±0.006	57342.75± 523.63		P <sub>EEMACOMH</sub>	89.94±0.87	0.063±0.005	58674.39± 476.28
	P <sub>EEMACOMC</sub>	87.73±1.08	0.076±0.008	55634.27± 546.72		P <sub>EEMACOMC</sub>	89.43±0.86	0.067±0.007	56879.34± 487.19
(e) $T_{sm} = 5$					(f) $T_{sm} = 6$				
$\rho_l$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$	$\rho_l$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$
0.1	P <sub>EEMACOMP</sub>	93.24±0.92	0.075±0.009	55287.12±612.39	0.1	P <sub>EEMACOMP</sub>	94.23±1.02	0.070±0.009	54376.53±873.23
	P <sub>EEMACOMH</sub>	94.38±0.93	0.086±0.010	56289.33±605.28		P <sub>EEMACOMH</sub>	93.76±1.03	0.076±0.010	53276.37±892.73
	P <sub>EEMACOMC</sub>	94.36±0.81	0.096±0.012	56498.39±606.34		P <sub>EEMACOMC</sub>	97.63±0.89	0.084±0.010	52156.89±912.32
0.3	P <sub>EEMACOMP</sub>	90.49±1.62	0.046±0.007	58723.29±484.03	0.3	P <sub>EEMACOMP</sub>	93.25±1.03	0.040±0.008	55897.32±782.37
	P <sub>EEMACOMH</sub>	92.21±1.34	0.059±0.008	57128.83±497.23		P <sub>EEMACOMH</sub>	96.34±0.92	0.055±0.010	54562.38±794.52
	P <sub>EEMACOMC</sub>	92.47±1.58	0.068±0.009	56294.29±538.28		P <sub>EEMACOMC</sub>	97.42±0.97	0.063±0.012	53896.31±822.57
0.5	P <sub>EEMACOMP</sub>	99.99±0.03	0.027±0.002	63484.56±138.28	0.5	P <sub>EEMACOMP</sub>	99.99±0.04	0.026±0.002	63456.29±169.48
	P <sub>EEMACOMH</sub>	99.99±0.04	0.028±0.002	62226.38±174.28		P <sub>EEMACOMH</sub>	99.99±0.05	0.027±0.003	62296.32±196.49
	P <sub>EEMACOMC</sub>	99.99±0.03	0.026±0.002	64138.39±132.38		P <sub>EEMACOMC</sub>	99.99±0.02	0.026±0.002	63767.29±172.31
0.7	P <sub>EEMACOMP</sub>	98.97±0.32	0.027±0.002	62873.28±184.29	0.7	P <sub>EEMACOMP</sub>	98.86±0.36	0.027±0.002	62576.34±196.74
	P <sub>EEMACOMH</sub>	97.76±0.47	0.030±0.003	61348.06±209.36		P <sub>EEMACOMH</sub>	98.87±0.43	0.026±0.003	60867.29±217.45
	P <sub>EEMACOMC</sub>	98.87±0.29	0.024±0.002	63102.37±167.28		P <sub>EEMACOMC</sub>	98.58±0.26	0.024±0.002	62832.27±198.93
0.9	P <sub>EEMACOMP</sub>	96.48±0.45	0.045±0.005	60342.11±217.38	0.9	P <sub>EEMACOMP</sub>	96.45±0.45	0.043±0.003	59132.34±234.73
	P <sub>EEMACOMH</sub>	97.52±0.39	0.037±0.005	61238.40±227.38		P <sub>EEMACOMH</sub>	97.93±0.39	0.035±0.003	59675.23±239.02
	P <sub>EEMACOMC</sub>	96.85±0.23	0.046±0.006	61469.03±267.28		P <sub>EEMACOMC</sub>	98.38±0.23	0.044±0.004	58739.28±324.53

Table D.8: Influence of parameter  $\rho_l$  on the  $\bar{n}_{alg}$ ,  $\bar{\varrho}$  and  $\bar{\xi}$  metrics, for 30 nodes and  $R_g = 500$

(a) $T_{sm} = 1$					(b) $T_{sm} = 2$				
$\rho_l$	$\mathcal{P}\mathcal{F}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$	$\rho_l$	$\mathcal{P}\mathcal{F}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$
0.1	P <sub>EEMACOMP</sub>	57.24±4.38	0.214±0.023	48425.14±1028.39	0.1	P <sub>EEMACOMP</sub>	65.38±3.99	0.193±0.019	50476.29±976.23
	P <sub>EEMACOMH</sub>	55.32±5.30	0.229±0.029	47542.46±1145.29		P <sub>EEMACOMH</sub>	64.29±3.65	0.209±0.019	51289.38±964.23
	P <sub>EEMACOMC</sub>	51.34±5.29	0.257±0.024	49428.31±1112.41		P <sub>EEMACOMC</sub>	59.18±4.12	0.202±0.026	53287.38±943.27
0.3	P <sub>EEMACOMP</sub>	62.31±4.01	0.187±0.014	53276.28± 943.28	0.3	P <sub>EEMACOMP</sub>	71.28±2.65	0.154±0.017	54673.28± 942.32
	P <sub>EEMACOMH</sub>	56.23±4.36	0.194±0.016	49763.29± 995.24		P <sub>EEMACOMH</sub>	67.39±3.69	0.173±0.018	56987.29± 854.25
	P <sub>EEMACOMC</sub>	52.61±5.06	0.232±0.020	52376.29± 968.38		P <sub>EEMACOMC</sub>	69.28±3.12	0.182±0.019	53278.29±947.43
0.5	P <sub>EEMACOMP</sub>	94.29±1.13	0.063±0.006	63378.20± 224.29	0.5	P <sub>EEMACOMP</sub>	97.65±0.63	0.049±0.008	63986.23±247.45
	P <sub>EEMACOMH</sub>	88.98±1.17	0.062±0.006	62268.38± 229.10		P <sub>EEMACOMH</sub>	96.49±0.79	0.048±0.008	64289.39±232.65
	P <sub>EEMACOMC</sub>	87.11±1.18	0.078±0.008	63965.32± 213.60		P <sub>EEMACOMC</sub>	98.37±0.53	0.056±0.009	64612.48±217.45
0.7	P <sub>EEMACOMP</sub>	93.28±0.96	0.062±0.005	63489.29± 156.39	0.7	P <sub>EEMACOMP</sub>	98.27±0.26	0.048±0.007	64378.28±132.46
	P <sub>EEMACOMH</sub>	89.24±0.98	0.065±0.007	62318.39± 197.30		P <sub>EEMACOMH</sub>	97.39±0.28	0.050±0.007	64231.29±126.39
	P <sub>EEMACOMC</sub>	88.39±1.02	0.076±0.008	64231.72± 143.10		P <sub>EEMACOMC</sub>	96.49±0.68	0.055±0.008	64538.29±122.84
0.9	P <sub>EEMACOMP</sub>	87.29±1.15	0.098±0.011	54519.21± 843.56	0.9	P <sub>EEMACOMP</sub>	93.47±0.76	0.079±0.007	58156.28±534.23
	P <sub>EEMACOMH</sub>	86.49±1.17	0.086±0.009	55289.16± 861.28		P <sub>EEMACOMH</sub>	88.32±1.02	0.082±0.007	58249.42±537.49
	P <sub>EEMACOMC</sub>	86.98±1.18	0.085±0.009	56534.29± 824.49		P <sub>EEMACOMC</sub>	85.85±1.01	0.084±0.008	56754.48±527.30
(c) $T_{sm} = 3$					(d) $T_{sm} = 4$				
$\rho_l$	$\mathcal{P}\mathcal{F}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$	$\rho_l$	$\mathcal{P}\mathcal{F}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$
0.1	P <sub>EEMACOMP</sub>	70.34±2.58	0.186±0.016	55342.31±436.35	0.1	P <sub>EEMACOMP</sub>	81.43±2.38	0.152±0.014	58245.56±532.54
	P <sub>EEMACOMH</sub>	71.43±2.51	0.197±0.018	56349.29±423.72		P <sub>EEMACOMH</sub>	81.62±2.39	0.165±0.018	57845.39±523.58
	P <sub>EEMACOMC</sub>	65.39±2.26	0.199±0.020	54892.36±437.89		P <sub>EEMACOMC</sub>	86.27±2.16	0.173±0.018	56398.29±611.26
0.3	P <sub>EEMACOMP</sub>	76.78±2.43	0.146±0.013	58765.36±379.28	0.3	P <sub>EEMACOMP</sub>	80.16±2.19	0.126±0.013	59783.21±267.39
	P <sub>EEMACOMH</sub>	75.58±2.87	0.164±0.013	58764.28±389.45		P <sub>EEMACOMH</sub>	84.68±2.48	0.135±0.012	58321.34±246.38
	P <sub>EEMACOMC</sub>	74.28±3.12	0.178±0.014	61368.48±342.71		P <sub>EEMACOMC</sub>	78.38±2.69	0.148±0.015	60341.38±234.56
0.5	P <sub>EEMACOMP</sub>	96.28±0.47	0.042±0.002	63856.29±265.29	0.5	P <sub>EEMACOMP</sub>	97.29±0.39	0.040±0.003	64211.52±126.39
	P <sub>EEMACOMH</sub>	94.34±0.48	0.046±0.003	62489.49±248.49		P <sub>EEMACOMH</sub>	95.93±0.44	0.046±0.004	64287.29±125.67
	P <sub>EEMACOMC</sub>	95.71±0.92	0.047±0.003	64128.23±217.39		P <sub>EEMACOMC</sub>	93.28±0.47	0.048±0.004	64231.76±123.56
0.7	P <sub>EEMACOMP</sub>	93.48±0.55	0.040±0.002	62562.39±227.38	0.7	P <sub>EEMACOMP</sub>	94.28±0.49	0.037±0.002	63128.45±174.29
	P <sub>EEMACOMH</sub>	91.48±0.73	0.042±0.002	62340.57±227.43		P <sub>EEMACOMH</sub>	92.34±0.56	0.039±0.003	62657.12±209.31
	P <sub>EEMACOMC</sub>	91.89±0.72	0.043±0.003	62873.29±243.23		P <sub>EEMACOMC</sub>	92.46±0.64	0.039±0.003	63105.58±175.30
0.9	P <sub>EEMACOMP</sub>	92.12±0.75	0.076±0.005	59127.85±387.36	0.9	P <sub>EEMACOMP</sub>	92.47±0.68	0.074±0.006	59873.28±358.20
	P <sub>EEMACOMH</sub>	88.13±1.02	0.078±0.005	61378.27±363.81		P <sub>EEMACOMH</sub>	89.13±0.89	0.078±0.007	59765.39±386.29
	P <sub>EEMACOMC</sub>	86.38±1.01	0.079±0.007	60321.76±338.29		P <sub>EEMACOMC</sub>	89.12±0.89	0.079±0.007	58768.34±376.20
(e) $T_{sm} = 5$					(f) $T_{sm} = 6$				
$\rho_l$	$\mathcal{P}\mathcal{F}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$	$\rho_l$	$\mathcal{P}\mathcal{F}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$
0.1	P <sub>EEMACOMP</sub>	86.34±1.56	0.081±0.009	59134.28±387.31	0.1	P <sub>EEMACOMP</sub>	93.17±1.06	0.074±0.010	60124.32±432.11
	P <sub>EEMACOMH</sub>	85.29±1.67	0.087±0.011	59629.22±376.23		P <sub>EEMACOMH</sub>	93.13±1.05	0.082±0.011	58491.67±539.03
	P <sub>EEMACOMC</sub>	87.26±1.74	0.098±0.014	58987.34±386.29		P <sub>EEMACOMC</sub>	97.14±0.92	0.093±0.012	59247.38±543.85
0.3	P <sub>EEMACOMP</sub>	88.21±0.87	0.056±0.007	60235.39±332.45	0.3	P <sub>EEMACOMP</sub>	92.35±1.07	0.054±0.006	60975.12±332.81
	P <sub>EEMACOMH</sub>	88.76±0.86	0.064±0.007	60341.67±334.74		P <sub>EEMACOMH</sub>	96.39±0.94	0.060±0.007	59728.34±396.58
	P <sub>EEMACOMC</sub>	89.12±0.79	0.075±0.009	61329.45±317.29		P <sub>EEMACOMC</sub>	96.26±0.99	0.067±0.008	58347.98±354.67
0.5	P <sub>EEMACOMP</sub>	99.99±0.02	0.038±0.002	63897.34±113.52	0.5	P <sub>EEMACOMP</sub>	99.99±0.02	0.037±0.003	65123.45±146.76
	P <sub>EEMACOMH</sub>	99.99±0.02	0.043±0.003	64126.67±164.29		P <sub>EEMACOMH</sub>	99.99±0.02	0.040±0.004	64598.26±175.73
	P <sub>EEMACOMC</sub>	99.99±0.02	0.042±0.003	64435.34±143.19		P <sub>EEMACOMC</sub>	99.99±0.02	0.038 ±0.003	64897.16±134.76
0.7	P <sub>EEMACOMP</sub>	96.64±0.33	0.034±0.003	62436.37±164.28	0.7	P <sub>EEMACOMP</sub>	97.15±0.39	0.034±0.003	63785.26±186.39
	P <sub>EEMACOMH</sub>	95.34±0.49	0.035±0.003	61283.17±187.39		P <sub>EEMACOMH</sub>	97.12±0.46	0.032±0.002	61349.39±187.32
	P <sub>EEMACOMC</sub>	96.35±0.29	0.029±0.002	63451.38±174.28		P <sub>EEMACOMC</sub>	98.13±0.28	0.029±0.002	63412.90±165.28
0.9	P <sub>EEMACOMP</sub>	95.89±0.46	0.049±0.006	61204.25±189.28	0.9	P <sub>EEMACOMP</sub>	97.12±0.48	0.049±0.006	60245.21±224.65
	P <sub>EEMACOMH</sub>	96.34±0.43	0.046±0.006	61654.29±185.28		P <sub>EEMACOMH</sub>	98.23±0.43	0.047±0.006	60276.54±228.48
	P <sub>EEMACOMC</sub>	96.73±0.24	0.049±0.007	61859.14±187.28		P <sub>EEMACOMC</sub>	98.16±0.24	0.042±0.007	59875.20±315.68

Table D.9: Influence of parameter  $\rho_l$  on the  $\bar{n}_{alg}$ ,  $\bar{\varrho}$  and  $\bar{\xi}$  metrics, for 30 nodes and  $R_g = 800$

(a) $T_{sm} = 1$					(b) $T_{sm} = 2$				
$\rho_l$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$	$\rho_l$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$
0.1	P <sub>EEMACOMP</sub>	50.23±4.87	0.245±0.025	46327.43±1067.12	0.1	P <sub>EEMACOMP</sub>	61.34±2.76	0.234±0.023	50416.83±983.12
	P <sub>EEMACOMH</sub>	38.23±6.78	0.246±0.027	46528.31±1178.34		P <sub>EEMACOMH</sub>	34.45±3.69	0.228±0.022	50598.30±915.84
	P <sub>EEMACOMC</sub>	43.56±5.45	0.287±0.028	47623.63±1137.20		P <sub>EEMACOMC</sub>	56.47±2.68	0.224±0.023	52783.62±937.75
0.3	P <sub>EEMACOMP</sub>	57.23±4.83	0.223±0.019	52387.41± 964.29	0.3	P <sub>EEMACOMP</sub>	67.45±1.87	0.168±0.018	53247.83±869.23
	P <sub>EEMACOMH</sub>	43.51±6.34	0.213±0.018	47392.09± 996.62		P <sub>EEMACOMH</sub>	36.12±3.87	0.197±0.021	55127.84±854.25
	P <sub>EEMACOMC</sub>	43.27±5.59	0.249±0.023	50230.71± 979.45		P <sub>EEMACOMC</sub>	66.31±2.34	0.198±0.022	52134.74±875.84
0.5	P <sub>EEMACOMP</sub>	89.46±1.45	0.126±0.017	62345.26± 248.39	0.5	P <sub>EEMACOMP</sub>	95.42±1.21	0.097±0.010	63687.36±157.23
	P <sub>EEMACOMH</sub>	52.45±2.45	0.152±0.019	61327.87± 269.29		P <sub>EEMACOMH</sub>	45.56±2.35	0.152±0.014	64165.67±135.28
	P <sub>EEMACOMC</sub>	86.35±1.53	0.147±0.018	62391.34± 236.51		P <sub>EEMACOMC</sub>	96.23±1.23	0.130±0.012	64151.75±147.82
0.7	P <sub>EEMACOMP</sub>	90.45±0.99	0.117±0.016	62315.36± 168.30	0.7	P <sub>EEMACOMP</sub>	96.34±0.67	0.094±0.009	64132.87±138.43
	P <sub>EEMACOMH</sub>	56.21±1.78	0.154±0.018	61651.67± 199.97		P <sub>EEMACOMH</sub>	46.56±2.38	0.150±0.013	64124.36±128.38
	P <sub>EEMACOMC</sub>	85.37±1.24	0.145±0.017	62316.76± 165.38		P <sub>EEMACOMC</sub>	94.28±0.97	0.132±0.012	64256.97±137.83
0.9	P <sub>EEMACOMP</sub>	85.23±1.37	0.145±0.017	52341.67± 867.25	0.9	P <sub>EEMACOMP</sub>	92.45±0.98	0.123±0.012	58102.65±524.47
	P <sub>EEMACOMH</sub>	52.45±1.46	0.167±0.019	53720.56± 887.34		P <sub>EEMACOMH</sub>	44.59±1.57	0.154±0.014	58168.35±557.85
	P <sub>EEMACOMC</sub>	82.37±1.40	0.154±0.018	54592.46± 865.29		P <sub>EEMACOMC</sub>	82.67±1.13	0.143±0.014	56637.19±548.29
(c) $T_{sm} = 3$					(d) $T_{sm} = 4$				
$\rho_l$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$	$\rho_l$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$
0.1	P <sub>EEMACOMP</sub>	67.39±2.89	0.198±0.020	55894.10±413.45	0.1	P <sub>EEMACOMP</sub>	74.29±3.45	0.187±0.016	59754.25±523.42
	P <sub>EEMACOMH</sub>	60.29±3.28	0.215±0.021	56764.20±428.40		P <sub>EEMACOMH</sub>	40.23±5.28	0.198±0.021	58673.88±523.65
	P <sub>EEMACOMC</sub>	61.34±2.57	0.216±0.022	56230.41±457.12		P <sub>EEMACOMC</sub>	72.45±3.76	0.184±0.020	56498.49±634.29
0.3	P <sub>EEMACOMP</sub>	72.76±2.68	0.165±0.016	60356.76±365.20	0.3	P <sub>EEMACOMP</sub>	77.43±2.46	0.164±0.018	60158.48±287.39
	P <sub>EEMACOMH</sub>	67.23±3.56	0.187±0.018	60345.56±374.12		P <sub>EEMACOMH</sub>	43.42±4.78	0.162±0.018	59438.29±267.69
	P <sub>EEMACOMC</sub>	72.45±2.87	0.194±0.021	61846.27±367.20		P <sub>EEMACOMC</sub>	75.32±3.75	0.137±0.017	60856.27±267.84
0.5	P <sub>EEMACOMP</sub>	94.29±0.68	0.089±0.009	64389.29±167.34	0.5	P <sub>EEMACOMP</sub>	96.34±0.56	0.074±0.007	65237.29±112.54
	P <sub>EEMACOMH</sub>	75.37±1.87	0.117±0.011	64298.57±178.27		P <sub>EEMACOMH</sub>	50.24±3.89	0.140±0.009	64012.46±122.59
	P <sub>EEMACOMC</sub>	94.29±0.62	0.112±0.013	64129.34±176.27		P <sub>EEMACOMC</sub>	94.29±0.78	0.105±0.008	64784.57±117.45
0.7	P <sub>EEMACOMP</sub>	91.45±0.85	0.082±0.008	63978.12±242.19	0.7	P <sub>EEMACOMP</sub>	93.64±0.87	0.067±0.004	63538.35±165.24
	P <sub>EEMACOMH</sub>	70.32±1.26	0.109±0.011	62875.23±267.48		P <sub>EEMACOMH</sub>	48.45±0.76	0.126±0.008	62896.56±164.37
	P <sub>EEMACOMC</sub>	90.65±0.76	0.105±0.011	63216.75±237.28		P <sub>EEMACOMC</sub>	90.34±0.84	0.083±0.007	63784.39±145.22
0.9	P <sub>EEMACOMP</sub>	92.12±0.89	0.114±0.010	61268.47±289.47	0.9	P <sub>EEMACOMP</sub>	91.07±0.68	0.087±0.007	59675.32±278.34
	P <sub>EEMACOMH</sub>	72.45±1.25	0.126±0.013	62346.63±275.28		P <sub>EEMACOMH</sub>	45.62±0.89	0.129±0.009	59347.84±267.93
	P <sub>EEMACOMC</sub>	84.27±1.08	0.129±0.014	62561.37±256.29		P <sub>EEMACOMC</sub>	87.34±0.89	0.098±0.008	58986.67±297.48
(e) $T_{sm} = 5$					(f) $T_{sm} = 6$				
$\rho_l$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$	$\rho_l$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$
0.1	P <sub>EEMACOMP</sub>	94.26±0.75	0.134±0.013	59843.25±297.45	0.1	P <sub>EEMACOMP</sub>	91.15±1.08	0.116±0.011	60867.92±387.29
	P <sub>EEMACOMH</sub>	61.27±1.48	0.148±0.014	59834.76±285.36		P <sub>EEMACOMH</sub>	92.48±1.07	0.122±0.012	59786.20±419.34
	P <sub>EEMACOMC</sub>	96.74±0.76	0.124±0.012	59876.30±227.69		P <sub>EEMACOMC</sub>	96.30±0.87	0.117±0.011	60589.20±396.16
0.3	P <sub>EEMACOMP</sub>	98.54±0.56	0.125±0.012	60654.23±245.76	0.3	P <sub>EEMACOMP</sub>	91.87±1.06	0.107±0.010	60909.34±304.65
	P <sub>EEMACOMH</sub>	64.27±1.43	0.138±0.013	60453.28±243.76		P <sub>EEMACOMH</sub>	95.18±0.91	0.103±0.011	59989.45±376.43
	P <sub>EEMACOMC</sub>	98.67±0.46	0.127±0.011	61456.76±231.45		P <sub>EEMACOMC</sub>	95.22±0.93	0.116±0.012	59876.63±346.72
0.5	P <sub>EEMACOMP</sub>	99.45±0.03	0.074±0.006	65142.45±109.50	0.5	P <sub>EEMACOMP</sub>	99.53±0.02	0.070±0.006	65133.28±115.67
	P <sub>EEMACOMH</sub>	70.21±1.14	0.108±0.008	64984.21±128.59		P <sub>EEMACOMH</sub>	99.52±0.02	0.101±0.008	65237.75±104.67
	P <sub>EEMACOMC</sub>	99.23±0.03	0.103±0.008	64793.24±124.53		P <sub>EEMACOMC</sub>	99.29±0.03	0.089±0.007	65162.58±112.68
0.7	P <sub>EEMACOMP</sub>	98.14±0.35	0.065±0.004	62865.23±164.28	0.7	P <sub>EEMACOMP</sub>	96.87±0.32	0.057±0.005	63972.49±142.58
	P <sub>EEMACOMH</sub>	66.34±1.46	0.089±0.007	61563.20±178.36		P <sub>EEMACOMH</sub>	96.03±0.41	0.076±0.006	61859.85±125.67
	P <sub>EEMACOMC</sub>	98.27±0.32	0.096±0.007	63851.34±145.67		P <sub>EEMACOMC</sub>	97.37±0.29	0.079±0.006	63653.86±143.67
0.9	P <sub>EEMACOMP</sub>	97.89±0.46	0.089±0.008	61673.87±182.41	0.9	P <sub>EEMACOMP</sub>	95.23±0.42	0.078±0.009	60879.34±213.67
	P <sub>EEMACOMH</sub>	63.28±1.93	0.098±0.009	61874.30±178.37		P <sub>EEMACOMH</sub>	96.25±0.37	0.106±0.011	60867.45±222.79
	P <sub>EEMACOMC</sub>	98.73±0.24	0.099±0.009	61812.67±176.34		P <sub>EEMACOMC</sub>	96.89±0.27	0.092±0.010	59932.05±276.38









Table D.13: Influence of parameter  $\alpha$  on the  $\bar{n}_{alg}$ ,  $\bar{\rho}$  and  $\bar{\xi}$  metrics, for 30 nodes and  $R_g = 300$

(a) $T_{sm} = 1$					(b) $T_{sm} = 2$				
$\alpha$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\rho}$	$\bar{\xi}$	$\alpha$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\rho}$	$\bar{\xi}$
1.00	P <sub>EEMMASMP</sub>	86.23±1.56	0.054±0.007	44326.65±1231.15	1.00	P <sub>EEMMASMP</sub>	91.35±1.21	0.052±0.007	46456.38±1131.45
	P <sub>EEMMASMH</sub>	87.67±1.47	0.052±0.008	47234.57±1234.16		P <sub>EEMMASMH</sub>	90.68±1.26	0.054±0.007	49589.28±1078.81
1.50	P <sub>EEMMASMP</sub>	88.36±1.14	0.048±0.006	59234.45± 479.34	1.50	P <sub>EEMMASMP</sub>	88.43±0.99	0.040±0.006	60341.45± 643.31
	P <sub>EEMMASMH</sub>	86.38±1.13	0.049±0.007	59379.23± 523.43		P <sub>EEMMASMH</sub>	89.45±1.13	0.042±0.006	58743.24± 675.63
2.00	P <sub>EEMMASMP</sub>	89.35±1.03	0.058±0.006	58345.67± 667.87	2.00	P <sub>EEMMASMP</sub>	91.57±0.83	0.053±0.006	60834.47± 682.34
	P <sub>EEMMASMH</sub>	87.25±1.35	0.062±0.006	57453.65± 723.56		P <sub>EEMMASMH</sub>	92.67±1.27	0.054±0.007	59234.45± 673.35
2.50	P <sub>EEMMASMP</sub>	90.21±0.56	0.078±0.007	59135.51± 673.26	2.50	P <sub>EEMMASMP</sub>	91.45±0.95	0.076±0.008	61324.89± 674.21
	P <sub>EEMMASMH</sub>	90.14±0.58	0.082±0.008	57256.53± 723.45		P <sub>EEMMASMH</sub>	91.89±1.14	0.075±0.007	59242.43± 639.39
3.00	P <sub>EEMMASMP</sub>	57.56±4.31	0.078±0.008	45124.34± 865.32	3.00	P <sub>EEMMASMP</sub>	64.45±3.89	0.076±0.008	46745.98± 732.19
	P <sub>EEMMASMH</sub>	58.91±4.21	0.076±0.008	46432.32± 867.35		P <sub>EEMMASMH</sub>	63.89±3.75	0.078±0.008	46879.23± 753.96
3.50	P <sub>EEMMASMP</sub>	55.48±4.24	0.082±0.008	43257.82± 874.53	3.50	P <sub>EEMMASMP</sub>	66.43±3.37	0.079±0.008	45789.74± 779.90
	P <sub>EEMMASMH</sub>	57.76±4.38	0.079±0.008	44267.81± 874.27		P <sub>EEMMASMH</sub>	66.45±3.56	0.085±0.009	44789.37± 765.89

(c) $T_{sm} = 3$					(d) $T_{sm} = 4$				
$\alpha$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\rho}$	$\bar{\xi}$	$\alpha$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\rho}$	$\bar{\xi}$
1.00	P <sub>EEMMASMP</sub>	93.37±0.67	0.036±0.003	47654.78±1011.25	1.00	P <sub>EEMMASMP</sub>	94.79±0.64	0.030±0.002	48694.23±689.32
	P <sub>EEMMASMH</sub>	90.53±0.83	0.035±0.003	49789.48±1023.65		P <sub>EEMMASMH</sub>	92.68±0.79	0.031±0.002	50346.65±679.43
1.50	P <sub>EEMMASMP</sub>	89.56±0.87	0.033±0.002	61678.38± 354.21	1.50	P <sub>EEMMASMP</sub>	91.67±0.92	0.031±0.002	61875.54±332.65
	P <sub>EEMMASMH</sub>	90.78±1.09	0.034±0.003	60345.43± 387.43		P <sub>EEMMASMH</sub>	91.64±1.02	0.032±0.002	60984.27±375.42
2.00	P <sub>EEMMASMP</sub>	92.87±0.78	0.033±0.003	60934.24± 467.21	2.00	P <sub>EEMMASMP</sub>	92.81±0.73	0.033±0.003	61324.67±364.67
	P <sub>EEMMASMH</sub>	93.87±1.16	0.032±0.002	60327.48± 486.21		P <sub>EEMMASMH</sub>	93.65±1.11	0.030±0.002	60985.64±389.43
2.50	P <sub>EEMMASMP</sub>	92.56±0.92	0.058±0.008	61871.54± 321.43	2.50	P <sub>EEMMASMP</sub>	93.86±0.87	0.054±0.006	61934.17±312.45
	P <sub>EEMMASMH</sub>	91.78±1.11	0.061±0.007	60673.65± 321.46		P <sub>EEMMASMH</sub>	92.67±1.05	0.054±0.007	61456.76±314.78
3.00	P <sub>EEMMASMP</sub>	65.85±3.65	0.062±0.006	48754.32± 632.34	3.00	P <sub>EEMMASMP</sub>	67.51±3.57	0.058±0.007	49427.75±623.56
	P <sub>EEMMASMH</sub>	64.76±3.59	0.071±0.007	49124.65± 645.21		P <sub>EEMMASMH</sub>	66.87±3.43	0.068±0.007	49843.67±645.71
3.50	P <sub>EEMMASMP</sub>	68.45±3.43	0.072±0.007	47123.64± 723.54	3.50	P <sub>EEMMASMP</sub>	72.43±3.34	0.067±0.008	48764.36±703.41
	P <sub>EEMMASMH</sub>	67.87±3.78	0.079±0.008	46543.76± 745.65		P <sub>EEMMASMH</sub>	75.65±3.57	0.076±0.008	48521.72±713.65

(e) $T_{sm} = 5$					(f) $T_{sm} = 6$				
$\alpha$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\rho}$	$\bar{\xi}$	$\alpha$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\rho}$	$\bar{\xi}$
1.00	P <sub>EEMMASMP</sub>	96.54±0.54	0.028±0.002	49875.23±598.43	1.00	P <sub>EEMMASMP</sub>	97.32±0.44	0.027±0.002	50128.93±547.58
	P <sub>EEMMASMH</sub>	94.52±0.65	0.030±0.002	52345.93±587.21		P <sub>EEMMASMH</sub>	96.27±0.58	0.029±0.002	53257.74±537.74
1.50	P <sub>EEMMASMP</sub>	94.59±0.48	0.029±0.002	61975.84±321.45	1.50	P <sub>EEMMASMP</sub>	99.21±0.13	0.028±0.002	62143.65±214.43
	P <sub>EEMMASMH</sub>	95.61±0.37	0.030±0.002	62148.45±335.76		P <sub>EEMMASMH</sub>	97.82±0.27	0.029±0.002	62159.53±197.84
2.00	P <sub>EEMMASMP</sub>	94.51±0.45	0.030±0.003	62153.28±301.62	2.00	P <sub>EEMMASMP</sub>	98.72±0.15	0.029±0.002	62358.28±217.53
	P <sub>EEMMASMH</sub>	95.78±0.39	0.028±0.002	61997.32±321.68		P <sub>EEMMASMH</sub>	98.12±0.17	0.029±0.002	62108.34±228.53
2.50	P <sub>EEMMASMP</sub>	94.16±0.46	0.045±0.005	61989.34±324.74	2.50	P <sub>EEMMASMP</sub>	95.46±0.26	0.039±0.004	62346.27±237.84
	P <sub>EEMMASMH</sub>	93.85±0.42	0.042±0.005	61769.43±316.82		P <sub>EEMMASMH</sub>	96.62±0.23	0.040±0.004	61985.53±267.84
3.00	P <sub>EEMMASMP</sub>	70.52±3.32	0.051±0.006	51279.67±598.34	3.00	P <sub>EEMMASMP</sub>	74.63±2.56	0.049±0.005	53276.45±532.54
	P <sub>EEMMASMH</sub>	68.67±3.12	0.059±0.007	50898.58±612.46		P <sub>EEMMASMH</sub>	70.83±2.87	0.055±0.006	52356.43±523.12
3.50	P <sub>EEMMASMP</sub>	73.69±2.85	0.061±0.007	48895.42±640.23	3.50	P <sub>EEMMASMP</sub>	75.42±2.65	0.060±0.006	48895.42±640.23
	P <sub>EEMMASMH</sub>	77.84±2.77	0.072±0.008	48943.52±632.68		P <sub>EEMMASMH</sub>	73.54±2.34	0.068±0.006	48943.52±632.68



Table D.14: Influence of parameter  $\alpha$  on the  $\bar{n}_{alg}$ ,  $\bar{\rho}$  and  $\bar{\xi}$  metrics, for 30 nodes and  $R_g = 500$

(a) $T_{sm} = 1$					(b) $T_{sm} = 2$				
$\alpha$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\rho}$	$\bar{\xi}$	$\alpha$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\rho}$	$\bar{\xi}$
1.00	P <sub>EEMMASMP</sub>	85.21±1.69	0.063±0.008	42457.65±935.59	1.00	P <sub>EEMMASMP</sub>	86.32±1.31	0.052±0.006	45378.97±785.43
	P <sub>EEMMASMH</sub>	83.26±1.75	0.067±0.009	45127.78±897.77		P <sub>EEMMASMH</sub>	85.47±1.43	0.051±0.004	46734.48±768.34
1.50	P <sub>EEMMASMP</sub>	82.67±1.54	0.064±0.008	58764.23±498.27	1.50	P <sub>EEMMASMP</sub>	83.86±1.23	0.053±0.005	63367.34±225.67
	P <sub>EEMMASMH</sub>	82.84±1.35	0.063±0.007	58653.13±516.68		P <sub>EEMMASMH</sub>	84.21±1.12	0.051±0.004	63876.43±227.54
2.00	P <sub>EEMMASMP</sub>	85.12±1.42	0.088±0.009	58234.87±531.65	2.00	P <sub>EEMMASMP</sub>	87.86±1.41	0.049±0.004	63216.25±248.65
	P <sub>EEMMASMH</sub>	82.38±1.34	0.082±0.009	58321.78±543.82		P <sub>EEMMASMH</sub>	84.56±1.23	0.048±0.004	63425.71±246.58
2.50	P <sub>EEMMASMP</sub>	90.54±0.91	0.126±0.011	58247.80±542.76	2.50	P <sub>EEMMASMP</sub>	92.34±0.87	0.087±0.006	63256.76±245.65
	P <sub>EEMMASMH</sub>	90.76±0.87	0.137±0.013	57379.21±562.68		P <sub>EEMMASMH</sub>	92.76±0.78	0.118±0.011	63245.56±231.43
3.00	P <sub>EEMMASMP</sub>	53.87±4.39	0.135±0.012	43217.75±987.49	3.00	P <sub>EEMMASMP</sub>	56.34±4.12	0.121±0.011	46758.34±752.32
	P <sub>EEMMASMH</sub>	52.82±4.54	0.138±0.012	44673.12±886.32		P <sub>EEMMASMH</sub>	54.67±4.23	0.124±0.012	48654.23±768.34
3.50	P <sub>EEMMASMP</sub>	52.43±4.47	0.132±0.013	42368.93±932.56	3.50	P <sub>EEMMASMP</sub>	54.76±4.36	0.124±0.013	44354.76±837.32
	P <sub>EEMMASMH</sub>	51.76±4.76	0.145±0.014	42368.75±942.58		P <sub>EEMMASMH</sub>	53.98±4.23	0.132±0.013	44567.28±876.23
(c) $T_{sm} = 3$					(d) $T_{sm} = 4$				
$\alpha$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\rho}$	$\bar{\xi}$	$\alpha$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\rho}$	$\bar{\xi}$
1.00	P <sub>EEMMASMP</sub>	88.31±1.27	0.047±0.005	48126.43±675.43	1.00	P <sub>EEMMASMP</sub>	89.38±1.21	0.044±0.004	50326.67±546.38
	P <sub>EEMMASMH</sub>	88.32±1.34	0.046±0.004	48765.32±658.32		P <sub>EEMMASMH</sub>	90.37±1.25	0.044±0.004	50268.45±569.23
1.50	P <sub>EEMMASMP</sub>	86.32±1.28	0.045±0.004	63786.32±187.45	1.50	P <sub>EEMMASMP</sub>	87.35±1.14	0.046±0.004	63456.32±183.17
	P <sub>EEMMASMH</sub>	87.32±1.17	0.045±0.003	63997.32±189.54		P <sub>EEMMASMH</sub>	89.32±1.16	0.045±0.003	63765.78±182.34
2.00	P <sub>EEMMASMP</sub>	89.97±1.14	0.046±0.004	64217.43±164.32	2.00	P <sub>EEMMASMP</sub>	91.23±1.01	0.045±0.004	64129.54±185.23
	P <sub>EEMMASMH</sub>	86.74±1.23	0.044±0.003	63974.32±167.34		P <sub>EEMMASMH</sub>	88.76±1.12	0.043±0.004	63795.21±187.21
2.50	P <sub>EEMMASMP</sub>	94.65±0.64	0.071±0.006	63546.27±175.35	2.50	P <sub>EEMMASMP</sub>	96.67±0.53	0.065±0.006	64231.58±178.27
	P <sub>EEMMASMH</sub>	95.87±0.67	0.102±0.008	63754.32±198.76		P <sub>EEMMASMH</sub>	97.43±0.56	0.097±0.009	64258.21±174.32
3.00	P <sub>EEMMASMP</sub>	59.32±3.79	0.085±0.008	49324.65±657.32	3.00	P <sub>EEMMASMP</sub>	64.38±3.63	0.078±0.008	51478.38±578.32
	P <sub>EEMMASMH</sub>	58.76±3.98	0.096±0.009	49876.24±657.43		P <sub>EEMMASMH</sub>	62.24±3.77	0.085±0.008	51789.25±578.32
3.50	P <sub>EEMMASMP</sub>	58.54±4.05	0.102±0.011	46786.43±823.34	3.50	P <sub>EEMMASMP</sub>	62.48±3.87	0.097±0.010	48765.38±732.24
	P <sub>EEMMASMH</sub>	56.12±4.13	0.112±0.012	46782.34±835.27		P <sub>EEMMASMH</sub>	69.23±3.49	0.096±0.011	48654.34±765.32
(e) $T_{sm} = 5$					(f) $T_{sm} = 6$				
$\alpha$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\rho}$	$\bar{\xi}$	$\alpha$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\rho}$	$\bar{\xi}$
1.00	P <sub>EEMMASMP</sub>	92.69±1.13	0.043±0.005	51356.86±535.86	1.00	P <sub>EEMMASMP</sub>	94.83±0.87	0.041±0.004	52568.85±587.61
	P <sub>EEMMASMH</sub>	90.93±1.24	0.042±0.004	50786.78±556.84		P <sub>EEMMASMH</sub>	96.67±0.76	0.042±0.004	51865.27±559.32
1.50	P <sub>EEMMASMP</sub>	89.74±1.76	0.044±0.004	63765.97±186.28	1.50	P <sub>EEMMASMP</sub>	94.97±0.63	0.042±0.005	64987.43±191.57
	P <sub>EEMMASMH</sub>	91.53±0.78	0.045±0.005	63869.86±187.93		P <sub>EEMMASMH</sub>	95.54±0.56	0.042±0.005	65132.12±183.68
2.00	P <sub>EEMMASMP</sub>	93.46±0.75	0.043±0.004	63976.49±190.23	2.00	P <sub>EEMMASMP</sub>	98.37±0.41	0.040±0.004	65234.58±175.68
	P <sub>EEMMASMH</sub>	89.89±0.78	0.043±0.004	63975.34±192.45		P <sub>EEMMASMH</sub>	93.47±0.63	0.039±0.004	65210.58±174.27
2.50	P <sub>EEMMASMP</sub>	98.98±0.49	0.070±0.007	64127.86±176.92	2.50	P <sub>EEMMASMP</sub>	99.17±0.34	0.072±0.008	64237.82±173.58
	P <sub>EEMMASMH</sub>	98.74±0.46	0.094±0.009	64138.28±179.74		P <sub>EEMMASMH</sub>	98.94±0.32	0.090±0.009	64565.34±172.47
3.00	P <sub>EEMMASMP</sub>	66.83±3.68	0.082±0.008	52347.86±548.94	3.00	P <sub>EEMMASMP</sub>	71.23±3.58	0.076±0.008	53563.82±579.34
	P <sub>EEMMASMH</sub>	64.74±3.67	0.088±0.009	52478.54±546.73		P <sub>EEMMASMH</sub>	69.41±3.47	0.081±0.009	53642.48±587.45
3.50	P <sub>EEMMASMP</sub>	65.75±3.58	0.095±0.010	49875.39±708.86	3.50	P <sub>EEMMASMP</sub>	69.74±3.34	0.087±0.010	50874.28±618.39
	P <sub>EEMMASMH</sub>	71.68±3.37	0.102±0.010	49745.75±714.58		P <sub>EEMMASMH</sub>	76.93±3.57	0.096±0.011	50684.23±674.32

Table D.15: Influence of parameter  $\alpha$  on the  $\bar{n}_{alg}$ ,  $\bar{\rho}$  and  $\bar{\xi}$  metrics, for 30 nodes and  $R_g = 800$

(a)  $T_{sm} = 1$

$\alpha$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\rho}$	$\bar{\xi}$
1.00	P <sub>EEMMASMP</sub>	81.31±1.45	0.117±0.015	40235.76±958.27
	P <sub>EEMMASMH</sub>	82.87±1.37	0.120±0.015	43468.97±934.28
1.50	P <sub>EEMMASMP</sub>	86.34±1.46	0.115±0.014	57685.29±538.27
	P <sub>EEMMASMH</sub>	84.84±1.47	0.114±0.015	57743.29±529.43
2.00	P <sub>EEMMASMP</sub>	84.10±1.48	0.116±0.014	57639.73±528.53
	P <sub>EEMMASMH</sub>	80.12±1.59	0.117±0.013	57497.28±563.19
2.50	P <sub>EEMMASMP</sub>	88.43±0.98	0.149±0.018	58754.27±562.49
	P <sub>EEMMASMH</sub>	83.31±0.93	0.156±0.018	55126.43±576.26
3.00	P <sub>EEMMASMP</sub>	50.34±4.63	0.142±0.018	40237.87±958.23
	P <sub>EEMMASMH</sub>	48.53±4.68	0.145±0.019	42579.42±897.36
3.50	P <sub>EEMMASMP</sub>	48.26±4.69	0.151±0.020	41368.28±965.29
	P <sub>EEMMASMH</sub>	47.83±4.87	0.168±0.022	40489.38±976.32

(b)  $T_{sm} = 2$

$\alpha$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\rho}$	$\bar{\xi}$
1.00	P <sub>EEMMASMP</sub>	84.41±1.56	0.103±0.012	42348.86±895.28
	P <sub>EEMMASMH</sub>	83.75±1.59	0.105±0.013	44876.74±875.29
1.50	P <sub>EEMMASMP</sub>	88.63±1.40	0.101±0.012	59564.20±486.73
	P <sub>EEMMASMH</sub>	85.87±1.45	0.104±0.014	59764.32±487.63
2.00	P <sub>EEMMASMP</sub>	86.82±1.42	0.099±0.012	59754.63±487.93
	P <sub>EEMMASMH</sub>	81.87±1.56	0.103±0.012	58965.38±498.49
2.50	P <sub>EEMMASMP</sub>	89.76±0.85	0.138±0.019	59458.32±524.87
	P <sub>EEMMASMH</sub>	86.23±0.87	0.137±0.018	57278.94±512.65
3.00	P <sub>EEMMASMP</sub>	53.67±4.53	0.136±0.018	42459.05±879.39
	P <sub>EEMMASMH</sub>	49.87±4.54	0.141±0.018	43268.74±856.83
3.50	P <sub>EEMMASMP</sub>	51.67±4.45	0.143±0.020	42568.94±985.84
	P <sub>EEMMASMH</sub>	53.89±4.67	0.162±0.021	41764.98±974.92

(c)  $T_{sm} = 3$

$\alpha$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\rho}$	$\bar{\xi}$
1.00	P <sub>EEMMASMP</sub>	86.19±1.84	0.090±0.012	43785.93±765.39
	P <sub>EEMMASMH</sub>	88.39±1.78	0.092±0.013	45672.95±784.29
1.50	P <sub>EEMMASMP</sub>	91.63±1.02	0.091±0.012	62568.83±379.74
	P <sub>EEMMASMH</sub>	90.57±1.13	0.088±0.012	62853.05±368.97
2.00	P <sub>EEMMASMP</sub>	92.76±0.91	0.088±0.012	62348.95±378.94
	P <sub>EEMMASMH</sub>	92.12±0.95	0.089±0.011	62452.97±364.27
2.50	P <sub>EEMMASMP</sub>	92.57±0.96	0.115±0.017	63109.98±427.98
	P <sub>EEMMASMH</sub>	91.79±0.98	0.126±0.018	62341.98±438.92
3.00	P <sub>EEMMASMP</sub>	53.68±4.49	0.118±0.017	43569.09±764.92
	P <sub>EEMMASMH</sub>	50.87±4.37	0.136±0.018	45785.94±785.53
3.50	P <sub>EEMMASMP</sub>	51.86±4.34	0.127±0.018	43658.86±875.34
	P <sub>EEMMASMH</sub>	52.98±4.23	0.143±0.019	43875.92±867.43

(d)  $T_{sm} = 4$

$\alpha$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\rho}$	$\bar{\xi}$
1.00	P <sub>EEMMASMP</sub>	91.64±1.11	0.083±0.011	45347.37±674.32
	P <sub>EEMMASMH</sub>	90.43±1.24	0.082±0.011	46783.58±687.54
1.50	P <sub>EEMMASMP</sub>	94.26±0.98	0.084±0.010	63124.56±347.28
	P <sub>EEMMASMH</sub>	92.15±1.04	0.081±0.011	63321.54±358.39
2.00	P <sub>EEMMASMP</sub>	94.87±0.93	0.084±0.012	63427.65±347.38
	P <sub>EEMMASMH</sub>	94.24±0.91	0.084±0.012	63214.45±337.48
2.50	P <sub>EEMMASMP</sub>	93.21±0.92	0.110±0.016	63435.63±345.76
	P <sub>EEMMASMH</sub>	92.32±0.96	0.113±0.017	63256.53±398.43
3.00	P <sub>EEMMASMP</sub>	57.23±4.21	0.112±0.017	45673.27±687.43
	P <sub>EEMMASMH</sub>	54.45±4.14	0.123±0.018	46876.34±675.34
3.50	P <sub>EEMMASMP</sub>	54.87±4.23	0.121±0.017	44567.32±835.63
	P <sub>EEMMASMH</sub>	55.23±4.06	0.124±0.017	44563.28±813.45

(e)  $T_{sm} = 5$

$\alpha$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\rho}$	$\bar{\xi}$
1.00	P <sub>EEMMASMP</sub>	94.54±0.69	0.077±0.008	50238.32±628.13
	P <sub>EEMMASMH</sub>	95.76±0.64	0.076±0.008	49683.42±614.57
1.50	P <sub>EEMMASMP</sub>	99.15±0.53	0.076±0.008	65236.21±187.58
	P <sub>EEMMASMH</sub>	95.78±0.67	0.075±0.007	65214.54±175.32
2.00	P <sub>EEMMASMP</sub>	99.32±0.16	0.078±0.008	65341.36±174.47
	P <sub>EEMMASMH</sub>	96.32±0.38	0.078±0.008	65139.32±178.32
2.50	P <sub>EEMMASMP</sub>	99.13±0.14	0.097±0.014	65231.65±175.23
	P <sub>EEMMASMH</sub>	96.31±0.63	0.102±0.015	65237.74±176.34
3.00	P <sub>EEMMASMP</sub>	62.87±3.37	0.106±0.015	49864.32±664.21
	P <sub>EEMMASMH</sub>	61.49±3.26	0.110±0.017	49742.32±654.38
3.50	P <sub>EEMMASMP</sub>	59.43±3.47	0.111±0.015	48632.93±669.23
	P <sub>EEMMASMH</sub>	60.43±3.32	0.112±0.016	49743.27±667.34

(f)  $T_{sm} = 6$

$\alpha$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\rho}$	$\bar{\xi}$
1.00	P <sub>EEMMASMP</sub>	98.41±0.49	0.078±0.009	48653.23±668.25
	P <sub>EEMMASMH</sub>	96.64±0.46	0.077±0.009	47845.57±623.56
1.50	P <sub>EEMMASMP</sub>	99.23±0.53	0.076±0.008	64235.76±268.43
	P <sub>EEMMASMH</sub>	96.17±0.78	0.075±0.008	64357.78±242.58
2.00	P <sub>EEMMASMP</sub>	99.45±0.38	0.078±0.008	64567.21±249.32
	P <sub>EEMMASMH</sub>	97.12±0.65	0.077±0.009	64565.87±246.53
2.50	P <sub>EEMMASMP</sub>	99.53±0.43	0.103±0.015	64265.76±238.65
	P <sub>EEMMASMH</sub>	96.89±0.75	0.108±0.016	64567.23±216.74
3.00	P <sub>EEMMASMP</sub>	63.56±3.78	0.109±0.017	48754.23±675.32
	P <sub>EEMMASMH</sub>	61.83±3.57	0.114±0.017	47965.23±685.78
3.50	P <sub>EEMMASMP</sub>	62.92±3.54	0.112±0.016	46743.27±693.26
	P <sub>EEMMASMH</sub>	62.32±3.65	0.115±0.016	47853.32±693.26

Table D.16: Influence of parameter  $\lambda_E$  on the  $\bar{n}_{alg}$ ,  $\bar{\varrho}$  and  $\bar{\xi}$  metrics, for 30 nodes and  $R_g = 300$

(a) $T_{sm} = 1$					(b) $T_{sm} = 2$				
$\lambda_E$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$	$\lambda_E$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$
$\lambda_E = 2.0$	P <sub>EEMACOMP</sub>	45.17±6.48	0.227±0.026	38238.38±989.21	$\lambda_E = 2.0$	P <sub>EEMACOMP</sub>	51.54±5.35	0.198±0.023	43127.34±834.56
	P <sub>EEMACOMH</sub>	44.69±6.93	0.238±0.028	37128.43±978.32		P <sub>EEMACOMH</sub>	49.21±5.58	0.196±0.024	42347.11±832.57
	P <sub>EEMMASMP</sub>	47.68±6.58	0.248±0.029	35359.78±947.39		P <sub>EEMMASMP</sub>	52.68±5.29	0.214±0.026	41346.21±864.28
	P <sub>EEMMASMH</sub>	46.59±6.69	0.259±0.028	38589.56±949.16		P <sub>EEMMASMH</sub>	51.64±5.79	0.203±0.023	42347.31±838.23
	P <sub>EEMACOMC</sub>	47.38±6.75	0.267±0.031	37431.34±968.32		P <sub>EEMACOMC</sub>	51.32±5.37	0.189±0.023	44247.31±879.31
$\lambda_E = 4.0$	P <sub>EEMACOMP</sub>	83.12±4.83	0.056±0.009	61567.32±228.31	$\lambda_E = 4.0$	P <sub>EEMACOMP</sub>	86.28±3.23	0.043±0.008	62128.42±236.27
	P <sub>EEMACOMH</sub>	81.43±4.58	0.057±0.009	62568.43±243.78		P <sub>EEMACOMH</sub>	84.23±3.47	0.044±0.007	62245.26±256.28
	P <sub>EEMMASMP</sub>	76.69±5.11	0.060±0.009	62749.21±238.10		P <sub>EEMMASMP</sub>	83.78±3.29	0.042±0.008	62253.38±236.20
	P <sub>EEMMASMH</sub>	83.59±4.98	0.062±0.010	61895.23±229.42		P <sub>EEMMASMH</sub>	84.61±3.38	0.043±0.006	62348.21±242.67
	P <sub>EEMACOMC</sub>	82.58±4.76	0.059±0.011	62458.29±225.62		P <sub>EEMACOMC</sub>	86.78±3.84	0.048±0.007	62357.21±238.41
$\lambda_E = 6.0$	P <sub>EEMACOMP</sub>	83.48±4.75	0.055±0.009	61897.32±283.20	$\lambda_E = 6.0$	P <sub>EEMACOMP</sub>	85.28±3.28	0.044±0.007	62856.31±235.28
	P <sub>EEMACOMH</sub>	84.59±4.58	0.056±0.009	62678.21±264.28		P <sub>EEMACOMH</sub>	86.41±3.95	0.046±0.008	62236.18±238.31
	P <sub>EEMMASMP</sub>	80.32±4.73	0.061±0.010	62456.21±247.21		P <sub>EEMMASMP</sub>	84.79±3.30	0.041±0.007	62241.69±236.40
	P <sub>EEMMASMH</sub>	80.38±4.68	0.062±0.011	62134.67±241.67		P <sub>EEMMASMH</sub>	87.32±3.37	0.040±0.007	62217.74±248.31
	P <sub>EEMACOMC</sub>	81.84±4.72	0.063±0.011	62348.21±243.46		P <sub>EEMACOMC</sub>	87.59±3.20	0.047±0.008	62248.21±238.31
$\lambda_E = 8.0$	P <sub>EEMACOMP</sub>	50.36±6.23	0.235±0.027	41268.32±987.51	$\lambda_E = 8.0$	P <sub>EEMACOMP</sub>	52.86±5.21	0.181±0.023	44827.39±725.58
	P <sub>EEMACOMH</sub>	48.41±6.09	0.268±0.029	41468.43±967.39		P <sub>EEMACOMH</sub>	49.41±5.46	0.184±0.024	43148.36±853.28
	P <sub>EEMMASMP</sub>	49.48±6.14	0.258±0.028	40234.76±989.32		P <sub>EEMMASMP</sub>	52.79±5.39	0.187±0.024	44269.31±867.31
	P <sub>EEMMASMH</sub>	51.32±6.26	0.231±0.026	38235.56±976.31		P <sub>EEMMASMH</sub>	53.89±5.20	0.183±0.023	42168.23±856.30
	P <sub>EEMACOMC</sub>	50.42±6.28	0.259±0.030	44132.64±924.67		P <sub>EEMACOMC</sub>	55.28±5.38	0.194±0.025	44568.25±848.21
(c) $T_{sm} = 3$					(d) $T_{sm} = 4$				
$\lambda_E$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$	$\lambda_E$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$
$\lambda_E = 2.0$	P <sub>EEMACOMP</sub>	52.35±4.39	0.168±0.016	46278.38±823.57	$\lambda_E = 2.0$	P <sub>EEMACOMP</sub>	56.31±3.54	0.124±0.014	48267.21±756.23
	P <sub>EEMACOMH</sub>	51.58±4.31	0.167±0.016	45723.59±812.68		P <sub>EEMACOMH</sub>	54.78±3.48	0.127±0.014	47864.23±769.32
	P <sub>EEMMASMP</sub>	52.47±4.57	0.172±0.018	44689.26±847.75		P <sub>EEMMASMP</sub>	55.38±3.89	0.113±0.013	48479.31±758.31
	P <sub>EEMMASMH</sub>	54.68±4.83	0.163±0.017	45749.24±839.33		P <sub>EEMMASMH</sub>	57.39±3.56	0.118±0.013	47438.21±776.49
	P <sub>EEMACOMC</sub>	55.31±4.47	0.162±0.015	44568.27±848.31		P <sub>EEMACOMC</sub>	57.45±3.48	0.126±0.014	47268.37±764.54
$\lambda_E = 4.0$	P <sub>EEMACOMP</sub>	87.32±3.28	0.039±0.007	63258.43±185.32	$\lambda_E = 4.0$	P <sub>EEMACOMP</sub>	97.32±2.67	0.036±0.005	63023.41±196.32
	P <sub>EEMACOMH</sub>	88.37±3.29	0.038±0.007	62314.27±226.21		P <sub>EEMACOMH</sub>	97.21±2.45	0.037±0.005	62245.64±224.54
	P <sub>EEMMASMP</sub>	87.48±3.74	0.036±0.006	62336.39±246.78		P <sub>EEMMASMP</sub>	96.28±2.63	0.032±0.004	62136.29±236.73
	P <sub>EEMMASMH</sub>	86.68±3.61	0.039±0.007	62352.68±254.78		P <sub>EEMMASMH</sub>	97.59±2.47	0.031±0.004	62224.52±238.38
	P <sub>EEMACOMC</sub>	89.78±3.63	0.034±0.005	63216.79±186.36		P <sub>EEMACOMC</sub>	95.38±2.43	0.033±0.004	64238.21±198.37
$\lambda_E = 6.0$	P <sub>EEMACOMP</sub>	89.68±3.78	0.038±0.007	63252.78±194.56	$\lambda_E = 6.0$	P <sub>EEMACOMP</sub>	95.38±2.57	0.036±0.006	63231.43±192.37
	P <sub>EEMACOMH</sub>	88.48±3.52	0.037±0.007	62127.65±248.21		P <sub>EEMACOMH</sub>	97.32±2.48	0.034±0.005	62245.20±223.47
	P <sub>EEMMASMP</sub>	88.53±3.73	0.035±0.006	62387.21±245.29		P <sub>EEMMASMP</sub>	97.73±2.64	0.035±0.004	62237.43±221.68
	P <sub>EEMMASMH</sub>	87.69±3.63	0.040±0.007	62379.42±249.35		P <sub>EEMMASMH</sub>	97.69±2.53	0.032±0.004	62236.32±216.38
	P <sub>EEMACOMC</sub>	89.67±3.61	0.035±0.006	63258.85±197.34		P <sub>EEMACOMC</sub>	96.18±2.64	0.033±0.004	64239.32±174.62
$\lambda_E = 8.0$	P <sub>EEMACOMP</sub>	53.58±4.46	0.162±0.016	46436.74±842.37	$\lambda_E = 8.0$	P <sub>EEMACOMP</sub>	56.32±3.43	0.124±0.013	50235.53±746.32
	P <sub>EEMACOMH</sub>	51.49±4.67	0.151±0.015	46478.24±846.31		P <sub>EEMACOMH</sub>	53.28±3.52	0.116±0.012	49189.32±784.25
	P <sub>EEMMASMP</sub>	52.46±4.73	0.162±0.017	47347.28±825.67		P <sub>EEMMASMP</sub>	54.58±3.47	0.128±0.014	48752.31±787.25
	P <sub>EEMMASMH</sub>	54.69±4.71	0.163±0.017	46389.25±838.38		P <sub>EEMMASMH</sub>	57.32±3.67	0.122±0.013	48358.61±768.42
	P <sub>EEMACOMC</sub>	57.28±4.76	0.155±0.016	45780.23±837.81		P <sub>EEMACOMC</sub>	56.36±3.58	0.118±0.012	45489.31±742.52
(e) $T_{sm} = 5$					(f) $T_{sm} = 6$				
$\lambda_E$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$	$\lambda_E$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$
$\lambda_E = 2.0$	P <sub>EEMACOMP</sub>	57.27±3.45	0.105±0.011	50458.13±664.37	$\lambda_E = 2.0$	P <sub>EEMACOMP</sub>	59.32±3.62	0.102±0.010	53878.32±632.27
	P <sub>EEMACOMH</sub>	56.63±3.67	0.113±0.012	48736.32±657.32		P <sub>EEMACOMH</sub>	60.24±3.55	0.104±0.010	51736.48±634.68
	P <sub>EEMMASMP</sub>	57.43±3.64	0.112±0.011	49843.34±658.21		P <sub>EEMMASMP</sub>	61.38±3.49	0.110±0.011	50648.25±618.36
	P <sub>EEMMASMH</sub>	58.74±3.58	0.114±0.012	50258.16±646.72		P <sub>EEMMASMH</sub>	62.48±3.52	0.109±0.011	52868.37±636.42
	P <sub>EEMACOMC</sub>	59.35±3.69	0.116±0.012	47637.89±659.28		P <sub>EEMACOMC</sub>	62.49±3.48	0.112±0.011	52438.68±647.29
$\lambda_E = 4.0$	P <sub>EEMACOMP</sub>	98.32±1.49	0.029±0.002	63125.78±198.41	$\lambda_E = 4.0$	P <sub>EEMACOMP</sub>	98.58±1.48	0.028±0.002	63234.69±192.26
	P <sub>EEMACOMH</sub>	98.75±1.56	0.031±0.003	62152.34±212.38		P <sub>EEMACOMH</sub>	98.63±1.52	0.030±0.003	62252.45±176.59
	P <sub>EEMMASMP</sub>	97.89±1.58	0.030±0.003	62049.21±216.38		P <sub>EEMMASMP</sub>	98.38±1.53	0.030±0.003	62149.31±222.37
	P <sub>EEMMASMH</sub>	98.43±1.49	0.028±0.002	62137.43±217.39		P <sub>EEMMASMH</sub>	98.92±1.48	0.028±0.003	62236.28±227.94
	P <sub>EEMACOMC</sub>	97.32±1.57	0.029±0.002	64128.34±172.48		P <sub>EEMACOMC</sub>	97.59±1.48	0.022±0.002	62160.32±228.39
$\lambda_E = 6.0$	P <sub>EEMACOMP</sub>	96.48±1.54	0.030±0.003	63102.31±178.36	$\lambda_E = 6.0$	P <sub>EEMACOMP</sub>	97.62±1.53	0.030±0.003	63148.45±187.53
	P <sub>EEMACOMH</sub>	97.40±1.39	0.030±0.003	62126.37±211.38		P <sub>EEMACOMH</sub>	97.52±1.42	0.028±0.002	62221.46±234.17
	P <sub>EEMMASMP</sub>	97.72±1.58	0.028±0.002	62138.37±212.79		P <sub>EEMMASMP</sub>	98.63±1.46	0.028±0.002	62248.29±227.35
	P <sub>EEMMASMH</sub>	98.58±1.43	0.029±0.002	62257.32±222.38		P <sub>EEMMASMH</sub>	98.86±1.48	0.029±0.003	62237.28±232.67
	P <sub>EEMACOMC</sub>	97.39±1.66	0.030±0.003	64458.32±192.27		P <sub>EEMACOMC</sub>	97.76±1.43	0.029±0.003	62369.31±236.48
$\lambda_E = 8.0$	P <sub>EEMACOMP</sub>	60.23±3.47	0.103±0.010	52678.48±656.28	$\lambda_E = 8.0$	P <sub>EEMACOMP</sub>	60.45±3.38	0.097±0.010	53569.31±556.32
	P <sub>EEMACOMH</sub>	59.87±3.65	0.114±0.012	51887.45±668.32		P <sub>EEMACOMH</sub>	62.38±3.42	0.098±0.011	52848.42±573.28
	P <sub>EEMMASMP</sub>	58.43±3.83	0.102±0.010	52568.32±672.19		P <sub>EEMMASMP</sub>	62.38±3.58	0.088±0.009	53739.24±562.59
	P <sub>EEMMASMH</sub>	61.42±3.64	0.117±0.012	53468.29±647.28		P <sub>EEMMASMH</sub>	64.67±3.37	0.092±0.008	53894.16±548.28
	P <sub>EEMACOMC</sub>	61.89±3.68	0.121±0.013	50328.52±648.26		P <sub>EEMACOMC</sub>	63.69±3.34	0.108±0.011	53269.31±538.38

Table D.17: Influence of parameter  $\lambda_E$  on the  $\bar{n}_{alg}$ ,  $\bar{\varrho}$  and  $\bar{\xi}$  metrics, for 30 nodes and  $R_g = 500$

(a) $T_{sm} = 1$					(b) $T_{sm} = 2$				
$\lambda_E$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$	$\lambda_E$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$
$\lambda_E = 2.0$	PEEMACOMP	42.37±6.46	0.245±0.028	35328.32±985.34	$\lambda_E = 2.0$	PEEMACOMP	49.32±5.74	0.225±0.024	40237.35±857.32
	PEEMACOMH	42.39±6.76	0.254±0.029	36348.21±964.32		PEEMACOMH	48.48±5.73	0.235±0.025	41459.38±847.39
	PEEMMASMP	44.52±6.45	0.268±0.030	34689.32±988.37		PEEMMASMP	50.39±5.69	0.228±0.025	40269.28±874.37
	PEEMMASMH	42.78±6.38	0.286±0.032	36328.27±953.28		PEEMMASMH	48.39±5.85	0.221±0.023	40159.74±857.24
	PEEMACOMC	45.40±6.72	0.272±0.032	34581.74±975.35		PEEMACOMC	50.28±5.75	0.198±0.021	41359.38±846.48
$\lambda_E = 4.0$	PEEMACOMP	80.49±4.63	0.067±0.011	63579.58±198.27	$\lambda_E = 4.0$	PEEMACOMP	85.38±3.47	0.046±0.008	64236.18±186.32
	PEEMACOMH	79.85±4.79	0.066±0.012	63589.37±196.36		PEEMACOMH	83.12±3.75	0.049±0.008	64279.54±185.29
	PEEMMASMP	75.26±5.14	0.068±0.011	63589.46±186.32		PEEMMASMP	84.88±3.53	0.050±0.009	64287.53±194.32
	PEEMMASMH	79.28±4.98	0.067±0.012	63729.48±208.83		PEEMMASMH	85.23±3.38	0.048±0.007	64798.32±185.29
	PEEMACOMC	79.37±4.79	0.076±0.013	63689.21±205.58		PEEMACOMC	85.38±3.76	0.055±0.009	64689.23±178.43
$\lambda_E = 6.0$	PEEMACOMP	78.19±4.97	0.068±0.012	63521.68±195.68	$\lambda_E = 6.0$	PEEMACOMP	86.53±3.57	0.047±0.008	64689.32±183.27
	PEEMACOMH	79.38±4.73	0.067±0.011	63689.32±187.43		PEEMACOMH	85.38±3.76	0.049±0.008	64538.26±195.29
	PEEMMASMP	81.25±4.56	0.069±0.012	63658.31±196.37		PEEMMASMP	85.43±3.67	0.052±0.009	64769.32±193.36
	PEEMMASMH	80.29±4.52	0.066±0.012	63479.31±186.33		PEEMMASMH	86.85±3.67	0.050±0.008	64678.36±198.48
	PEEMACOMC	81.75±4.74	0.078±0.013	63479.35±192.48		PEEMACOMC	86.76±3.38	0.056±0.009	64537.28±184.29
$\lambda_E = 8.0$	PEEMACOMP	47.47±6.35	0.242±0.029	38236.82±986.34	$\lambda_E = 8.0$	PEEMACOMP	49.32±5.75	0.198±0.024	44827.39±824.76
	PEEMACOMH	48.83±6.48	0.273±0.031	36279.38±998.26		PEEMACOMH	50.68±5.48	0.203±0.025	43148.36±834.57
	PEEMMASMP	47.18±6.48	0.262±0.030	38269.27±968.37		PEEMMASMP	51.38±5.54	0.199±0.024	44269.31±856.28
	PEEMMASMH	46.27±6.56	0.246±0.029	34279.32±989.12		PEEMMASMH	48.35±5.47	0.204±0.025	42168.23±848.37
	PEEMACOMC	47.45±6.78	0.267±0.031	37378.36±974.38		PEEMACOMC	50.45±5.46	0.216±0.026	44568.25±859.16
(c) $T_{sm} = 3$					(d) $T_{sm} = 4$				
$\lambda_E$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$	$\lambda_E$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$
$\lambda_E = 2.0$	PEEMACOMP	52.67±5.22	0.176±0.018	43247.17±875.23	$\lambda_E = 2.0$	PEEMACOMP	53.78±3.74	0.129±0.016	46379.31±787.37
	PEEMACOMH	52.89±5.26	0.183±0.018	42547.25±878.41		PEEMACOMH	52.96±3.69	0.138±0.017	46628.39±774.62
	PEEMMASMP	53.69±5.14	0.186±0.018	42379.31±876.39		PEEMMASMP	54.68±3.95	0.127±0.014	44784.02±779.26
	PEEMMASMH	53.75±4.95	0.184±0.017	41469.34±864.79		PEEMMASMH	56.89±3.74	0.125±0.013	45279.26±764.28
	PEEMACOMC	54.89±4.97	0.165±0.016	42689.42±869.29		PEEMACOMC	57.38±3.80	0.132±0.014	44479.37±759.31
$\lambda_E = 4.0$	PEEMACOMP	86.42±3.58	0.043±0.007	64128.43±192.34	$\lambda_E = 4.0$	PEEMACOMP	96.78±1.85	0.040±0.006	64268.41±187.31
	PEEMACOMH	86.29±3.69	0.046±0.007	64279.41±179.32		PEEMACOMH	95.29±1.75	0.044±0.006	62989.23±212.74
	PEEMMASMP	87.97±3.84	0.046±0.006	64479.69±186.38		PEEMMASMP	96.88±1.84	0.044±0.006	63456.81±194.36
	PEEMMASMH	87.39±3.82	0.045±0.006	64589.31±189.27		PEEMMASMH	95.59±1.85	0.045±0.005	63579.26±196.38
	PEEMACOMC	88.36±3.74	0.050±0.007	64268.31±184.28		PEEMACOMC	96.84±1.78	0.048±0.007	64138.31±195.28
$\lambda_E = 6.0$	PEEMACOMP	87.47±3.82	0.044±0.006	64316.48±198.32	$\lambda_E = 6.0$	PEEMACOMP	97.12±1.95	0.041±0.005	64258.35±181.48
	PEEMACOMH	87.53±3.73	0.045±0.007	64582.63±186.30		PEEMACOMH	96.24±1.79	0.043±0.006	63897.31±192.69
	PEEMMASMP	88.89±3.69	0.046±0.006	64689.24±180.38		PEEMMASMP	97.32±1.68	0.044±0.006	63158.36±185.38
	PEEMMASMH	88.25±3.85	0.045±0.007	64269.51±193.60		PEEMMASMH	97.20±1.84	0.046±0.006	62236.32±187.28
	PEEMACOMC	87.93±3.73	0.052±0.007	64693.28±185.32		PEEMACOMC	97.23±1.79	0.047±0.007	64239.39±178.37
$\lambda_E = 8.0$	PEEMACOMP	50.32±5.38	0.174±0.016	43580.21±874.19	$\lambda_E = 8.0$	PEEMACOMP	53.78±3.63	0.135±0.015	48259.37±779.31
	PEEMACOMH	50.37±5.19	0.171±0.016	43689.32±869.38		PEEMACOMH	54.68±3.68	0.126±0.013	47289.41±796.28
	PEEMMASMP	51.46±5.28	0.184±0.017	43474.19±840.85		PEEMMASMP	54.76±3.75	0.137±0.014	46280.35±775.27
	PEEMMASMH	52.68±5.23	0.185±0.018	45270.31±858.71		PEEMMASMH	53.28±3.84	0.131±0.013	46685.21±783.19
	PEEMACOMC	56.13±4.89	0.179±0.017	44528.81±859.26		PEEMACOMC	54.60±3.92	0.125±0.012	44682.30±734.68
(e) $T_{sm} = 5$					(f) $T_{sm} = 6$				
$\lambda_E$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$	$\lambda_E$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$
$\lambda_E = 2.0$	PEEMACOMP	56.51±3.76	0.123±0.012	53673.29±578.35	$\lambda_E = 2.0$	PEEMACOMP	58.32±3.76	0.113±0.011	55638.29±484.27
	PEEMACOMH	55.78±3.84	0.126±0.013	52459.31±589.37		PEEMACOMH	58.54±3.69	0.118±0.012	53589.38±499.31
	PEEMMASMP	54.74±3.86	0.121±0.012	54389.31±595.68		PEEMMASMP	60.82±3.65	0.119±0.012	52468.17±516.74
	PEEMMASMH	57.39±3.89	0.118±0.012	53258.16±574.29		PEEMMASMH	61.34±3.69	0.114±0.011	53589.12±487.59
	PEEMACOMC	58.29±3.73	0.131±0.013	55865.32±583.19		PEEMACOMC	60.42±3.74	0.125±0.012	54681.37±472.83
$\lambda_E = 4.0$	PEEMACOMP	97.35±1.58	0.038±0.004	64317.45±176.35	$\lambda_E = 4.0$	PEEMACOMP	98.89±1.38	0.038±0.003	64237.69±185.31
	PEEMACOMH	97.84±1.69	0.043±0.005	64578.87±185.48		PEEMACOMH	98.76±1.37	0.039±0.004	64512.78±186.23
	PEEMMASMP	98.12±1.46	0.042±0.004	64268.38±187.43		PEEMMASMP	98.59±1.42	0.041±0.003	64562.73±189.37
	PEEMMASMH	98.26±1.45	0.041±0.004	64789.42±195.39		PEEMMASMH	98.98±1.36	0.040±0.003	64282.21±184.73
	PEEMACOMC	97.59±1.53	0.042±0.005	64247.39±192.36		PEEMACOMC	98.98±1.45	0.041±0.003	64897.13±194.27
$\lambda_E = 6.0$	PEEMACOMP	97.69±1.62	0.039±0.004	64345.28±186.32	$\lambda_E = 6.0$	PEEMACOMP	98.37±1.44	0.039±0.003	64561.27±184.28
	PEEMACOMH	98.84±1.45	0.042±0.005	64679.13±178.37		PEEMACOMH	98.48±1.41	0.040±0.004	64628.35±185.24
	PEEMMASMP	97.93±1.60	0.041±0.004	64639.21±176.43		PEEMMASMP	98.87±1.40	0.041±0.003	64678.27±184.36
	PEEMMASMH	98.78±1.48	0.042±0.005	64529.43±182.58		PEEMMASMH	98.95±1.35	0.042±0.004	64528.31±171.64
	PEEMACOMC	98.49±1.62	0.043±0.005	64779.52±187.41		PEEMACOMC	98.85±1.41	0.038±0.003	64896.42±183.68
$\lambda_E = 8.0$	PEEMACOMP	57.32±3.59	0.123±0.012	52689.31±548.37	$\lambda_E = 8.0$	PEEMACOMP	59.58±3.48	0.105±0.011	55678.23±437.59
	PEEMACOMH	56.83±3.87	0.126±0.012	52367.64±548.31		PEEMACOMH	61.58±3.49	0.106±0.012	56238.30±427.31
	PEEMMASMP	57.59±3.88	0.117±0.011	52784.21±569.32		PEEMMASMP	61.47±3.61	0.097±0.009	54751.73±467.31
	PEEMMASMH	58.30±3.83	0.120±0.011	54689.32±579.31		PEEMMASMH	62.73±3.57	0.098±0.009	54518.47±475.38
	PEEMACOMC	59.32±3.72	0.132±0.013	54563.21±583.27		PEEMACOMC	62.86±3.53	0.114±0.012	54369.53±482.44

Table D.18: Influence of parameter  $\lambda_E$  on the  $\bar{n}_{alg}$ ,  $\bar{\varrho}$  and  $\bar{\xi}$  metrics, for 30 nodes and  $R_g = 800$

(a)  $T_{sm} = 1$

$\lambda_E$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$
$\lambda_E = 2.0$	PEEMACOMP	40.32±6.67	0.262±0.029	38967.05±876.94
	PEEMACOMH	35.56±7.45	0.312±0.032	39080.56±857.84
	PEEMMASMP	41.35±6.41	0.275±0.031	37946.08±859.75
	PEEMMASMH	40.25±6.58	0.267±0.030	38460.84±843.94
	PEEMACOMC	38.73±6.44	0.297±0.031	37960.48±857.04
$\lambda_E = 4.0$	PEEMACOMP	78.37±4.59	0.122±0.013	63739.40±214.97
	PEEMACOMH	55.24±5.64	0.162±0.018	63489.95±235.96
	PEEMMASMP	75.32±4.67	0.118±0.014	63749.94±247.38
	PEEMMASMH	74.57±4.43	0.120±0.013	63974.05±232.69
	PEEMACOMC	73.68±4.48	0.114±0.012	62589.08±242.74
$\lambda_E = 6.0$	PEEMACOMP	78.32±4.63	0.120±0.013	63634.70±224.85
	PEEMACOMH	56.32±5.60	0.161±0.019	63583.58±234.93
	PEEMMASMP	77.32±4.62	0.116±0.015	63685.48±217.92
	PEEMMASMH	74.56±4.53	0.123±0.013	63907.37±218.84
	PEEMACOMC	73.28±4.72	0.112±0.013	62689.04±248.39
$\lambda_E = 8.0$	PEEMACOMP	44.35±6.13	0.253±0.029	40346.89±827.32
	PEEMACOMH	38.52±7.28	0.287±0.032	38956.58±845.83
	PEEMMASMP	44.28±6.34	0.266±0.031	39705.45±848.03
	PEEMMASMH	43.12±6.35	0.252±0.028	37584.48±874.38
	PEEMACOMC	44.70±6.36	0.278±0.031	38570.74±864.59

(b)  $T_{sm} = 2$

$\lambda_E$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$
$\lambda_E = 2.0$	PEEMACOMP	47.21±5.23	0.236±0.024	43469.21±762.39
	PEEMACOMH	36.32±6.41	0.247±0.025	44579.27±739.31
	PEEMMASMP	47.21±5.32	0.238±0.024	41379.38±770.23
	PEEMMASMH	45.28±5.42	0.222±0.022	42369.48±739.36
	PEEMACOMC	47.31±5.47	0.242±0.024	42479.28±748.31
$\lambda_E = 4.0$	PEEMACOMP	84.28±3.53	0.096±0.010	64451.85±182.58
	PEEMACOMH	45.69±4.36	0.152±0.016	64528.37±178.35
	PEEMMASMP	82.75±3.62	0.106±0.012	64387.31±189.49
	PEEMMASMH	80.23±3.58	0.104±0.012	64873.27±182.32
	PEEMACOMC	83.68±3.41	0.132±0.014	64134.69±197.48
$\lambda_E = 6.0$	PEEMACOMP	86.98±3.47	0.098±0.010	64704.32±180.51
	PEEMACOMH	46.89±6.57	0.153±0.017	64548.32±184.29
	PEEMMASMP	83.78±3.48	0.107±0.013	64684.71±184.08
	PEEMMASMH	80.73±3.62	0.103±0.012	64370.26±186.03
	PEEMACOMC	85.95±3.62	0.130±0.015	64268.28±178.71
$\lambda_E = 8.0$	PEEMACOMP	47.86±5.48	0.209±0.024	46480.31±734.94
	PEEMACOMH	38.85±6.38	0.247±0.026	45268.37±794.62
	PEEMMASMP	51.51±5.29	0.209±0.022	45379.21±785.37
	PEEMMASMH	47.06±5.52	0.233±0.024	44269.32±792.07
	PEEMACOMC	50.74±5.36	0.238±0.024	46391.38±738.58

(c)  $T_{sm} = 3$

$\lambda_E$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$
$\lambda_E = 2.0$	PEEMACOMP	49.31±5.46	0.192±0.019	45438.75±745.07
	PEEMACOMH	45.62±5.83	0.224±0.022	44792.08±739.04
	PEEMMASMP	50.38±5.36	0.207±0.020	43697.74±748.31
	PEEMMASMH	51.63±5.12	0.205±0.020	44689.29±749.62
	PEEMACOMC	52.70±4.98	0.214±0.021	43793.83±763.07
$\lambda_E = 4.0$	PEEMACOMP	83.67±3.63	0.088±0.015	64876.37±174.29
	PEEMACOMH	75.36±3.84	0.117±0.018	64697.39±178.34
	PEEMMASMP	84.68±3.62	0.089±0.015	64868.36±173.05
	PEEMMASMH	84.18±3.69	0.088±0.016	64894.28±172.85
	PEEMACOMC	85.82±3.57	0.110±0.013	64749.28±176.83
$\lambda_E = 6.0$	PEEMACOMP	85.28±3.48	0.089±0.016	64853.20±174.93
	PEEMACOMH	76.39±3.86	0.120±0.017	64749.78±179.23
	PEEMMASMP	86.38±3.32	0.088±0.015	64759.39±176.81
	PEEMMASMH	84.31±3.64	0.088±0.016	64997.48±167.03
	PEEMACOMC	86.84±3.25	0.109±0.012	64865.38±174.82
$\lambda_E = 8.0$	PEEMACOMP	48.29±5.48	0.182±0.018	46893.03±745.03
	PEEMACOMH	44.28±5.63	0.205±0.019	45803.67±779.28
	PEEMMASMP	47.59±5.49	0.192±0.018	47941.06±786.85
	PEEMMASMH	48.27±5.58	0.192±0.018	48077.49±715.94
	PEEMACOMC	47.38±5.38	0.197±0.019	46830.74±749.26

(d)  $T_{sm} = 4$

$\lambda_E$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$
$\lambda_E = 2.0$	PEEMACOMP	50.63±3.82	0.126±0.017	48428.79±674.32
	PEEMACOMH	44.85±4.23	0.179±0.019	48739.28±684.29
	PEEMMASMP	51.05±3.73	0.132±0.017	46894.32±693.23
	PEEMMASMH	52.83±3.69	0.137±0.016	47598.25±674.25
	PEEMACOMC	52.39±3.62	0.157±0.017	46830.42±694.32
$\lambda_E = 4.0$	PEEMACOMP	95.28±0.73	0.076±0.008	64479.32±182.31
	PEEMACOMH	50.27±3.58	0.142±0.018	64529.69±186.48
	PEEMMASMP	94.87±0.94	0.083±0.009	64986.36±187.28
	PEEMMASMH	91.86±1.36	0.084±0.009	64993.37±186.19
	PEEMACOMC	97.52±0.72	0.107±0.010	64769.41±182.37
$\lambda_E = 6.0$	PEEMACOMP	95.83±0.87	0.077±0.008	64453.28±185.27
	PEEMACOMH	49.95±3.61	0.140±0.018	64389.21±183.28
	PEEMMASMP	95.83±0.90	0.083±0.009	64279.32±182.69
	PEEMMASMH	92.94±1.26	0.081±0.009	64587.27±185.17
	PEEMACOMC	96.82±0.72	0.104±0.009	64247.73±183.28
$\lambda_E = 8.0$	PEEMACOMP	51.84±3.84	0.143±0.018	49637.20±648.29
	PEEMACOMH	44.79±4.83	0.157±0.020	49641.05±639.48
	PEEMMASMP	51.58±3.77	0.144±0.018	48528.26±674.98
	PEEMMASMH	50.74±3.96	0.146±0.018	47287.19±683.28
	PEEMACOMC	51.48±3.83	0.152±0.019	46729.37±697.36

(e)  $T_{sm} = 5$

$\lambda_E$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$
$\lambda_E = 2.0$	PEEMACOMP	52.48±3.85	0.135±0.014	55731.73±468.24
	PEEMACOMH	45.37±4.65	0.153±0.015	54672.18±478.23
	PEEMMASMP	52.74±3.87	0.132±0.013	56792.36±486.37
	PEEMMASMH	53.63±3.73	0.134±0.013	54527.27±487.74
	PEEMACOMC	53.75±3.61	0.156±0.015	56984.58±483.84
$\lambda_E = 4.0$	PEEMACOMP	96.32±0.26	0.074±0.011	64784.27±164.32
	PEEMACOMH	70.32±1.89	0.109±0.015	64768.38±168.28
	PEEMMASMP	97.34±0.28	0.078±0.011	64468.28±172.63
	PEEMMASMH	94.78±0.35	0.079±0.012	64974.27±168.37
	PEEMACOMC	97.87±0.27	0.103±0.014	64684.72±171.73
$\lambda_E = 6.0$	PEEMACOMP	96.34±0.28	0.072±0.011	64572.73±174.28
	PEEMACOMH	70.34±1.73	0.107±0.014	64884.28±172.48
	PEEMMASMP	96.73±0.32	0.076±0.009	64854.18±169.24
	PEEMMASMH	95.73±0.35	0.076±0.009	64764.48±172.69
	PEEMACOMC	97.78±0.26	0.103±0.014	64875.21±171.38
$\lambda_E = 8.0$	PEEMACOMP	56.23±3.74	0.135±0.016	54761.85±452.84
	PEEMACOMH	51.67±4.81	0.152±0.018	53582.83±468.24
	PEEMMASMP	55.42±3.92	0.128±0.016	54783.49±458.58
	PEEMMASMH	56.48±3.88	0.125±0.016	54894.52±460.47
	PEEMACOMC	56.41±3.89	0.137±0.017	54783.49±462.74

(f)  $T_{sm} = 6$

$\lambda_E$	$\mathcal{PF}$	$\bar{n}_{alg}$	$\bar{\varrho}$	$\bar{\xi}$
$\lambda_E = 2.0$	PEEMACOMP	58.46±3.74	0.118±0.012	57348.29±368.93
	PEEMACOMH	51.31±4.12	0.136±0.015	56538.29±379.32
	PEEMMASMP	59.37±3.85	0.124±0.014	55682.49±369.36
	PEEMMASMH	56.65±3.79	0.123±0.013	55789.24±387.43
	PEEMACOMC	58.37±3.72	0.131±0.014	56389.20±374.73
$\lambda_E = 4.0$	PEEMACOMP	99.23±0.08	0.072±0.008	64989.21±181.49
	PEEMACOMH	78.32±2.12	0.102±0.011	64526.48±182.48
	PEEMMASMP	99.34±0.13	0.076±0.008	64579.25±182.38
	PEEMMASMH	96.14±0.22	0.077±0.008	64869.37±179.26
	PEEMACOMC	98.79±0.15	0.092±0.009	64784.23±178.36
$\lambda_E = 6.0$	PEEMACOMP	98.77±0.13	0.072±0.008	64897.35±178.42
	PEEMACOMH	77.83±2.31	0.103±0.011	64863.28±174.79
	PEEMMASMP	99.64±0.16	0.078±0.008	64759.26±175.28
	PEEMMASMH	95.76±0.28	0.077±0.008	64529.28±172.38
	PEEMACOMC	98.95±0.17	0.091±0.010	64975.36±174.38
$\lambda_E = 8.0$	PEEMACOMP	58.23±3.57	0.119±0.013	57842.79±377.39
	PEEMACOMH	52.48±3.78	0.138±0.015	57841.79±377.73
	PEEMMASMP	60.26±3.53	0.125±0.013	58847.28±364.28
	PEEMMASMH	61.84±3.42	0.126±0.013	56793.26±388.27
	PEEMACOMC	60.84±3.47	0.132±0.014	56729.39±389.54

# Appendix E

## Control Parameter Graphs

This appendix contains FluxViz graphs to visualise the results of the empirical analysis of the ant-based algorithm control parameters, for all scenario combinations of 30 nodes,  $T_{sm} \in \{1, 2, 3, 4, 5, 6\}$ , and  $R_g \in \{300, 500, 800\}$ .

Figures E.1-E.15 visualise the influence of  $\beta_\psi$  on the  $\bar{n}_{alg}$ ,  $\bar{\rho}$  and  $\bar{\xi}$  metrics for all the proposed ACO algorithms, based on the results of Tables D.1-D.3. Figures E.16-E.24 visualise the influence of  $r_0$  on the  $\bar{n}_{alg}$ ,  $\bar{\rho}$  and  $\bar{\xi}$  metrics for the EEMACOMP, EEMACOMH, and EEMACOMC algorithms, based on the results of Tables D.4-D.6. Figures E.25-E.33 visualise the influence of  $\rho_l$  on the  $\bar{n}_{alg}$ ,  $\bar{\rho}$  and  $\bar{\xi}$  metrics for the EEMACOMP, EEMACOMH, and EEMACOMC algorithms, based on the results of Tables D.7-D.9. Figures E.34-E.48 visualise the influence of  $\rho_g$  on the  $\bar{n}_{alg}$ ,  $\bar{\rho}$  and  $\bar{\xi}$  metrics for all the proposed ACO algorithms, based on the results of Tables D.10-D.12. Figures E.49-E.54 visualise the influence of  $\alpha$  on the  $\bar{n}_{alg}$ ,  $\bar{\rho}$  and  $\bar{\xi}$  metrics for the EEMMASMP and EEMMASMH algorithms, based on the results of Tables D.13-D.15 and Figures E.55-E.69 visualise the influence of  $\lambda_E$  on the  $\bar{n}_{alg}$ ,  $\bar{\rho}$  and  $\bar{\xi}$  metrics for all the proposed ACO algorithms, based on the results of Tables D.16-D.18.



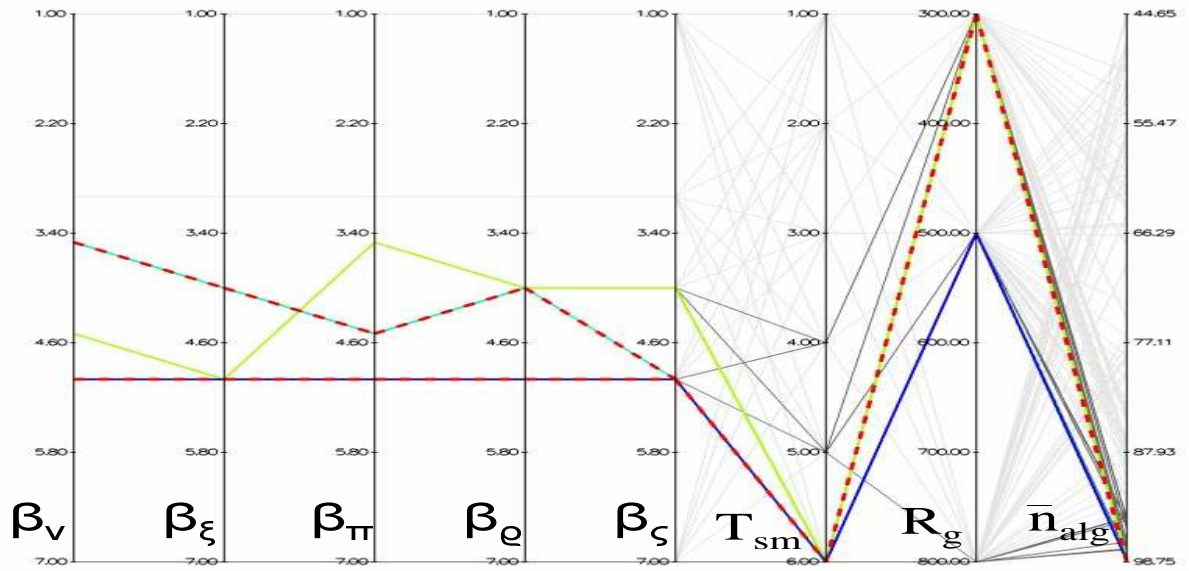


Figure E.1: Influence of  $\beta_\psi$  on the  $\bar{n}_{alg}$  metric for EEMACOMP

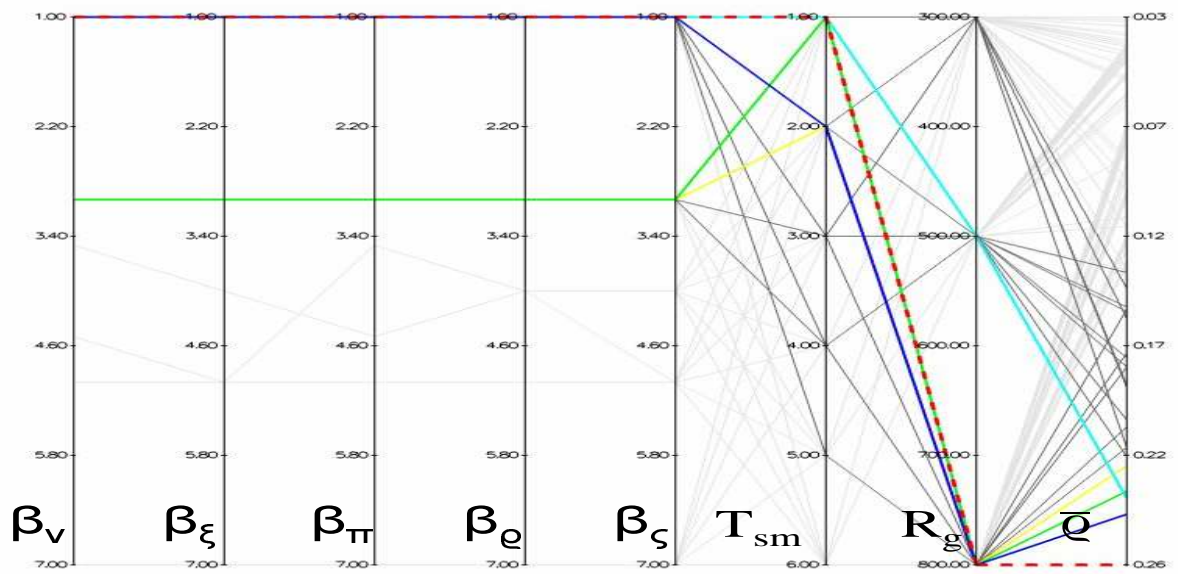


Figure E.2: Influence of  $\beta_\psi$  on the  $\bar{q}$  metric for EEMACOMP

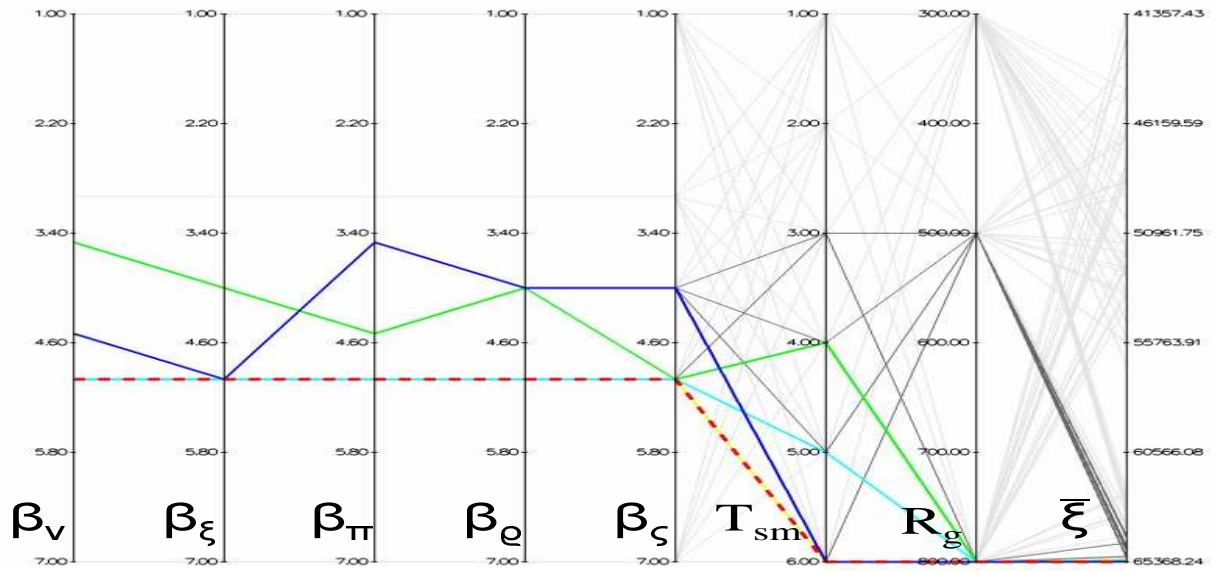


Figure E.3: Influence of  $\beta_\psi$  on the  $\bar{\xi}$  metric for EEMACOMP

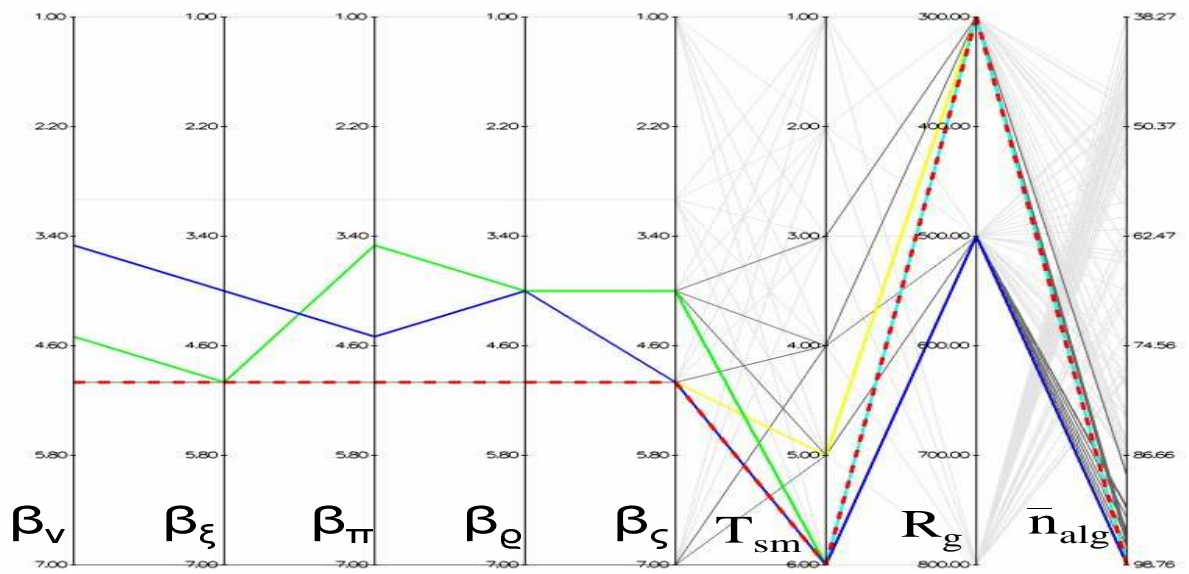


Figure E.4: Influence of  $\beta_\psi$  on the  $\bar{n}_{alg}$  metric for EEMACOMH



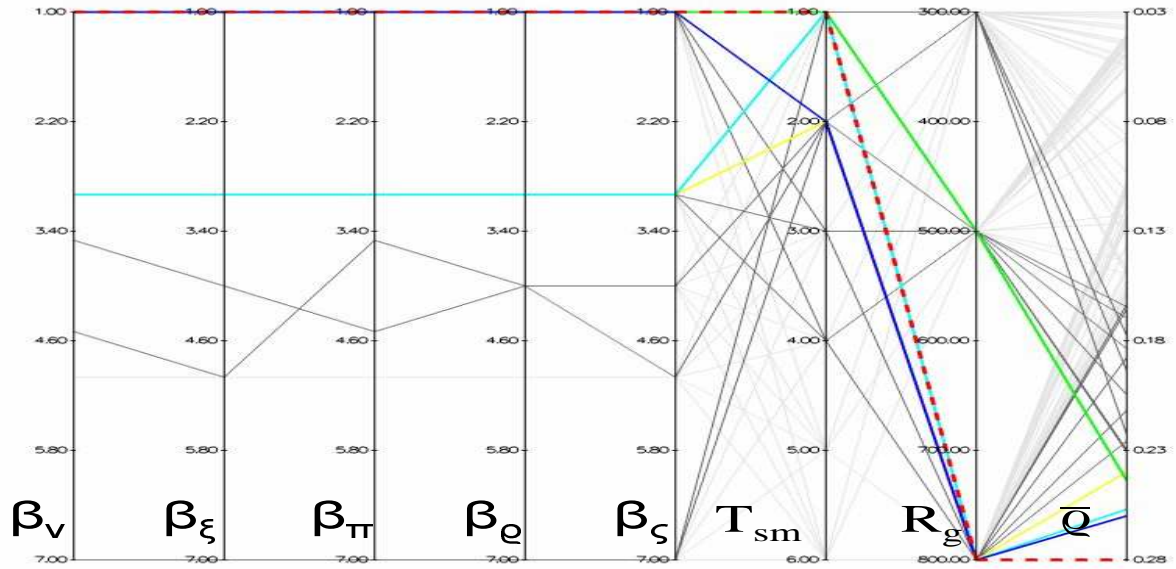


Figure E.5: Influence of  $\beta_\psi$  on the  $\bar{q}$  metric for EEMACOMH

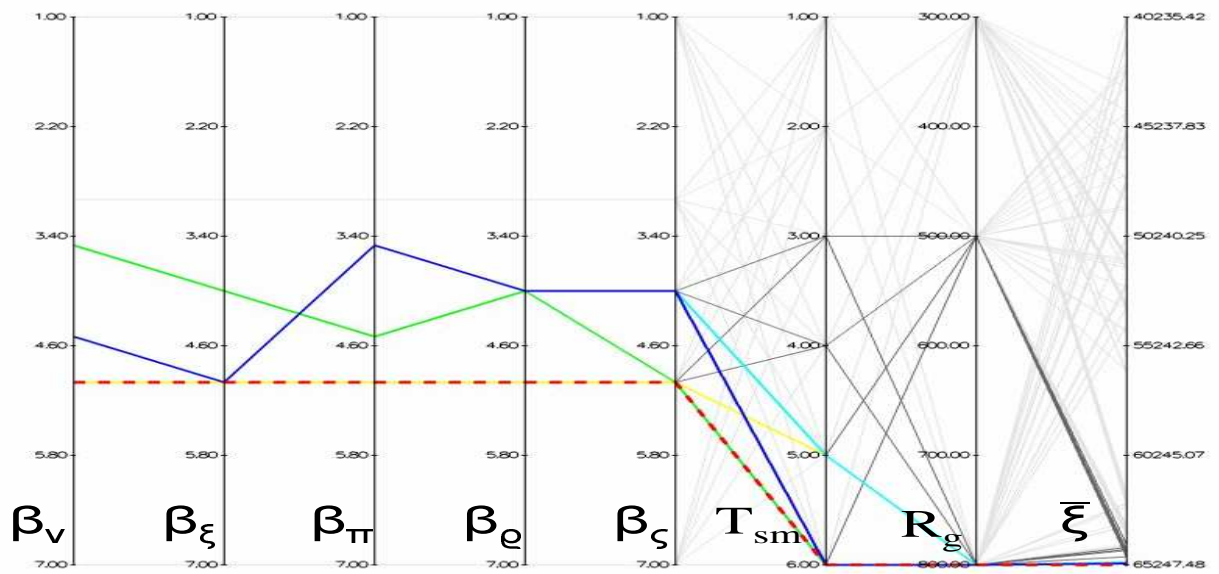


Figure E.6: Influence of  $\beta_\psi$  on the  $\bar{\xi}$  metric for EEMACOMH

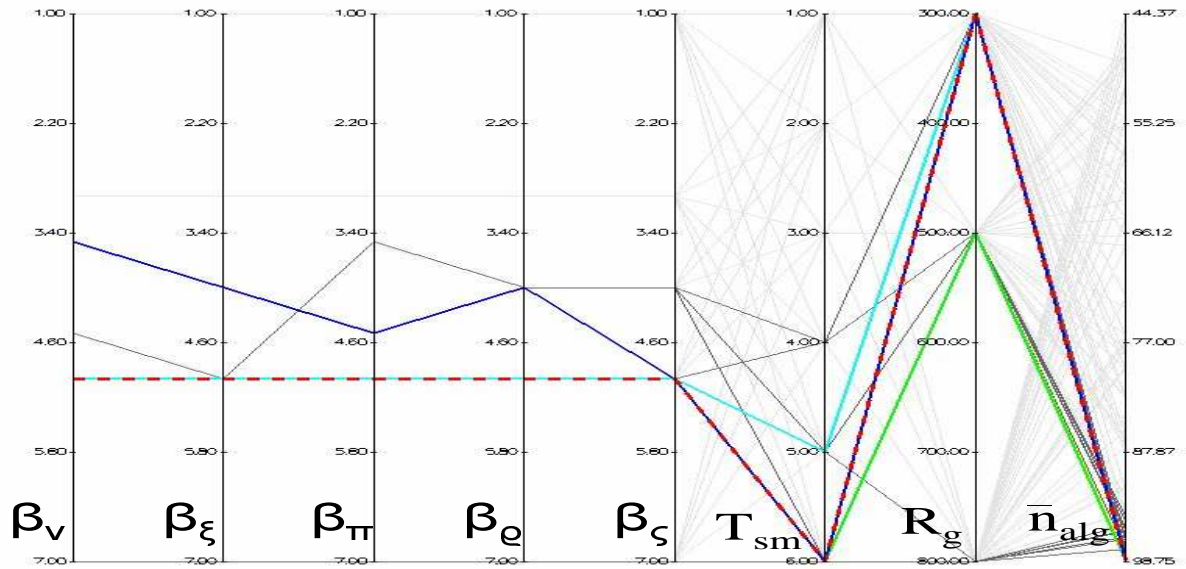


Figure E.7: Influence of  $\beta_\psi$  on the  $\bar{n}_{alg}$  metric for EEMMASMP

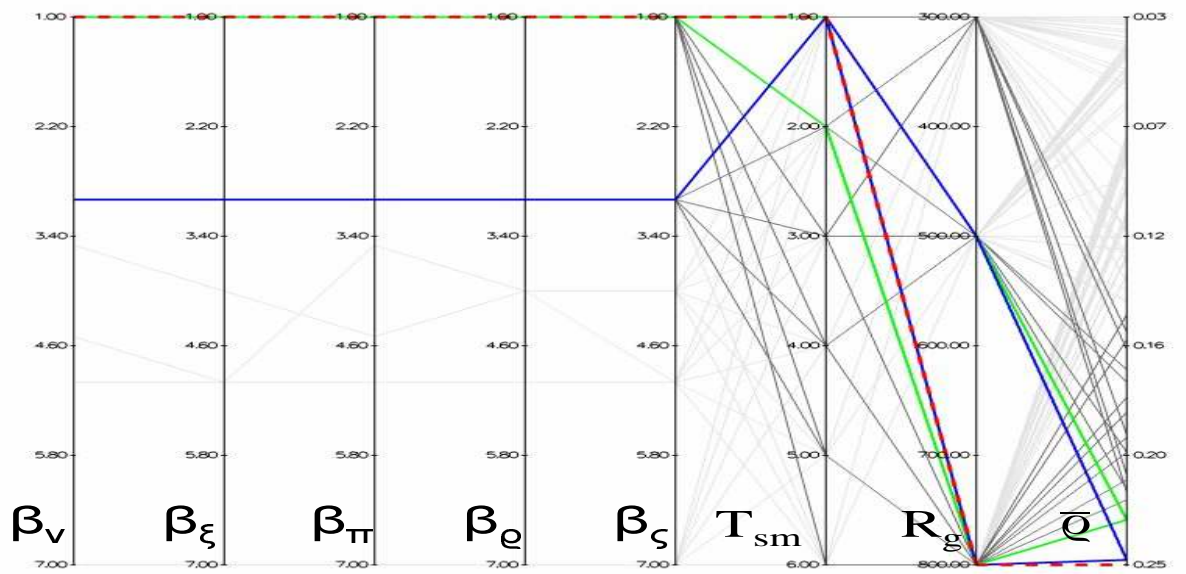


Figure E.8: Influence of  $\beta_\psi$  on the  $\bar{q}$  metric for EEMMASMP

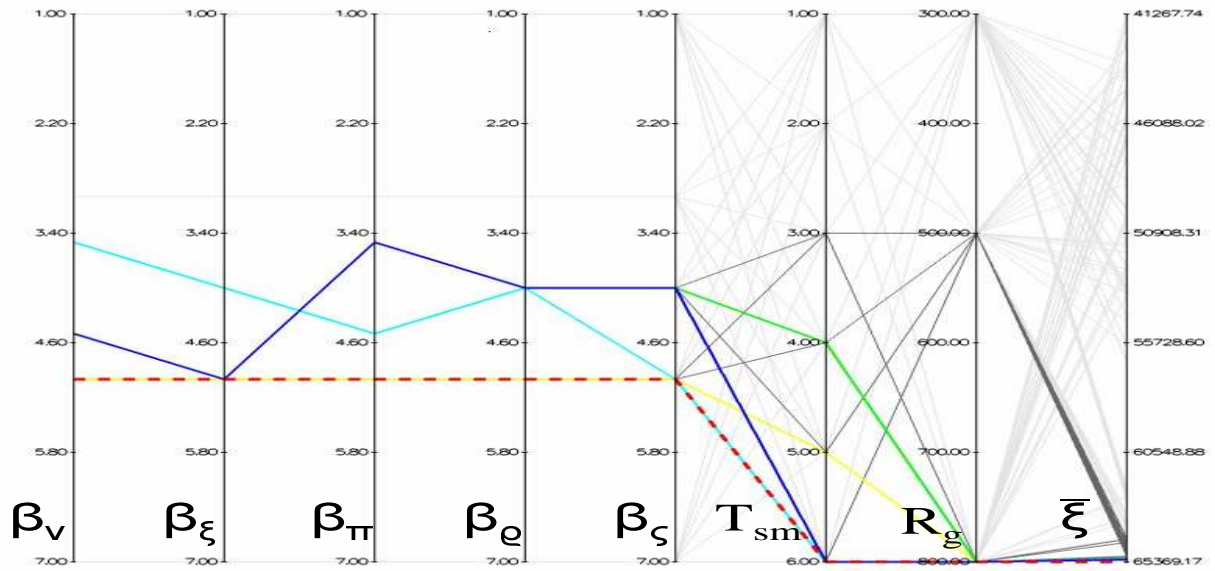


Figure E.9: Influence of  $\beta_\psi$  on the  $\bar{\xi}$  metric for EEMMASMP

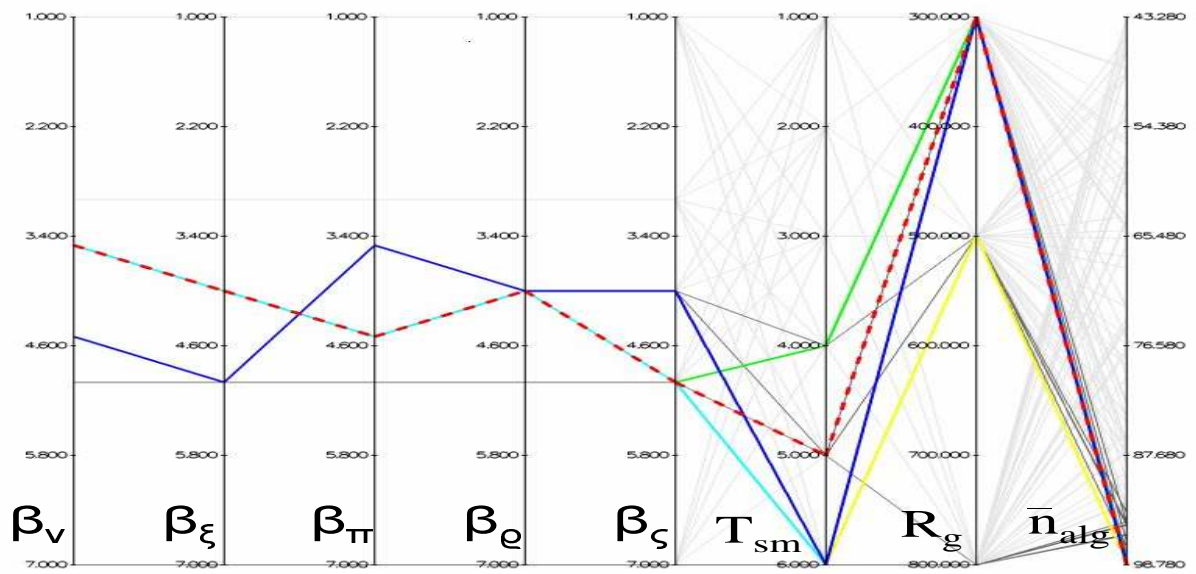


Figure E.10: Influence of  $\beta_\psi$  on the  $\bar{n}_{alg}$  metric for EEMMASMH

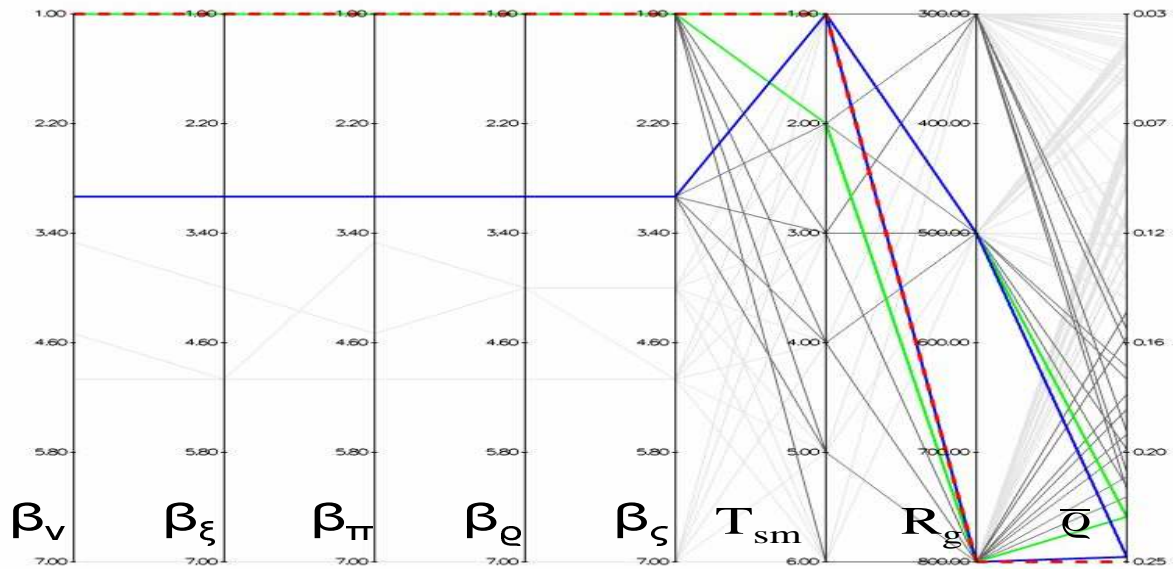


Figure E.11: Influence of  $\beta_\psi$  on the  $\bar{q}$  metric for EEMMASMH

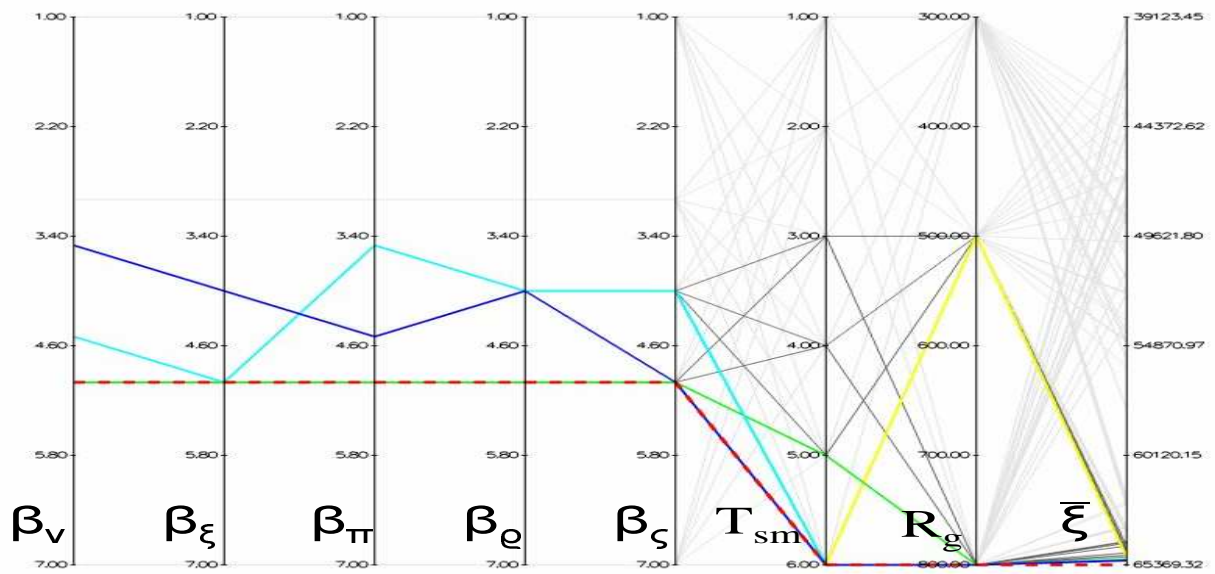


Figure E.12: Influence of  $\beta_\psi$  on the  $\bar{\xi}$  metric for EEMMASMH



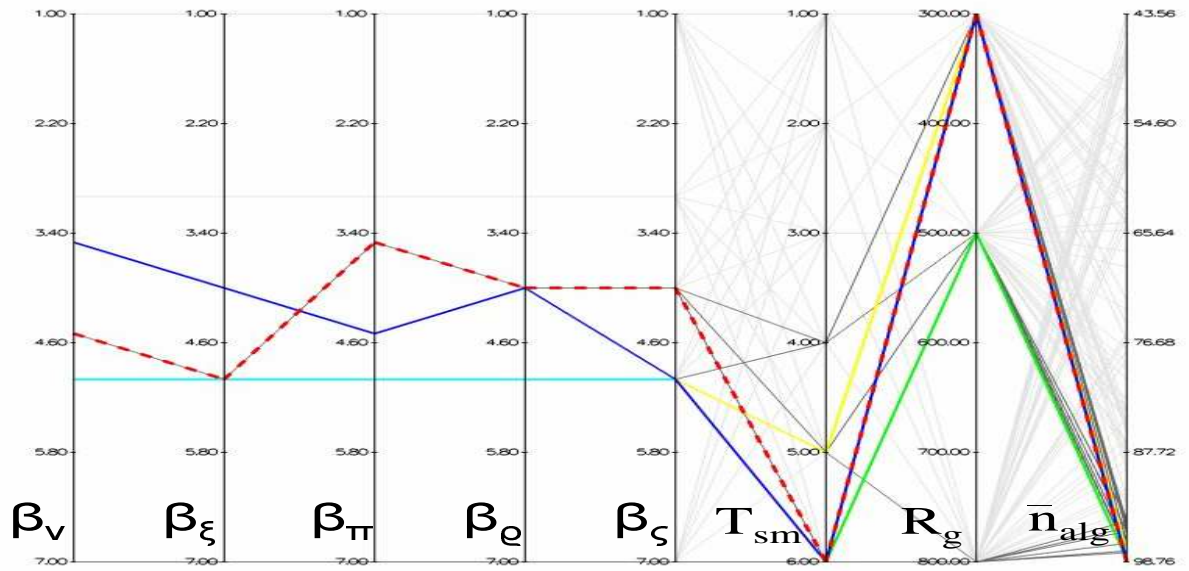


Figure E.13: Influence of  $\beta_\psi$  on the  $\bar{n}_{alg}$  metric for EEMACOMC

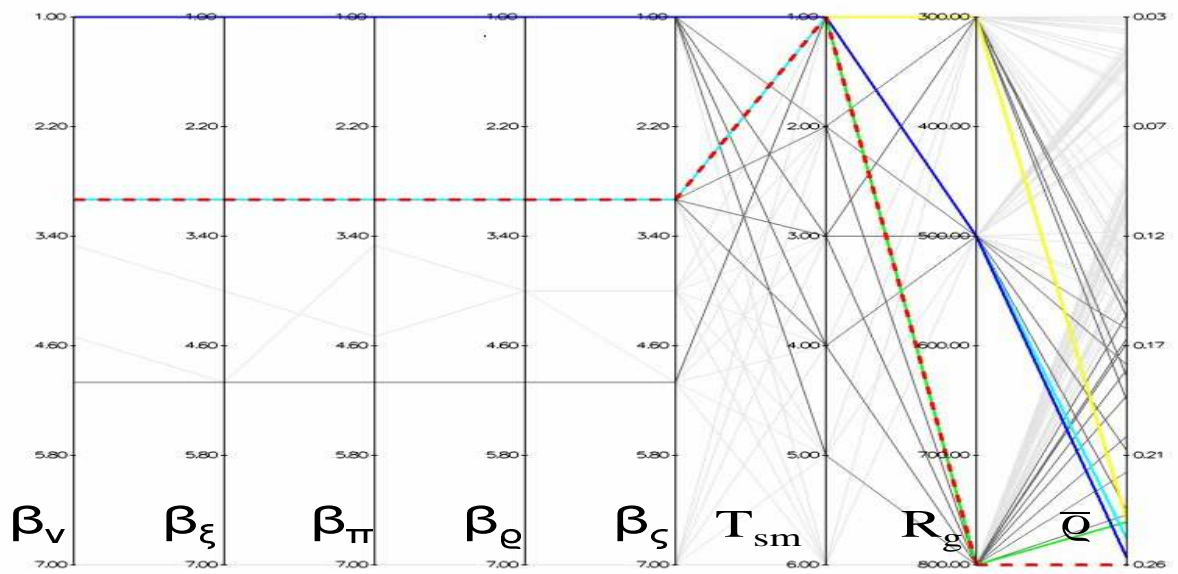


Figure E.14: Influence of  $\beta_\psi$  on the  $\bar{q}$  metric for EEMACOMC

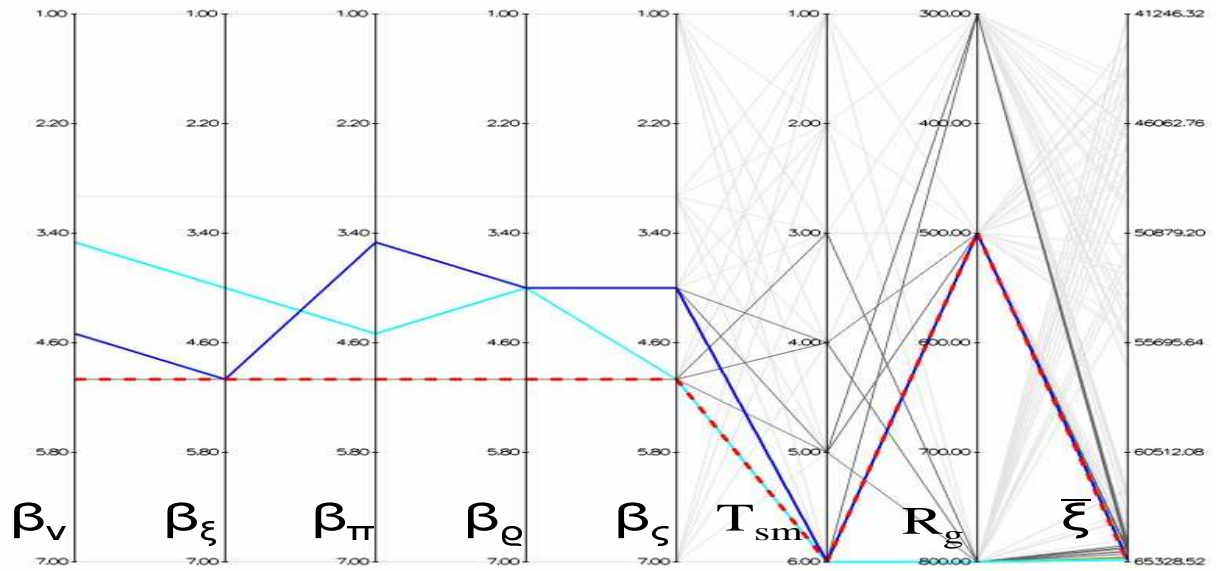


Figure E.15: Influence of  $\beta_\psi$  on the  $\bar{\xi}$  metric for EEMACOMC

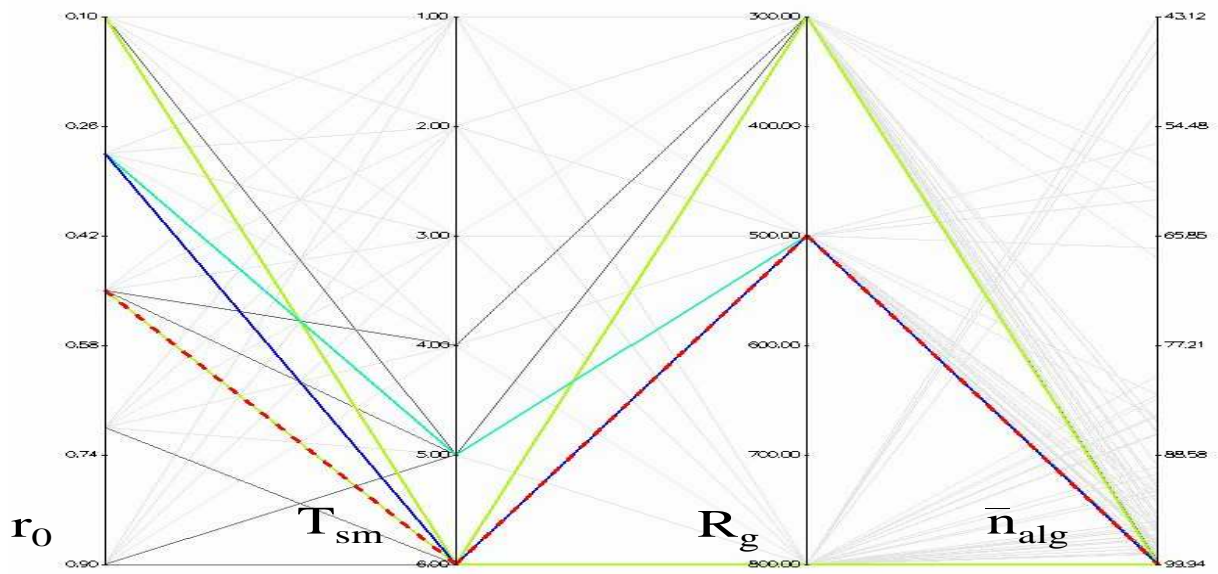


Figure E.16: Influence of  $r_0$  on the  $\bar{n}_{alg}$  metric for EEMACOMP

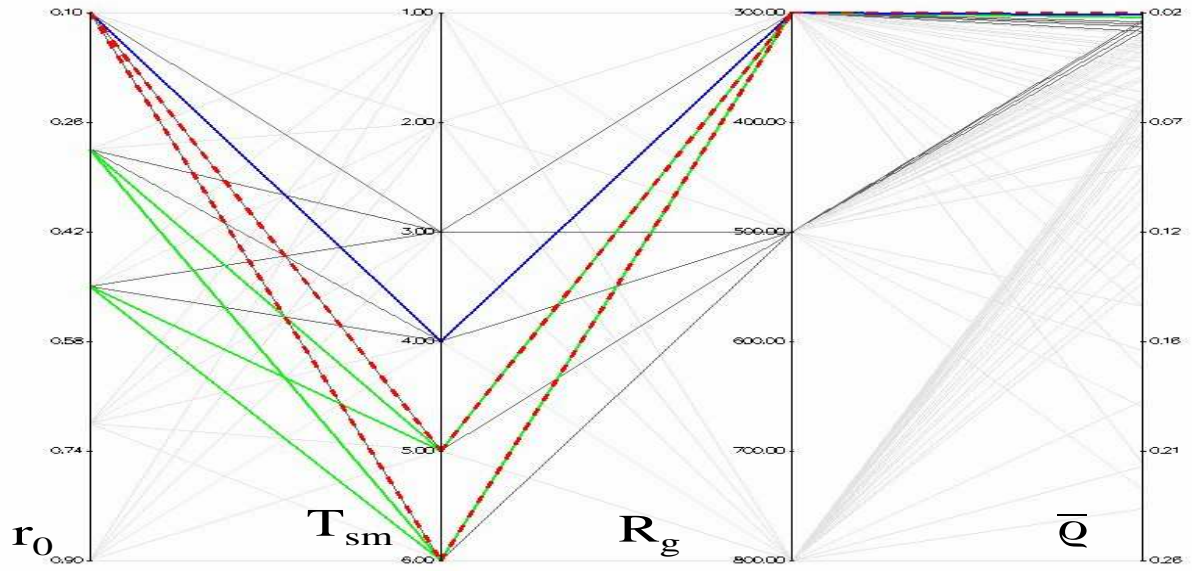


Figure E.17: Influence of  $r_0$  on the  $\bar{q}$  metric for EEMACOMP

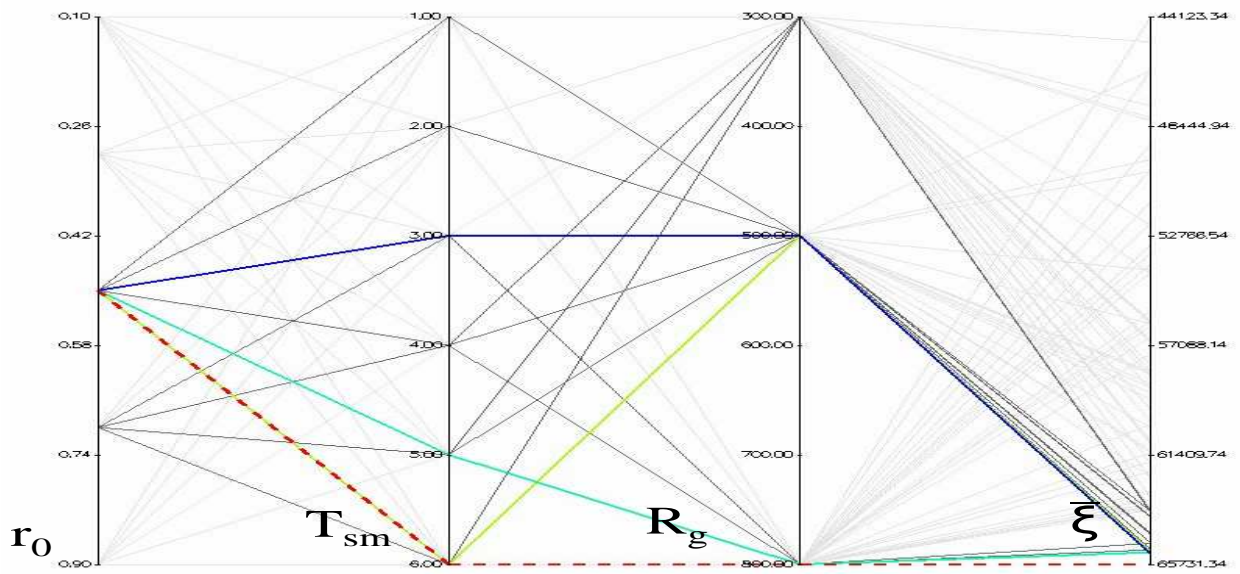


Figure E.18: Influence of  $r_0$  on the  $\bar{\xi}$  metric for EEMACOMP

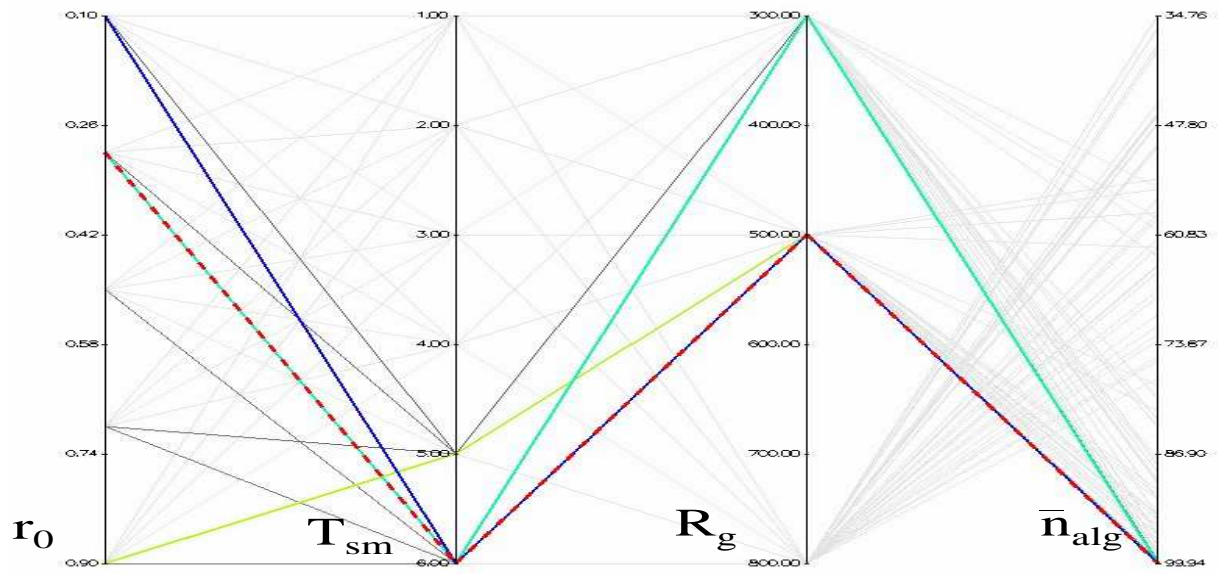


Figure E.19: Influence of  $r_0$  on the  $\bar{n}_{alg}$  metric for EEMACOMH

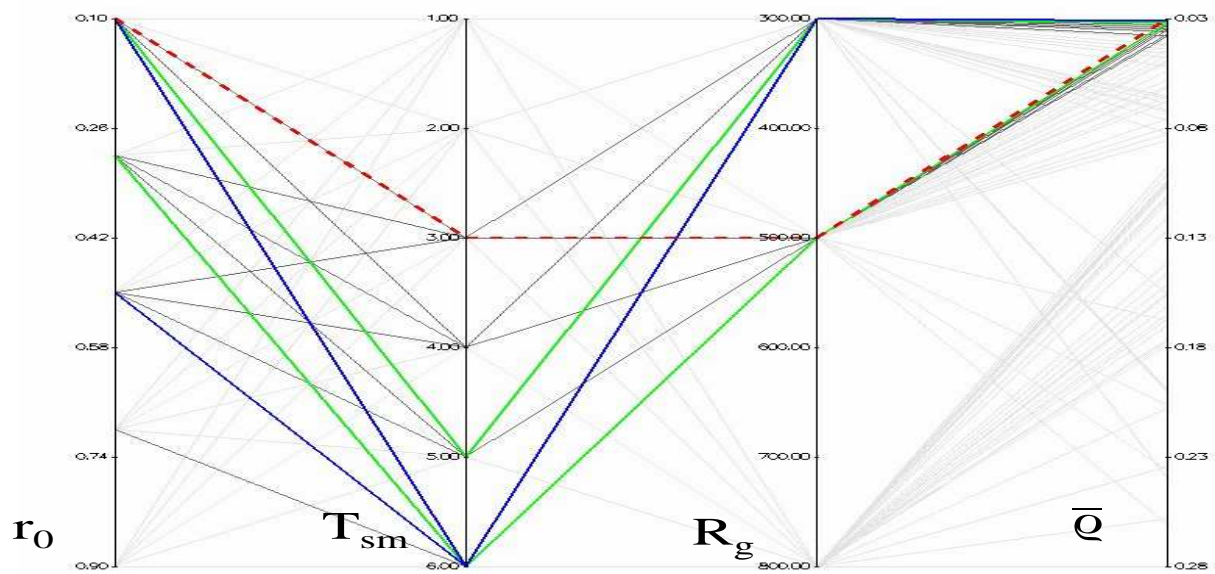


Figure E.20: Influence of  $r_0$  on the  $\bar{q}$  metric for EEMACOMH



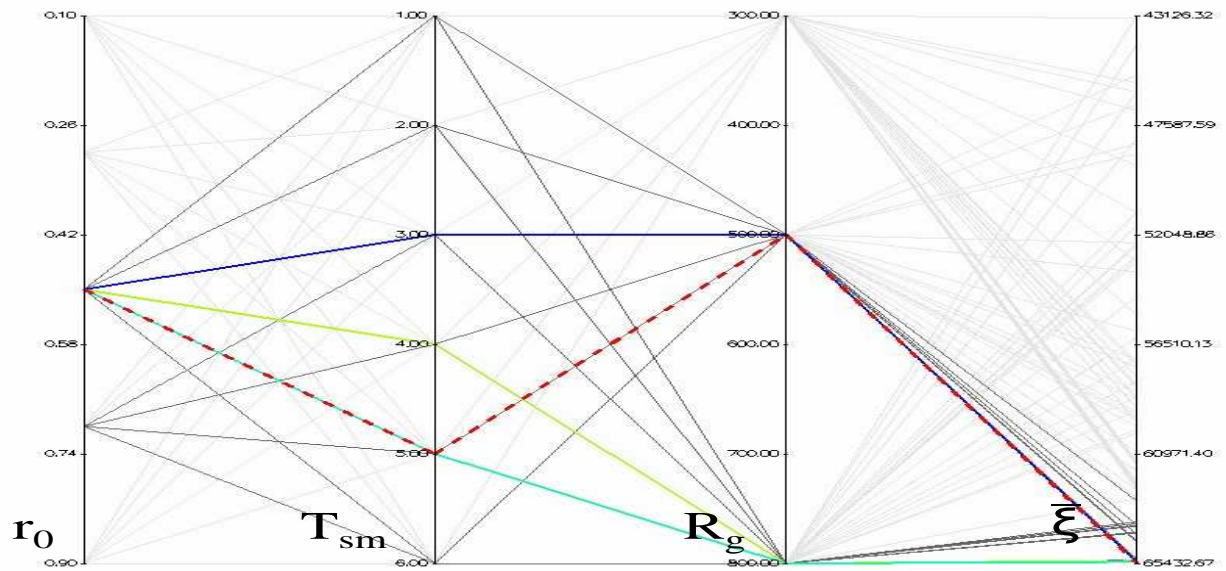


Figure E.21: Influence of  $r_0$  on the  $\bar{\xi}$  metric for EEMACOMH

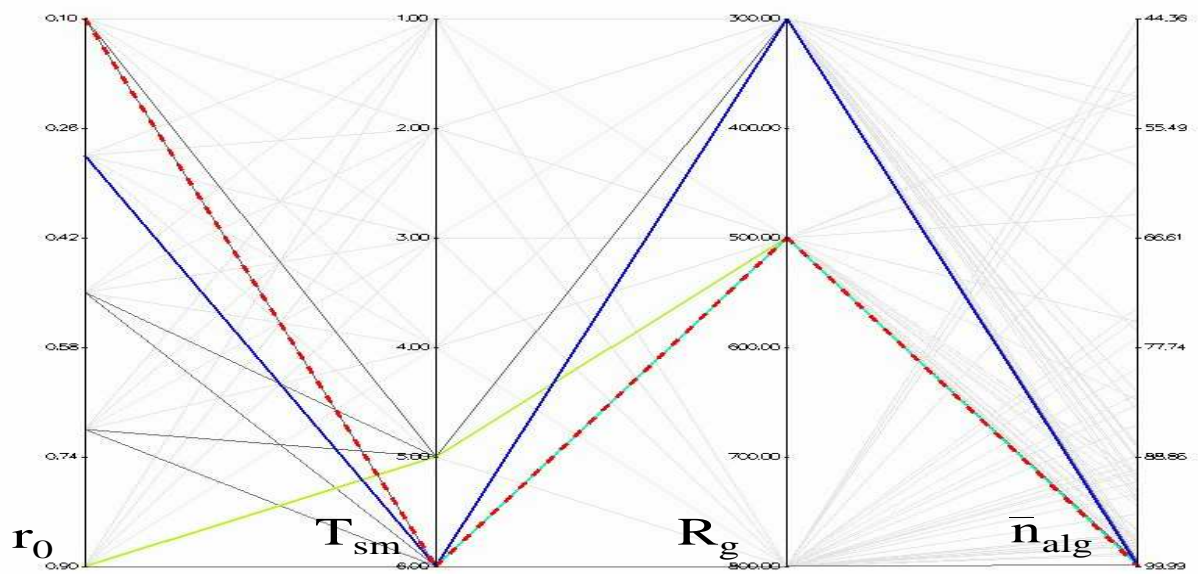


Figure E.22: Influence of  $r_0$  on the  $\bar{n}_{alg}$  metric for EEMACOMC

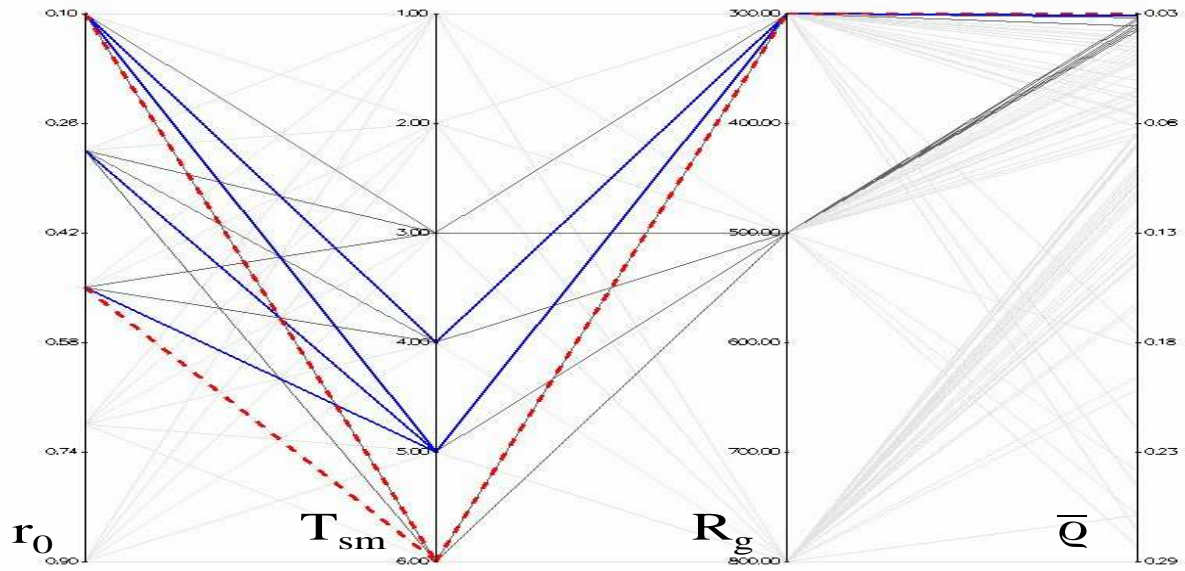


Figure E.23: Influence of  $r_0$  on the  $\bar{q}$  metric for EEMACOMC

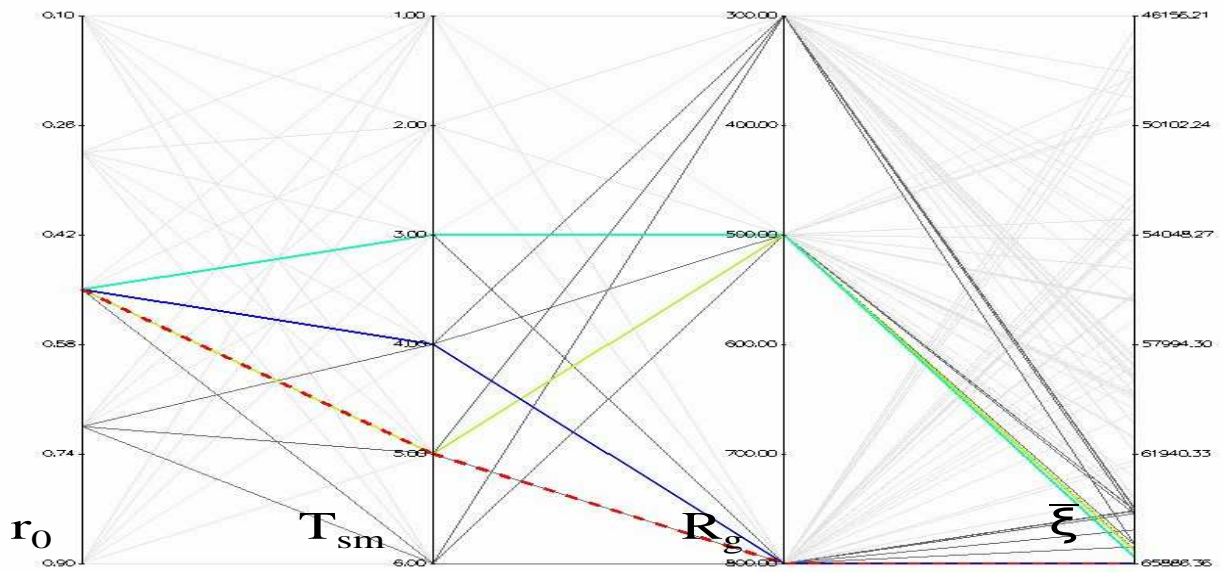


Figure E.24: Influence of  $r_0$  on the  $\bar{\xi}$  metric for EEMACOMC

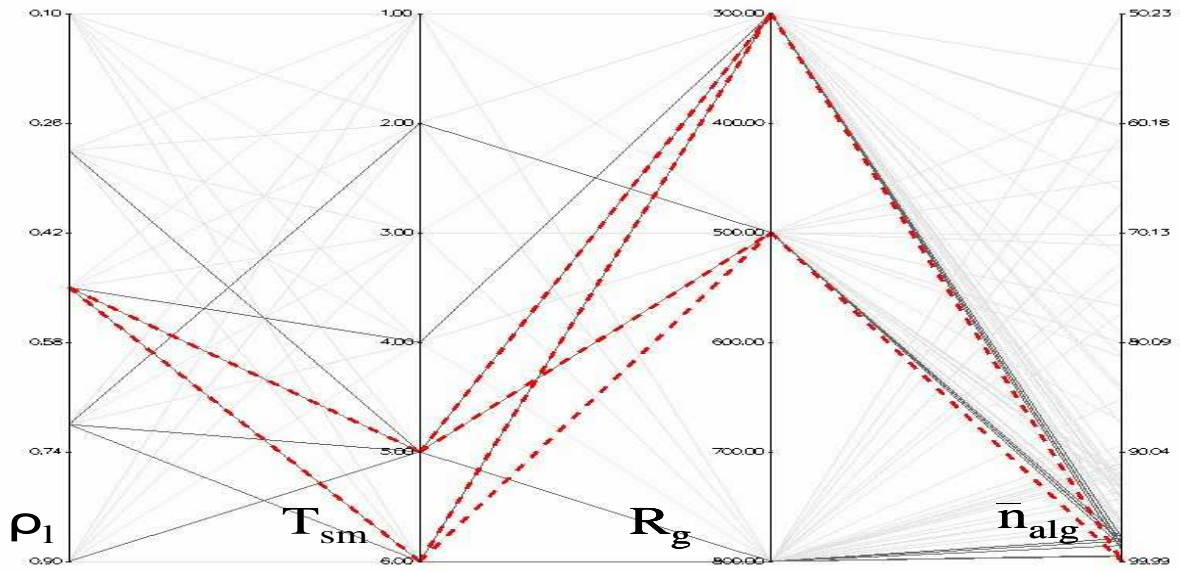


Figure E.25: Influence of  $\rho_l$  on the  $\bar{n}_{alg}$  metric for EEMACOMP

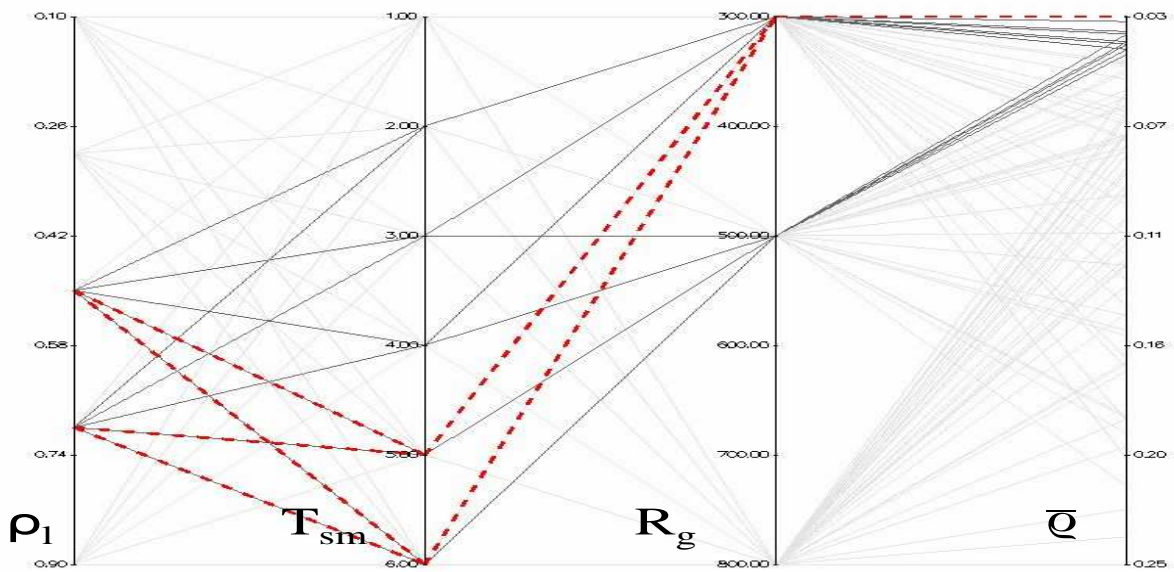


Figure E.26: Influence of  $\rho_l$  on the  $\bar{q}$  metric for EEMACOMP



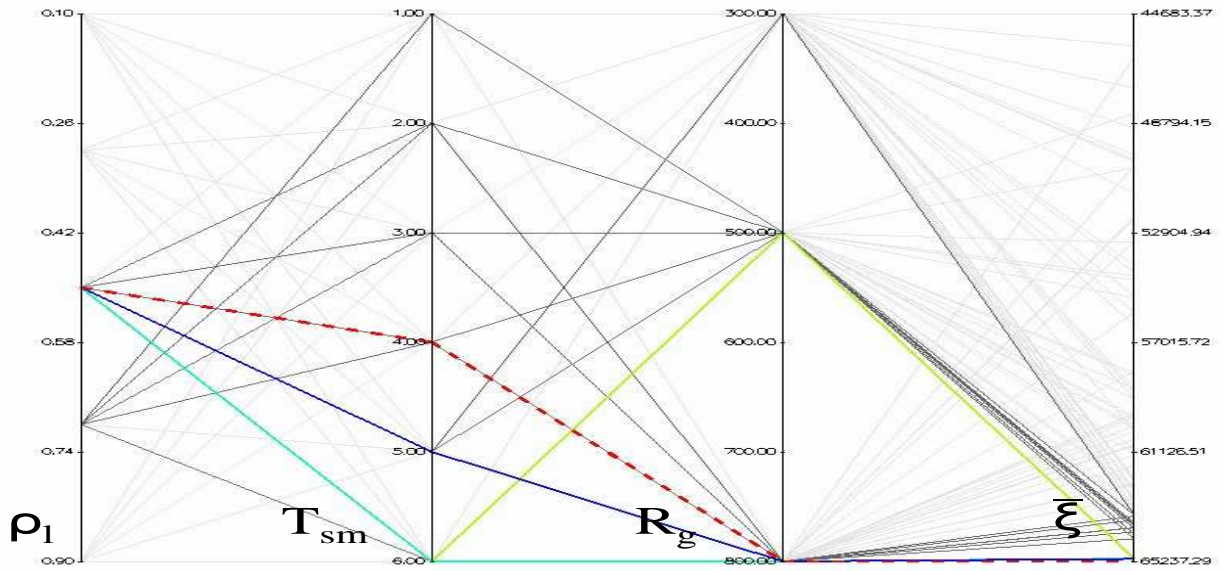


Figure E.27: Influence of  $\rho_l$  on the  $\bar{\xi}$  metric for EEMACOMP

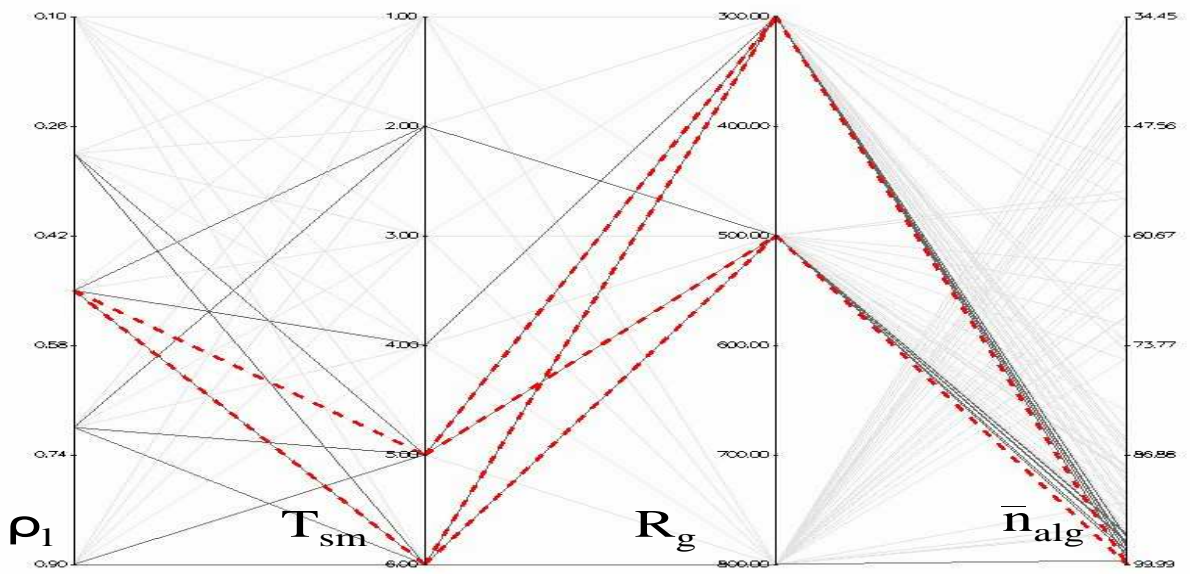


Figure E.28: Influence of  $\rho_l$  on the  $\bar{n}_{alg}$  metric for EEMACOMH

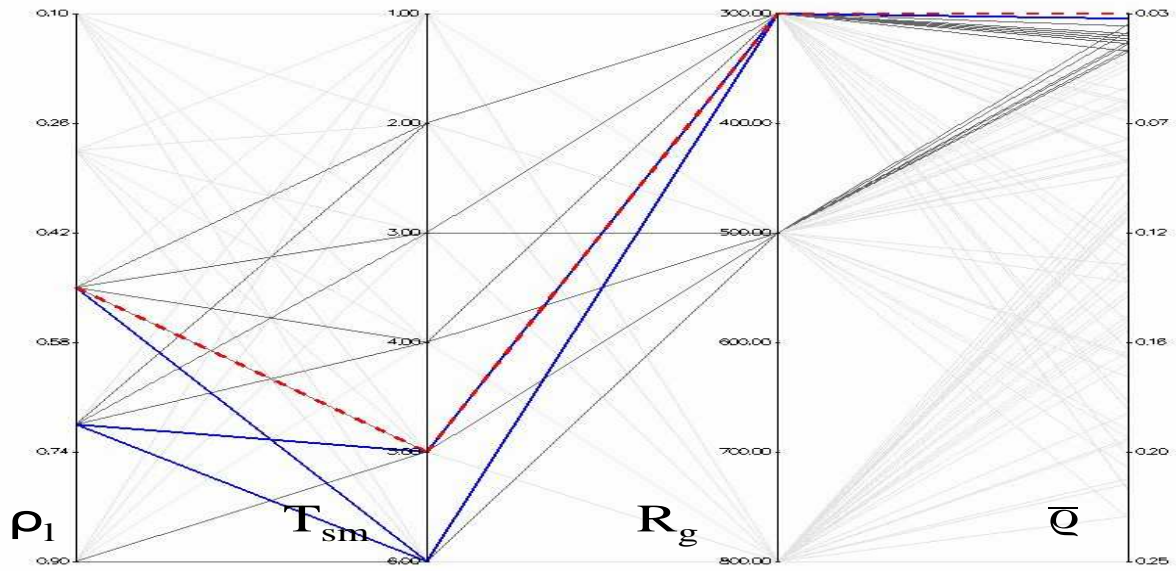


Figure E.29: Influence of  $\rho_l$  on the  $\bar{q}$  metric for EEMACOMH

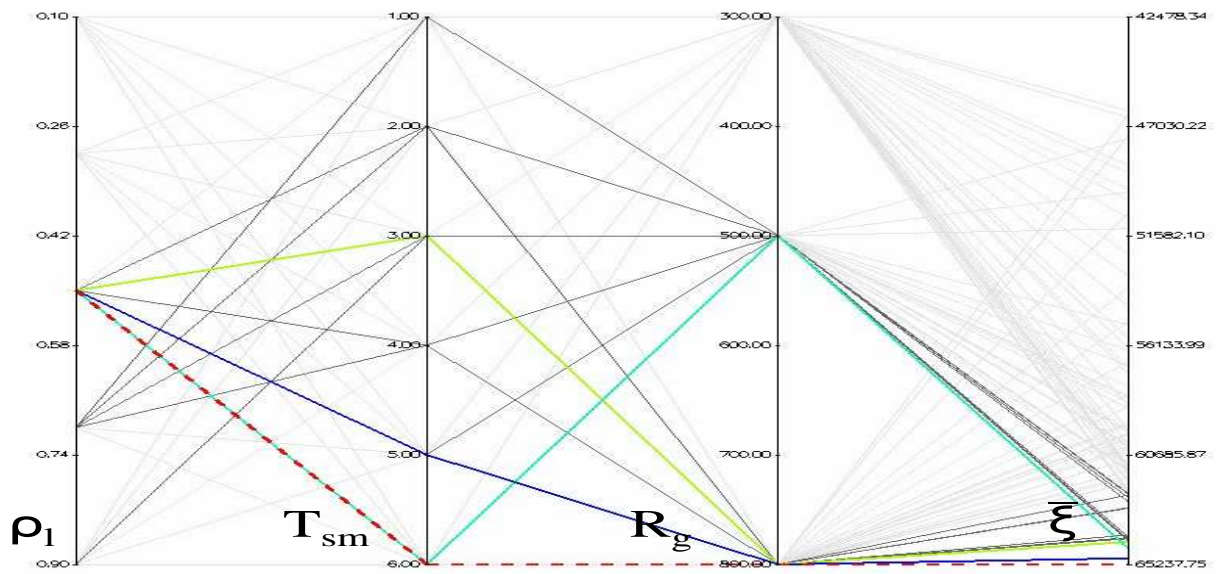


Figure E.30: Influence of  $\rho_l$  on the  $\bar{\xi}$  metric for EEMACOMH

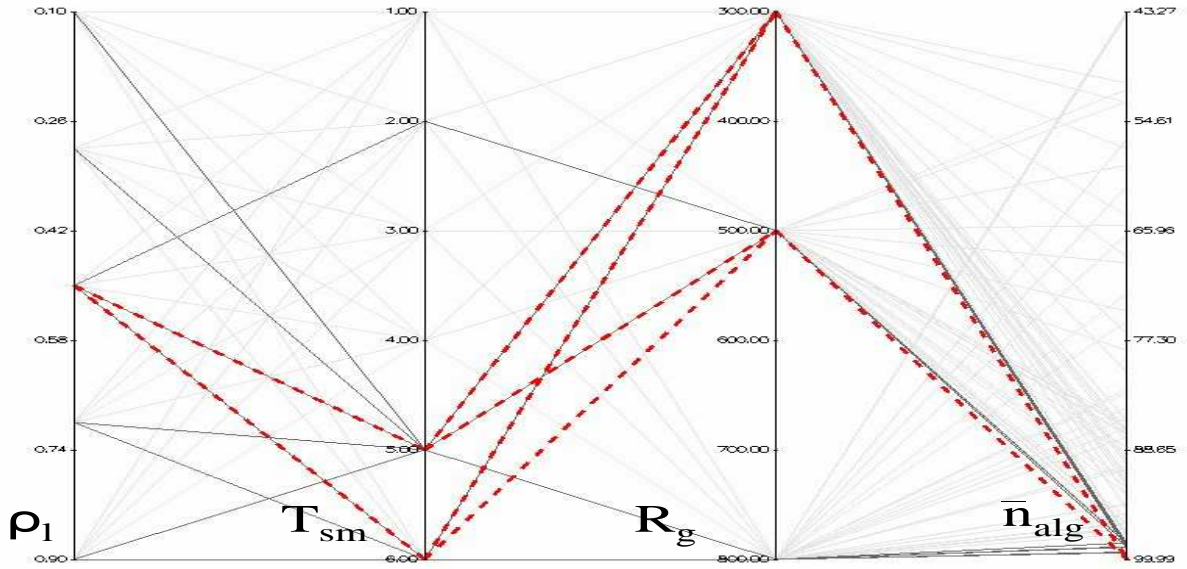


Figure E.31: Influence of  $\rho_l$  on the  $\bar{n}_{alg}$  metric for EEMACOMC

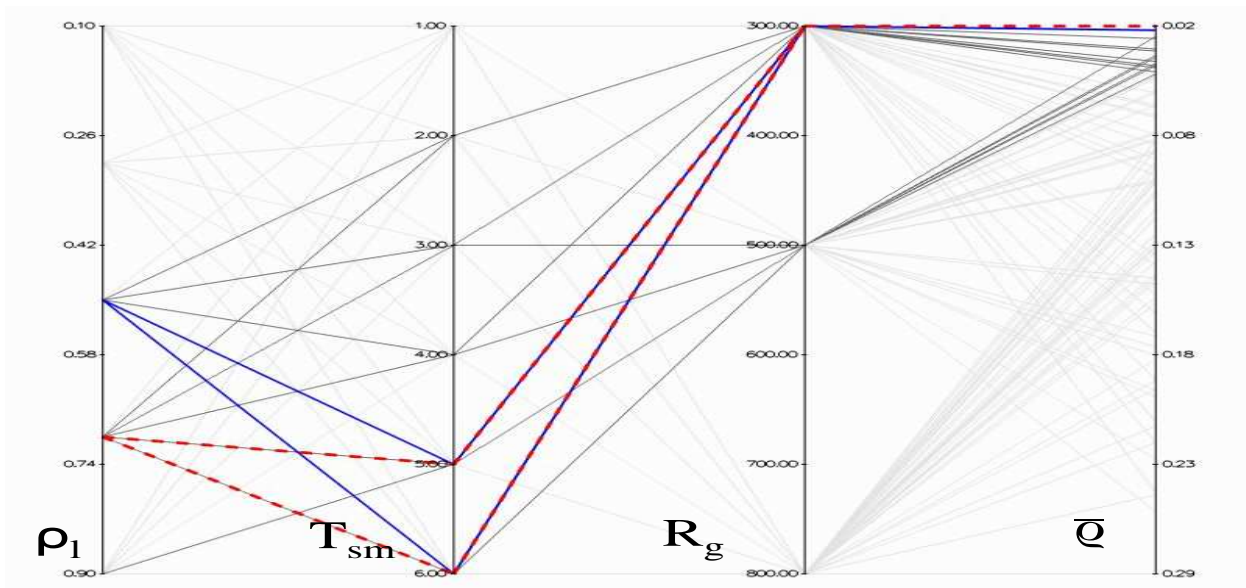


Figure E.32: Influence of  $\rho_l$  on the  $\bar{q}$  metric for EEMACOMC



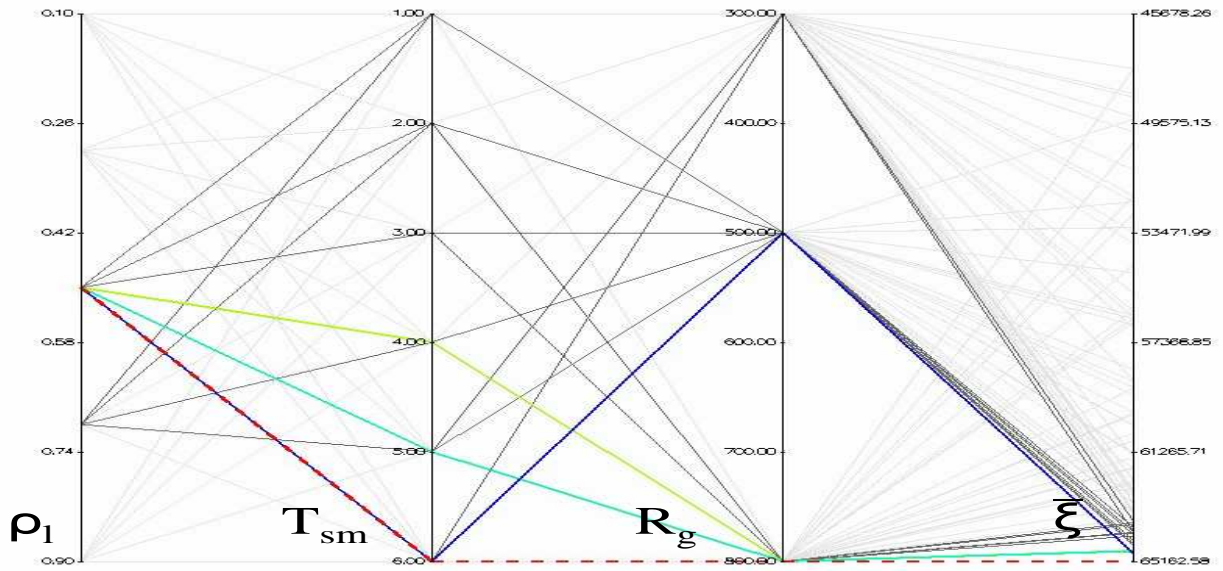


Figure E.33: Influence of  $\rho_l$  on the  $\bar{\xi}$  metric for EEMACOMC

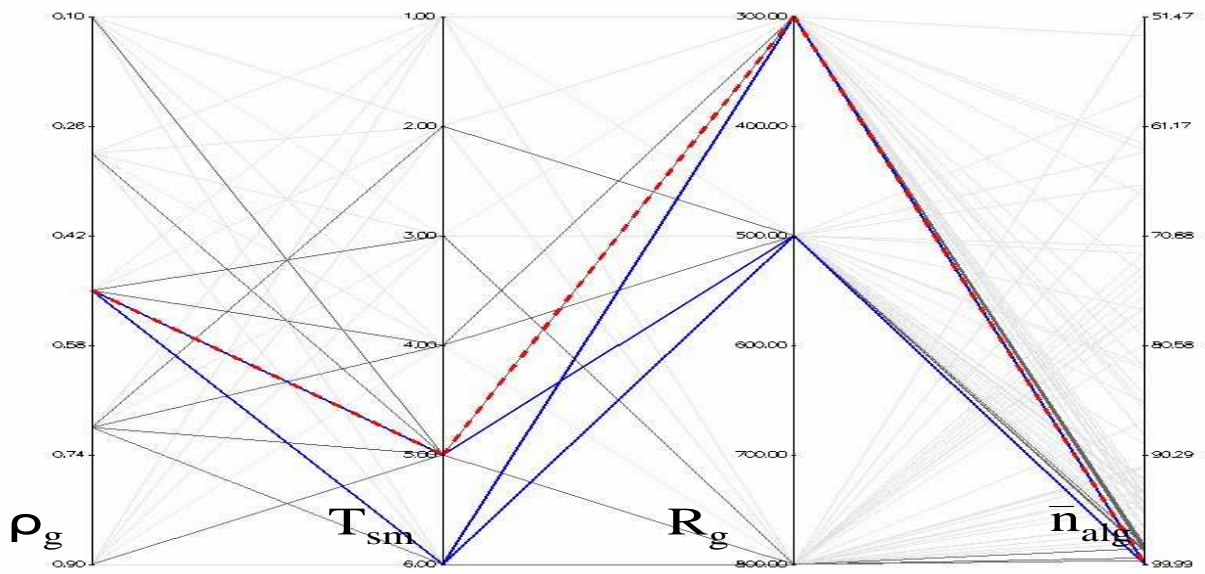


Figure E.34: Influence of  $\rho_g$  on the  $\bar{n}_{alg}$  metric for EEMACOMP

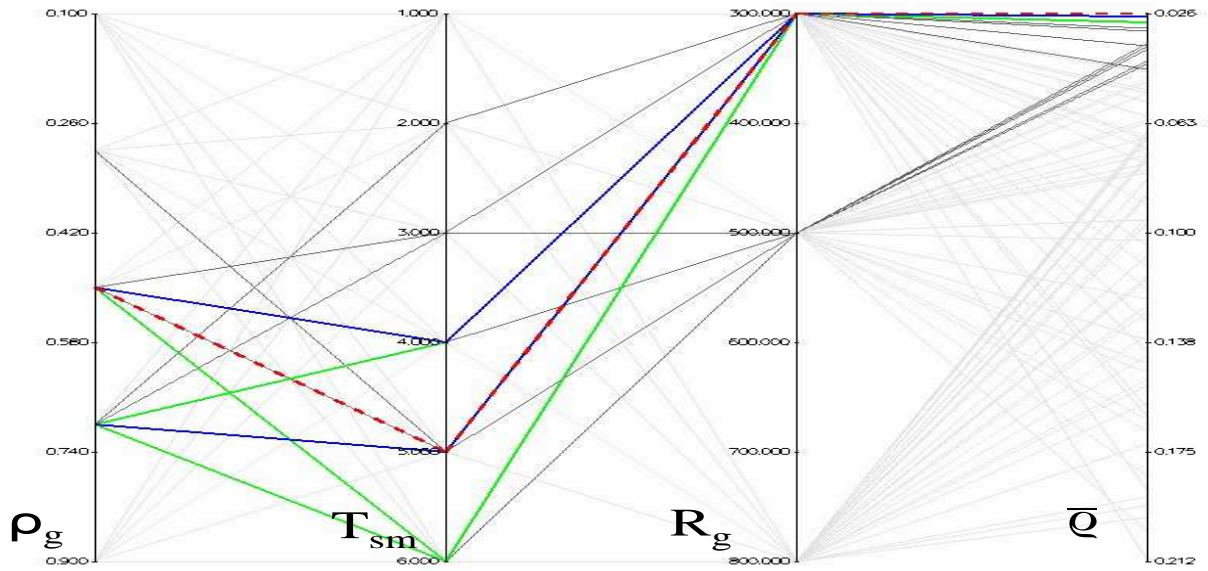


Figure E.35: Influence of  $\rho_g$  on the  $\bar{q}$  metric for EEMACOMP

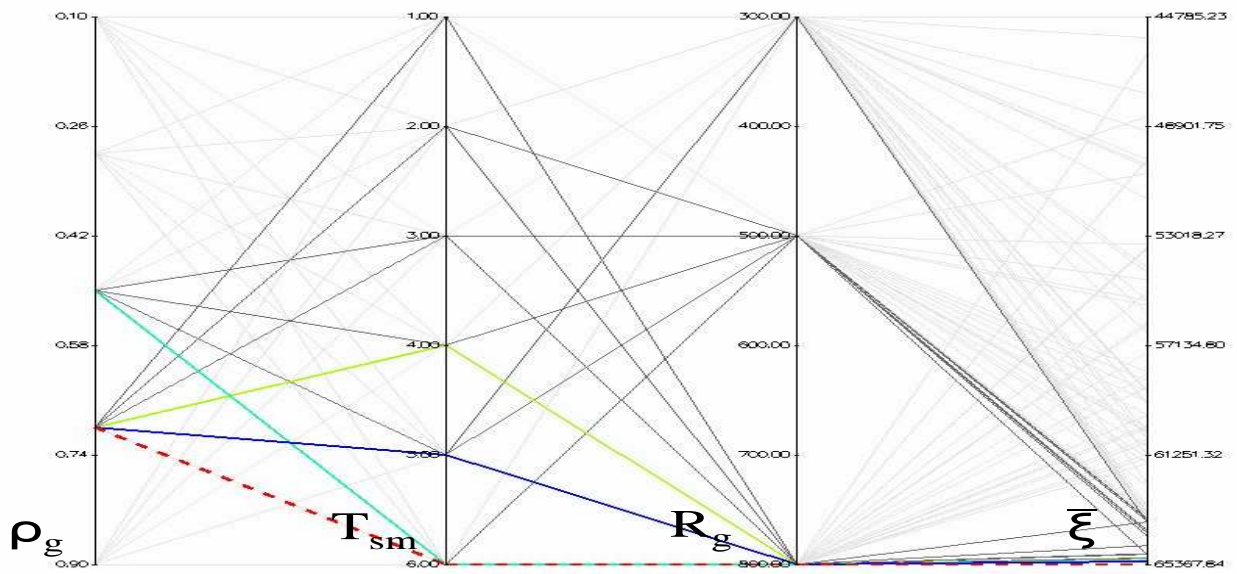


Figure E.36: Influence of  $\rho_g$  on the  $\bar{\xi}$  metric for EEMACOMP

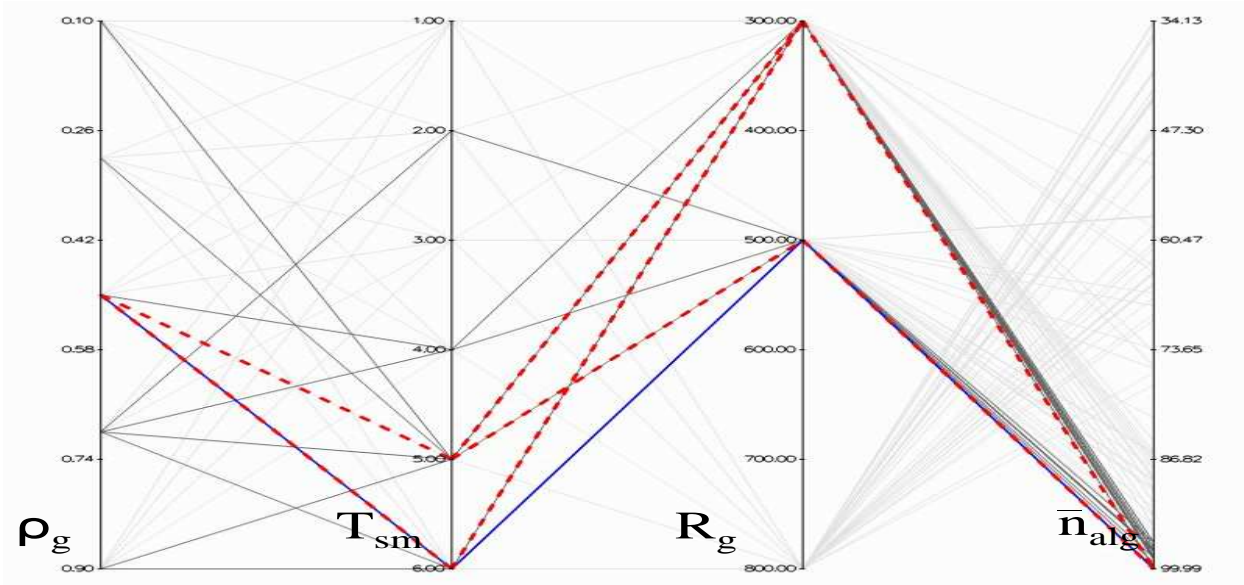


Figure E.37: Influence of  $\rho_g$  on the  $\bar{n}_{alg}$  metric for EEMACOMH

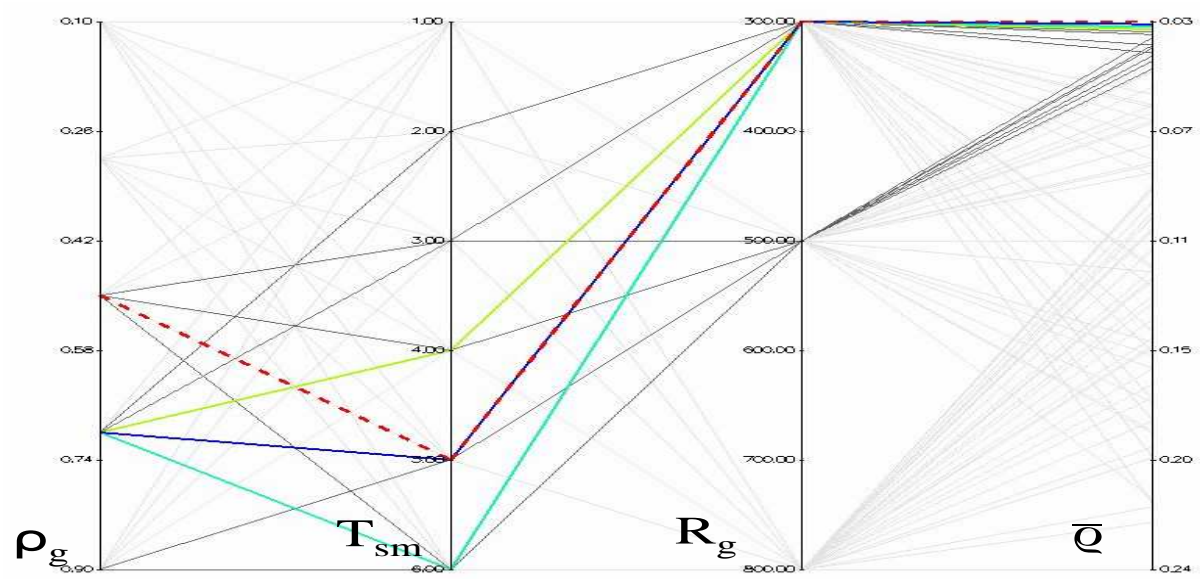


Figure E.38: Influence of  $\rho_g$  on the  $\bar{q}$  metric for EEMACOMH



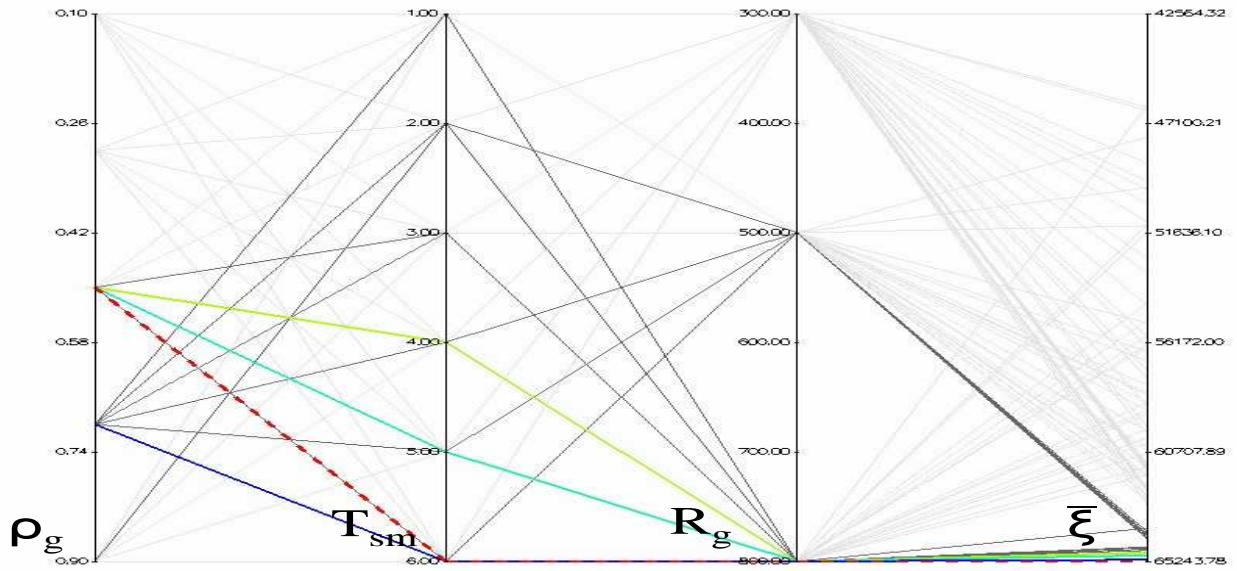


Figure E.39: Influence of  $\rho_g$  on the  $\bar{\xi}$  metric for EEMACOMH

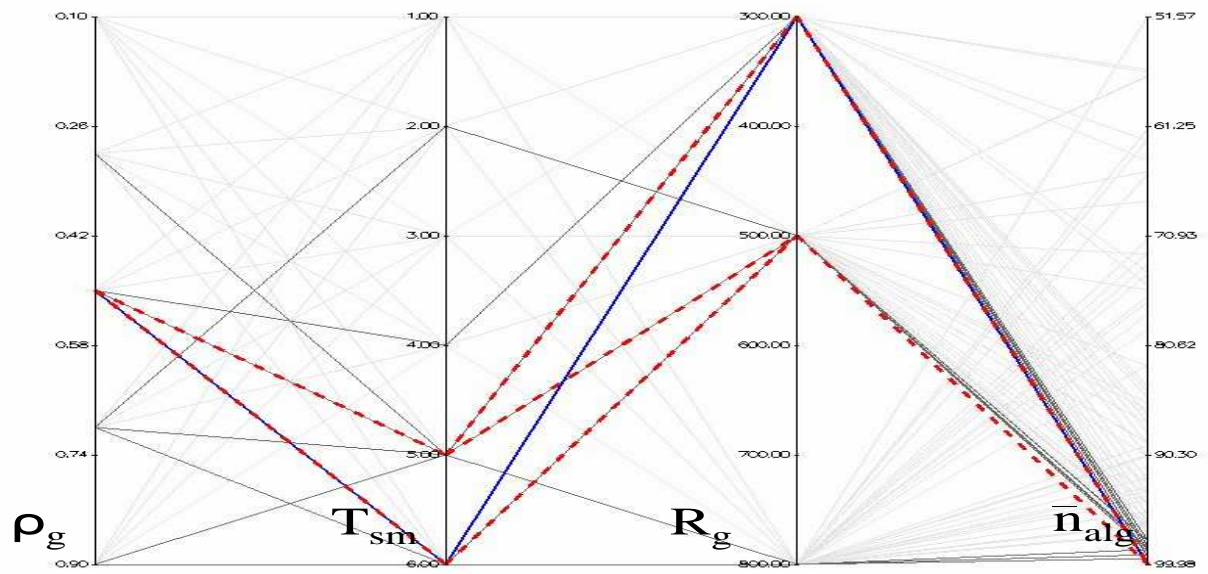


Figure E.40: Influence of  $\rho_g$  on the  $\bar{n}_{alg}$  metric for EEMMASMP

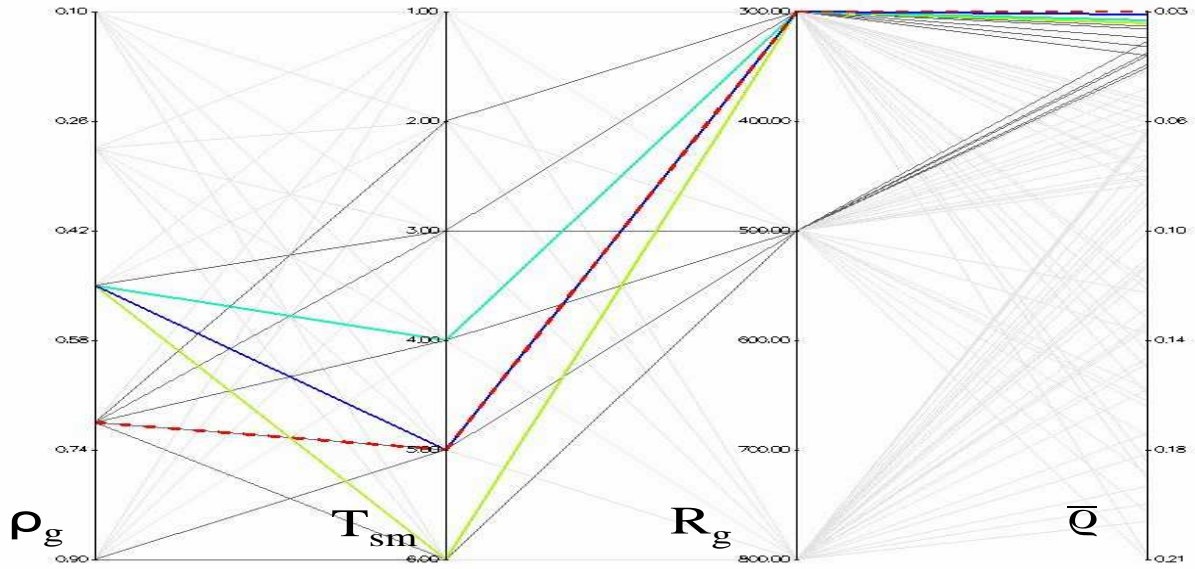


Figure E.41: Influence of  $\rho_g$  on the  $\bar{q}$  metric for EEMMASMP

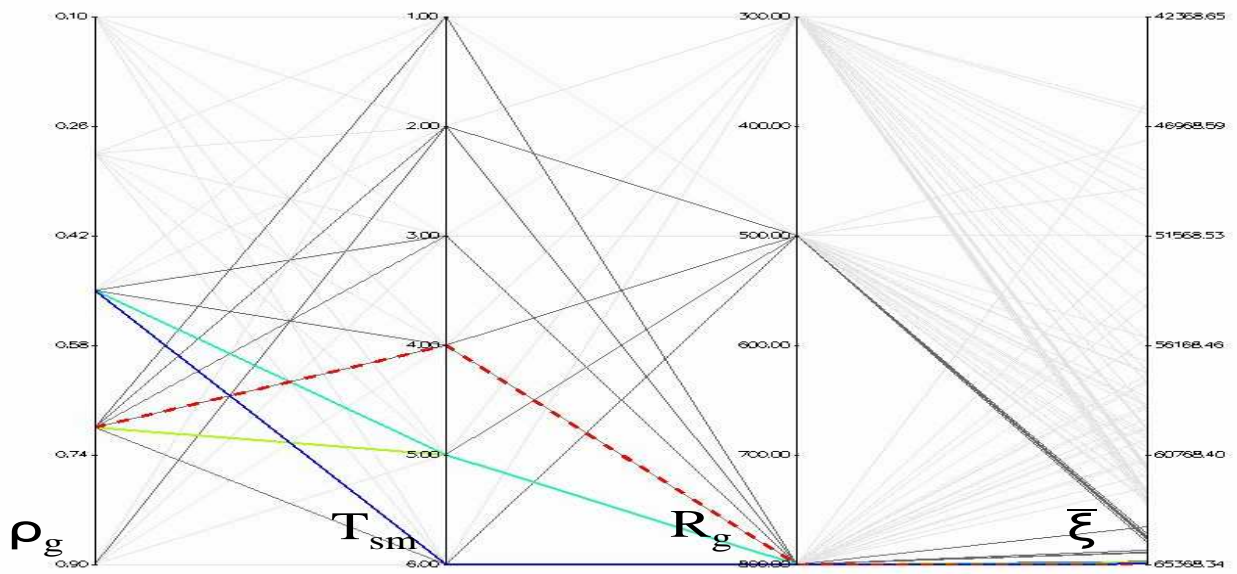


Figure E.42: Influence of  $\rho_g$  on the  $\bar{\xi}$  metric for EEMMASMP

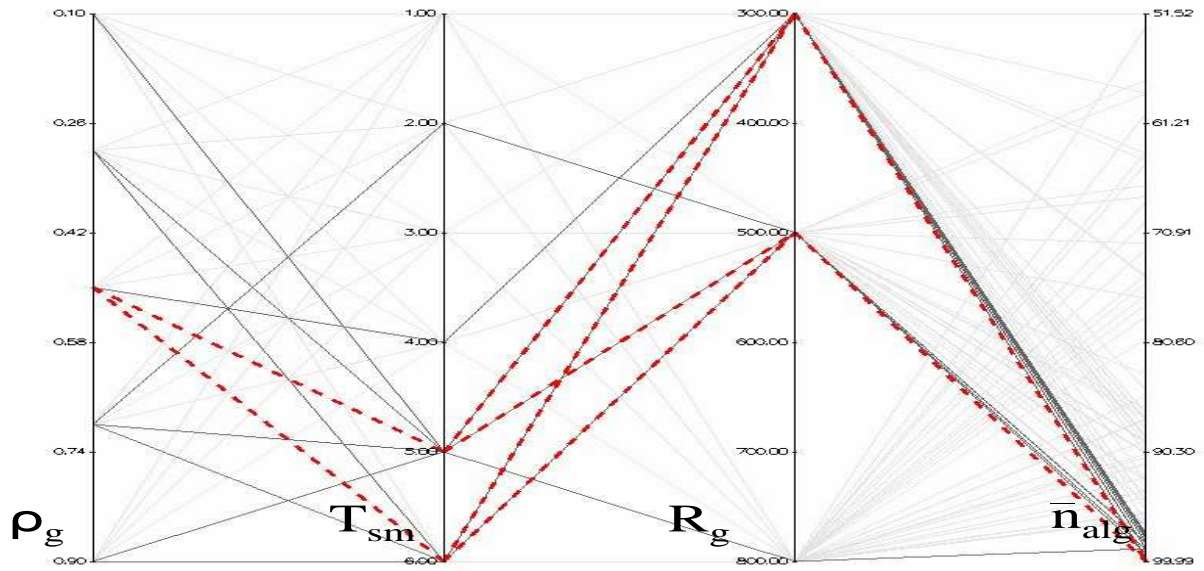


Figure E.43: Influence of  $\rho_g$  on the  $\bar{n}_{alg}$  metric for EEMMASMH

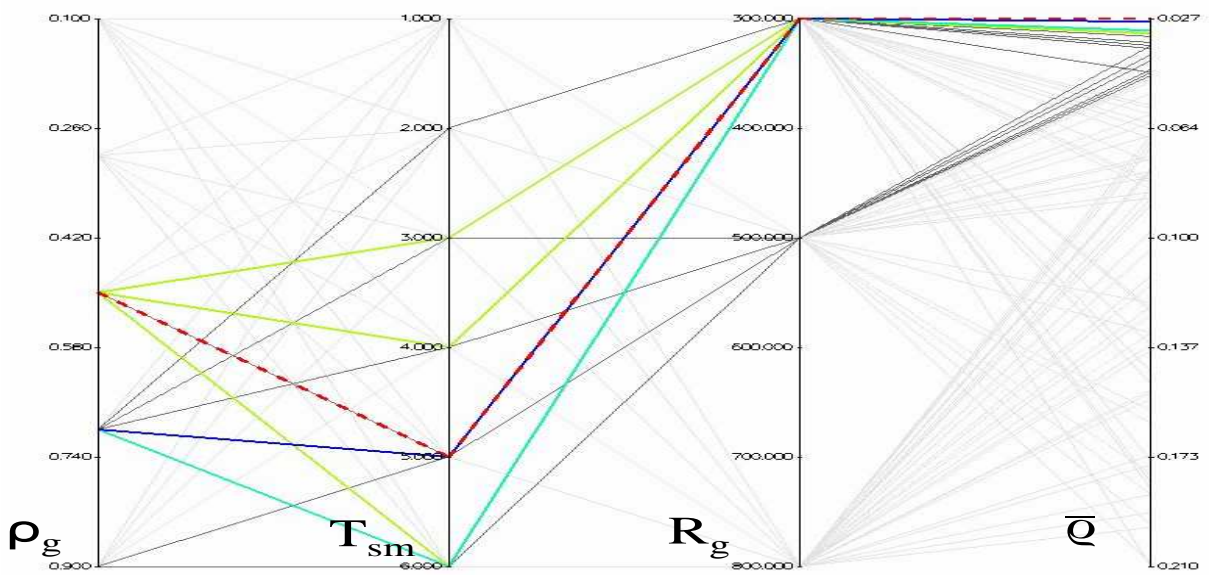


Figure E.44: Influence of  $\rho_g$  on the  $\bar{q}$  metric for EEMMASMH



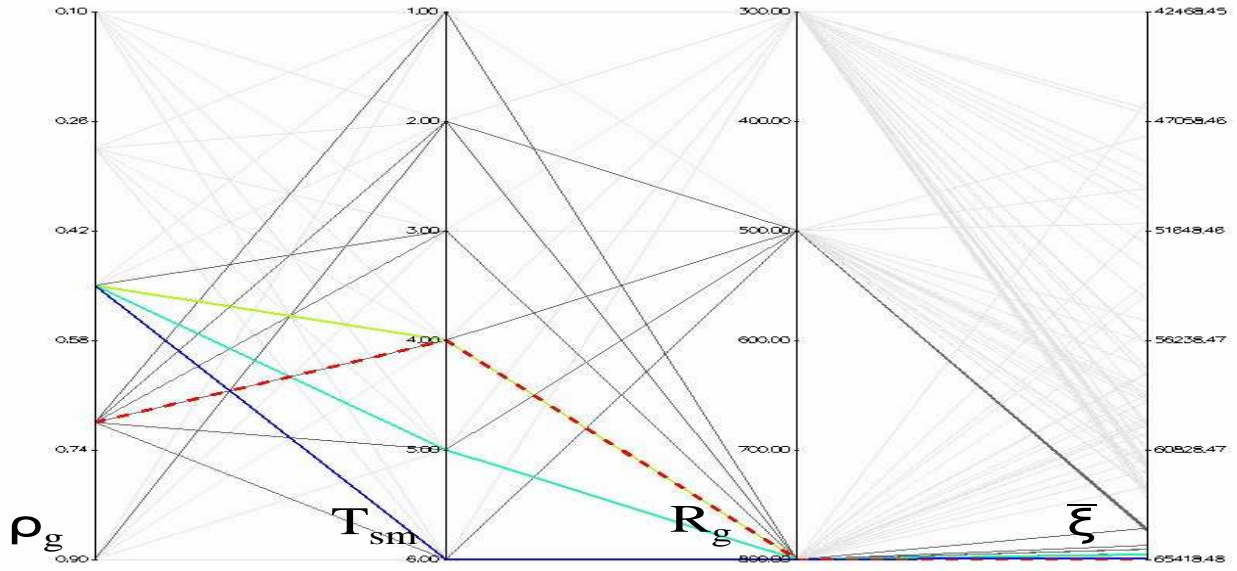


Figure E.45: Influence of  $\rho_g$  on the  $\bar{\xi}$  metric for EEMMASMH

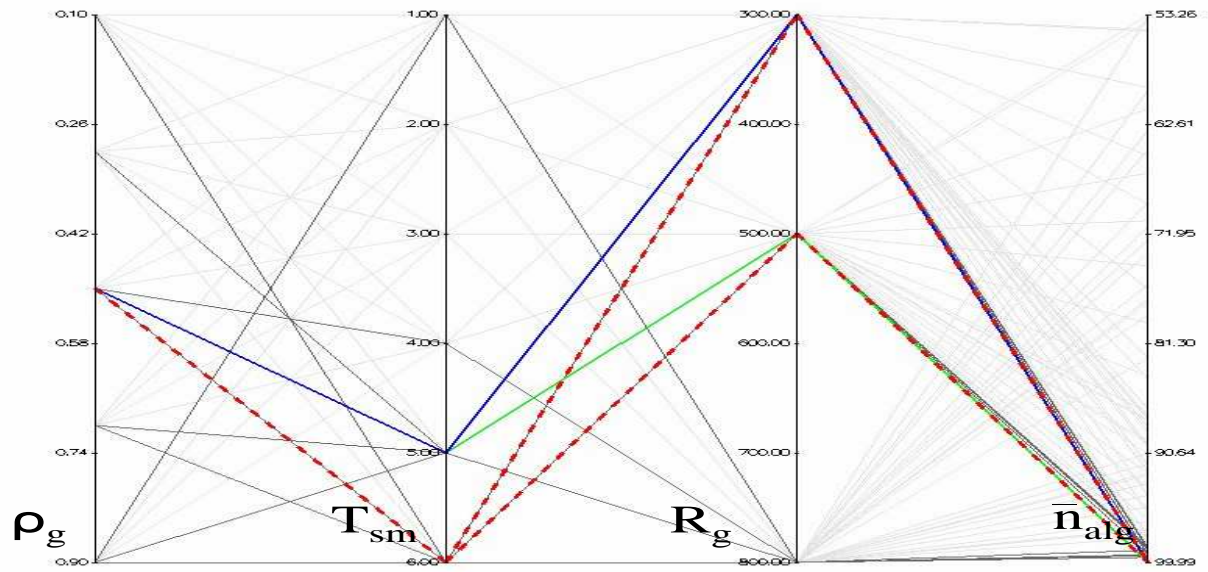


Figure E.46: Influence of  $\rho_g$  on the  $\bar{n}_{alg}$  metric for EEMACOMC

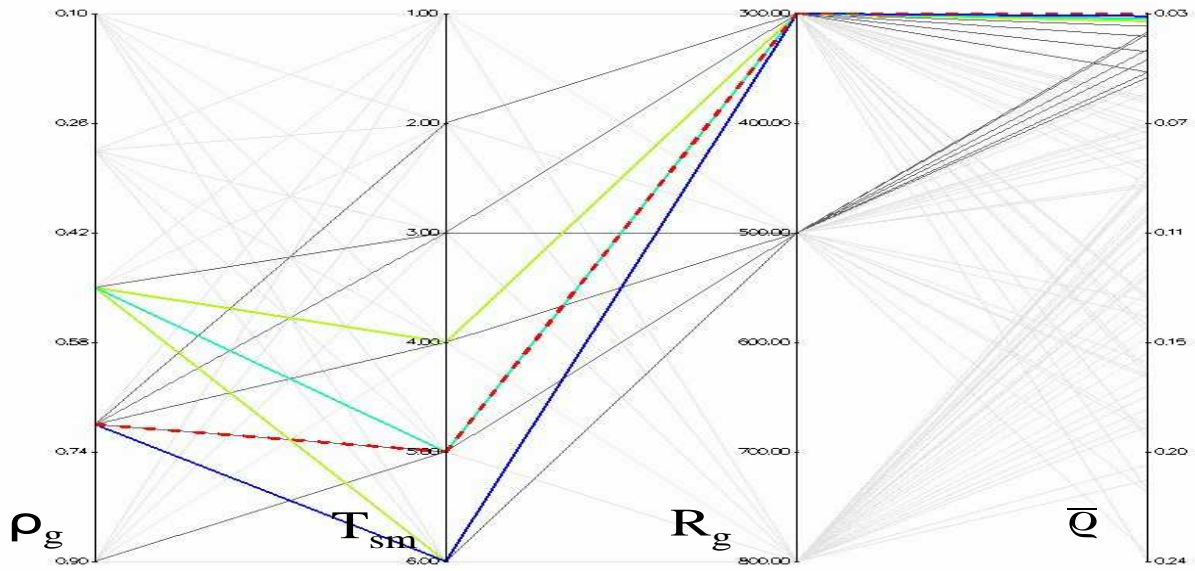


Figure E.47: Influence of  $\rho_g$  on the  $\bar{q}$  metric for EEMACOMC

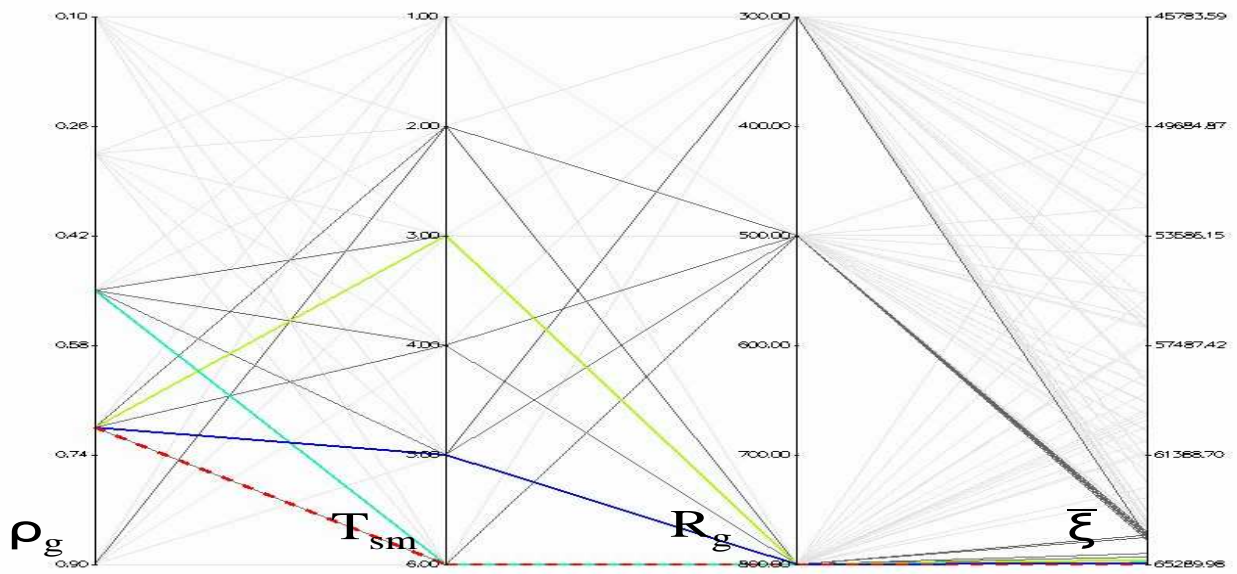


Figure E.48: Influence of  $\rho_g$  on the  $\bar{\xi}$  metric for EEMACOMC

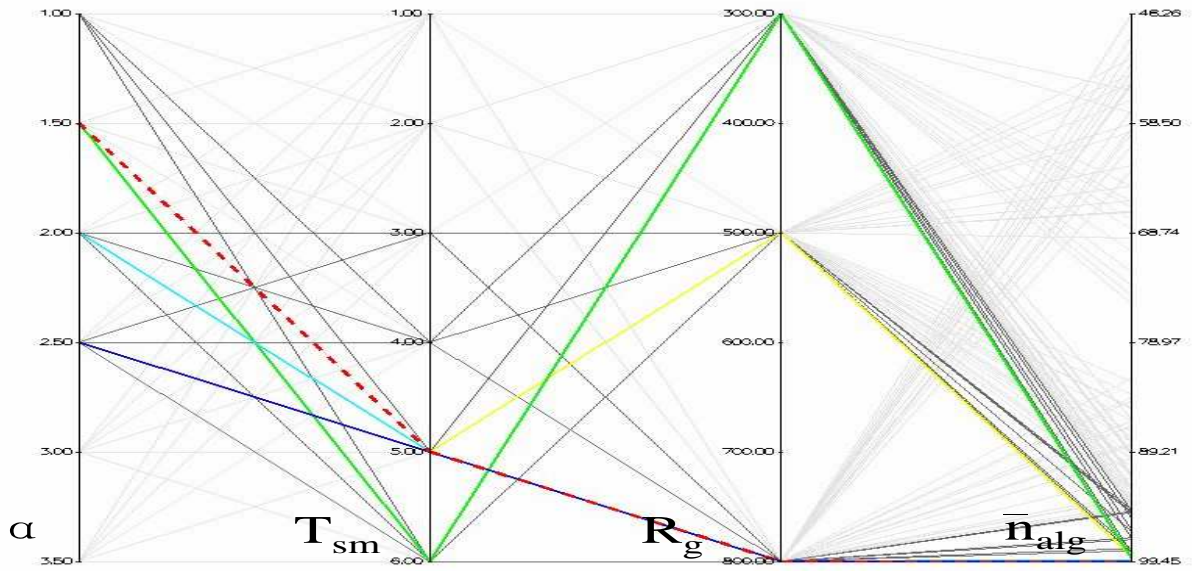


Figure E.49: Influence of  $\alpha$  on the  $\bar{n}_{alg}$  metric for EEMMASMP

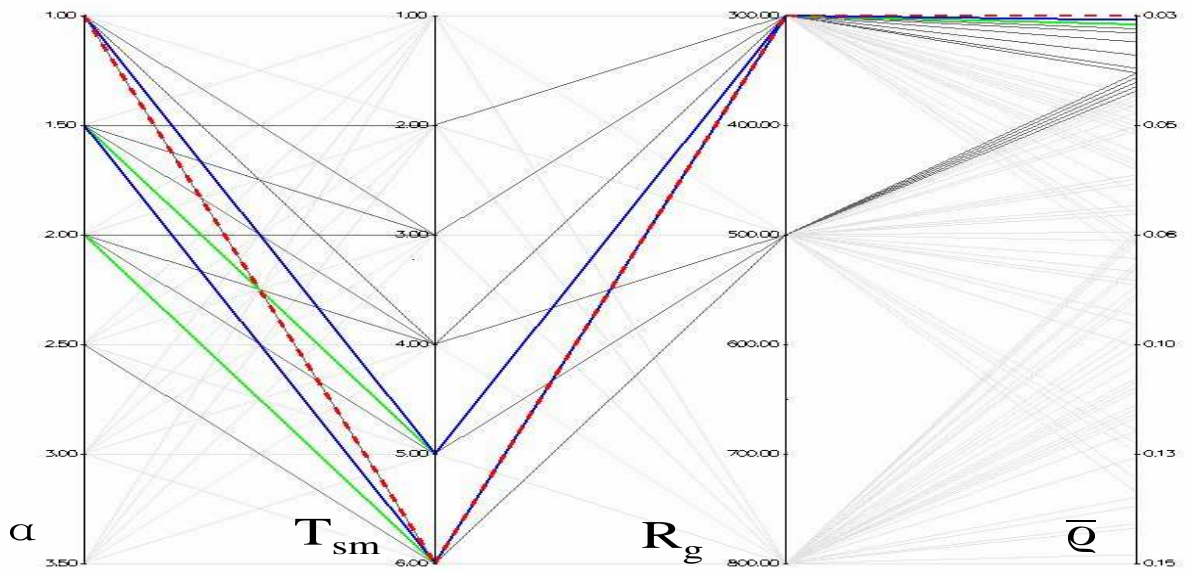


Figure E.50: Influence of  $\alpha$  on the  $\bar{q}$  metric for EEMMASMP



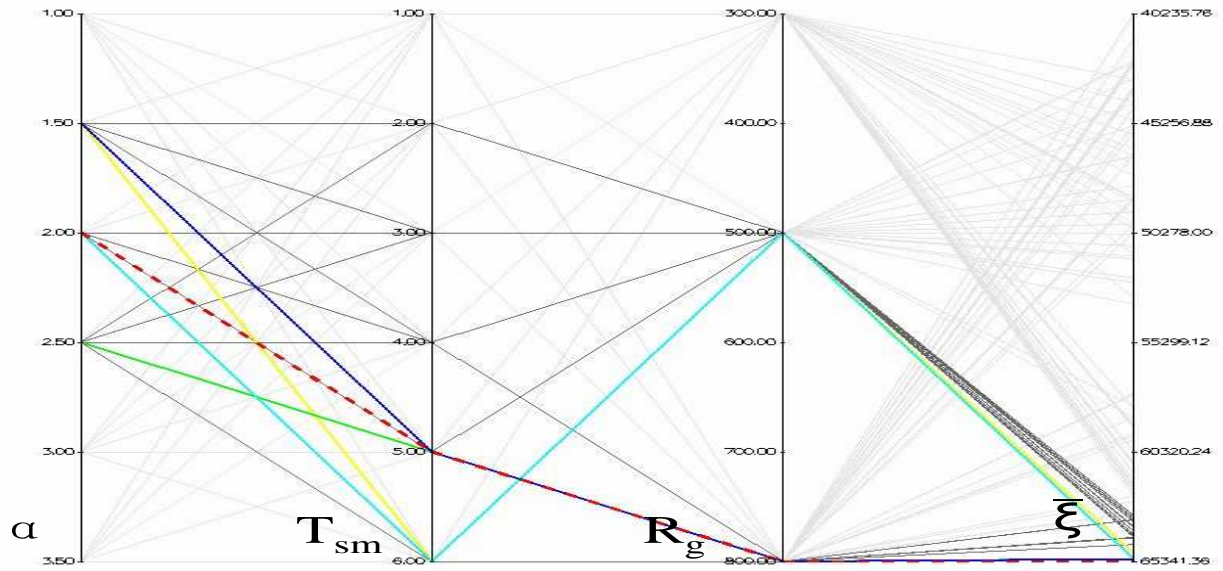


Figure E.51: Influence of  $\alpha$  on the  $\bar{\xi}$  metric for EEMMASMP

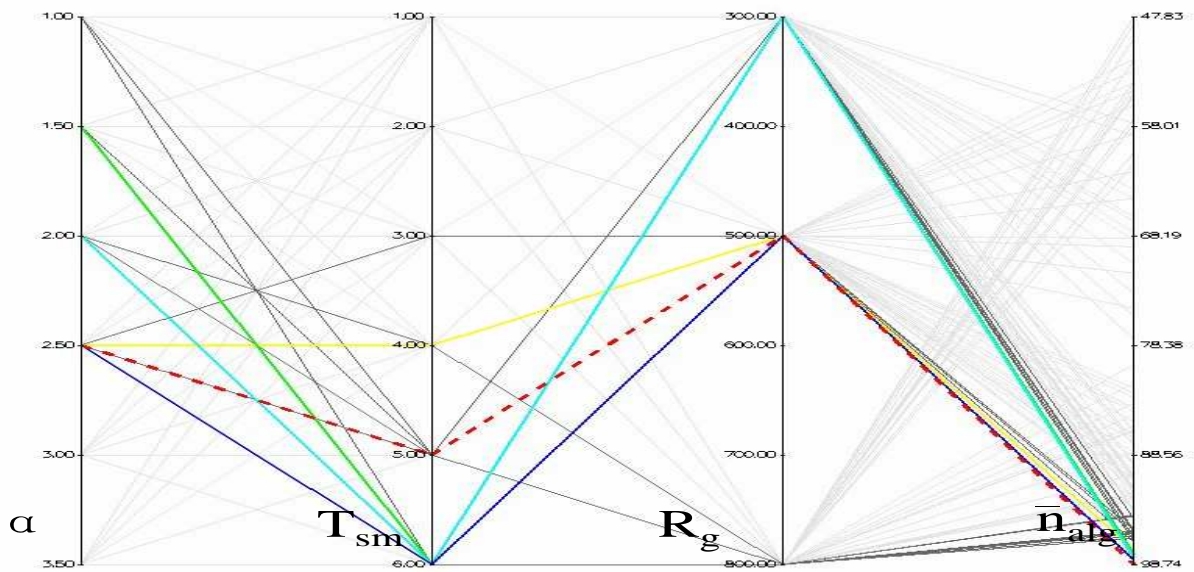


Figure E.52: Influence of  $\alpha$  on the  $\bar{n}_{alg}$  metric for EEMMASMH

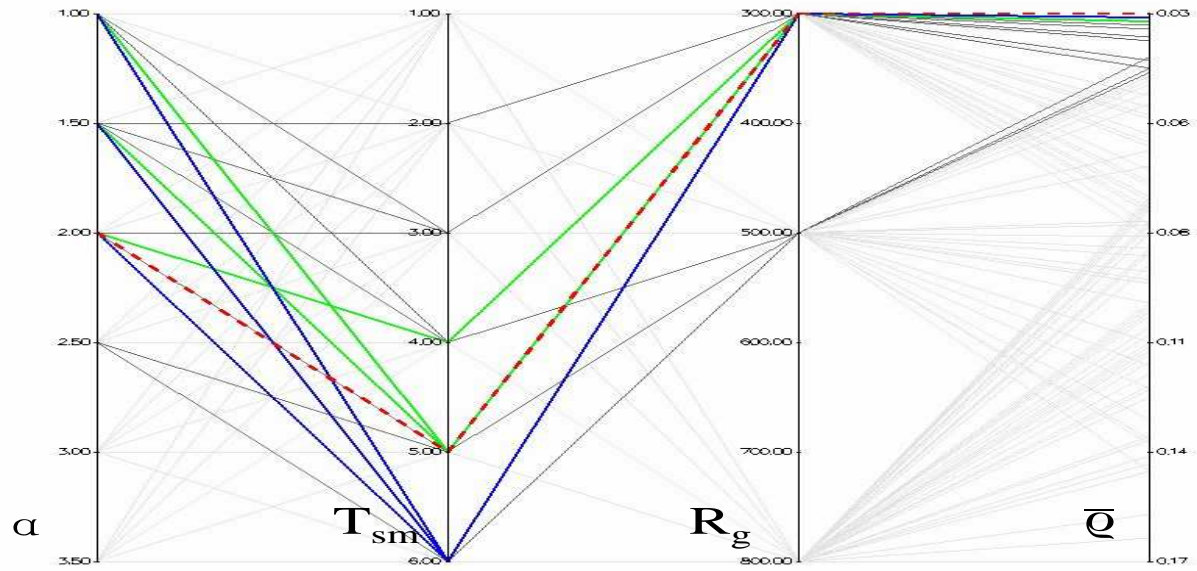


Figure E.53: Influence of  $\alpha$  on the  $\bar{q}$  metric for EEMMASMH

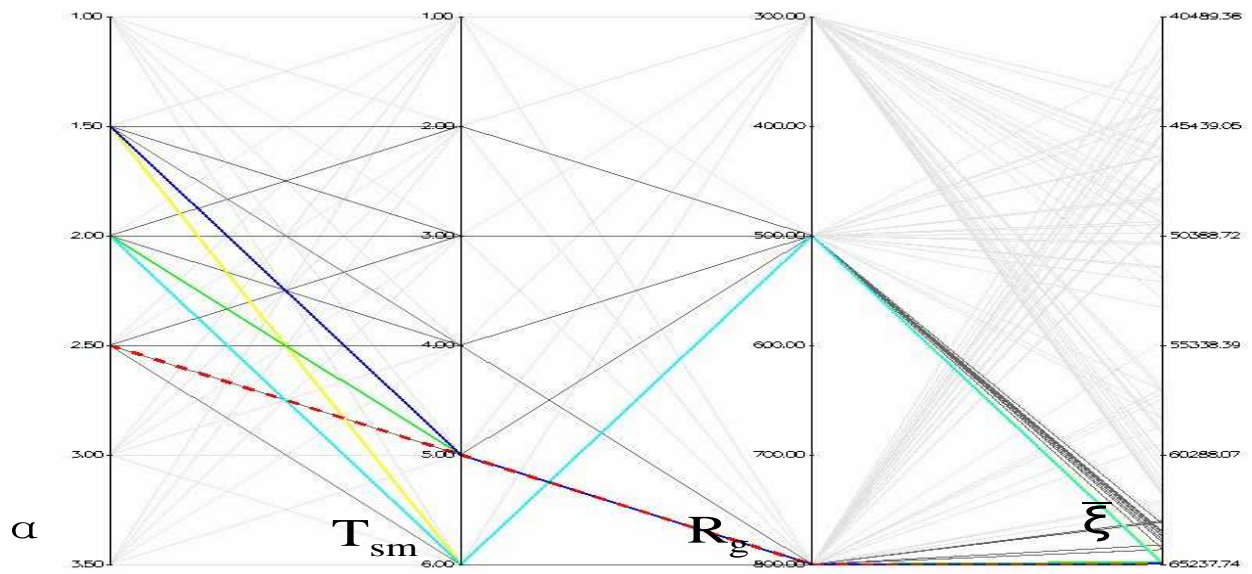


Figure E.54: Influence of  $\alpha$  on the  $\bar{\xi}$  metric for EEMMASMH



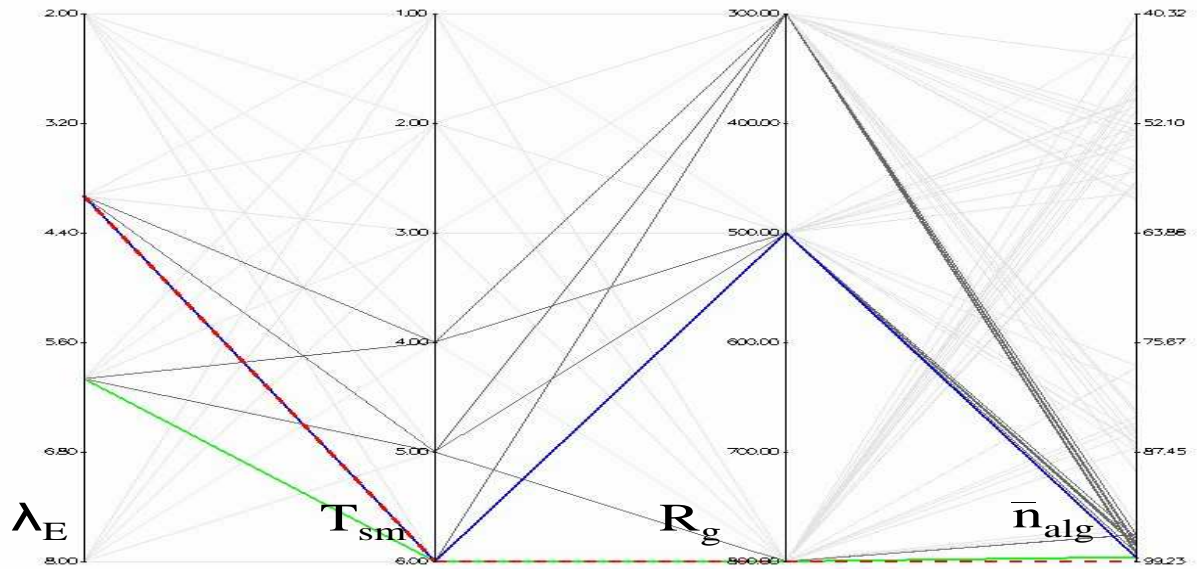


Figure E.55: Influence of  $\lambda_E$  on the  $\bar{n}_{alg}$  metric for EEMACOMP

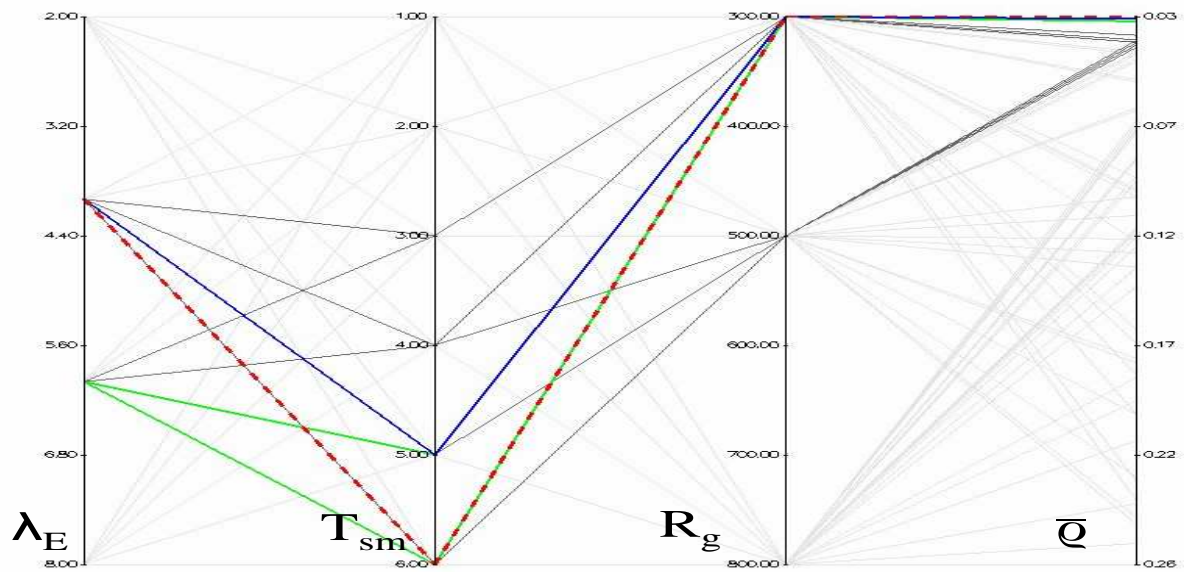


Figure E.56: Influence of  $\lambda_E$  on the  $\bar{q}$  metric for EEMACOMP

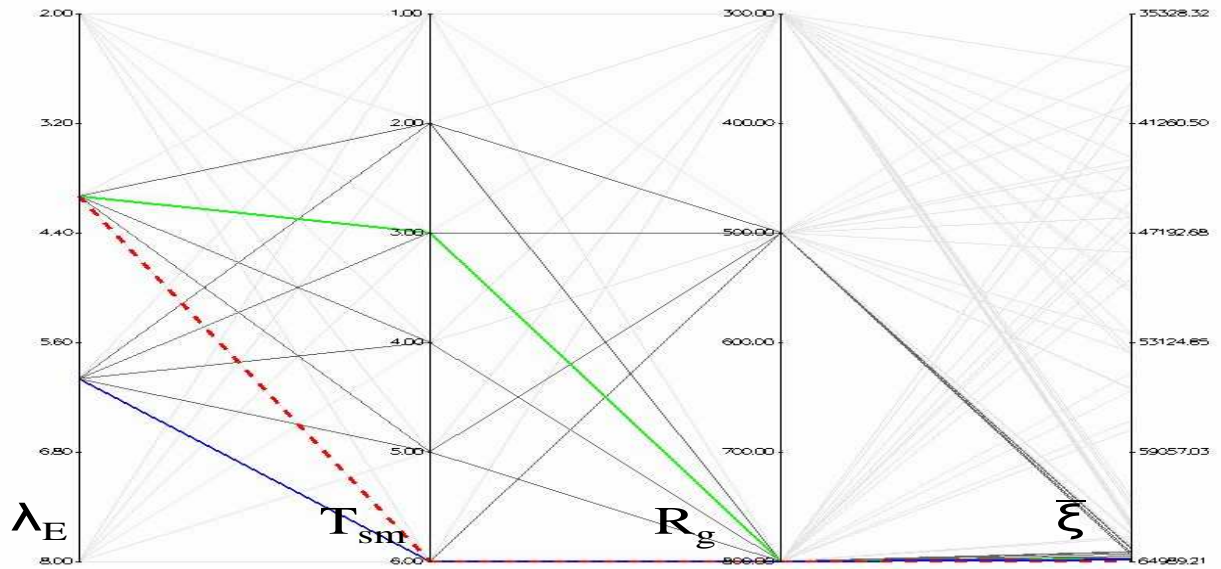


Figure E.57: Influence of  $\lambda_E$  on the  $\bar{\xi}$  metric for EEMACOMP

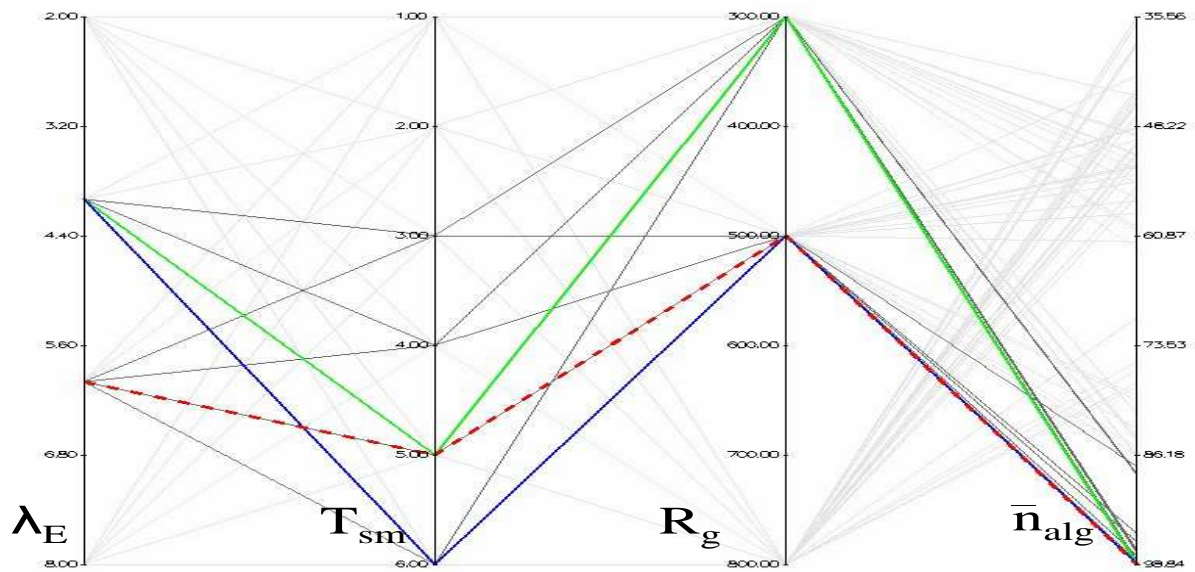


Figure E.58: Influence of  $\lambda_E$  on the  $\bar{n}_{alg}$  metric for EEMACOMH

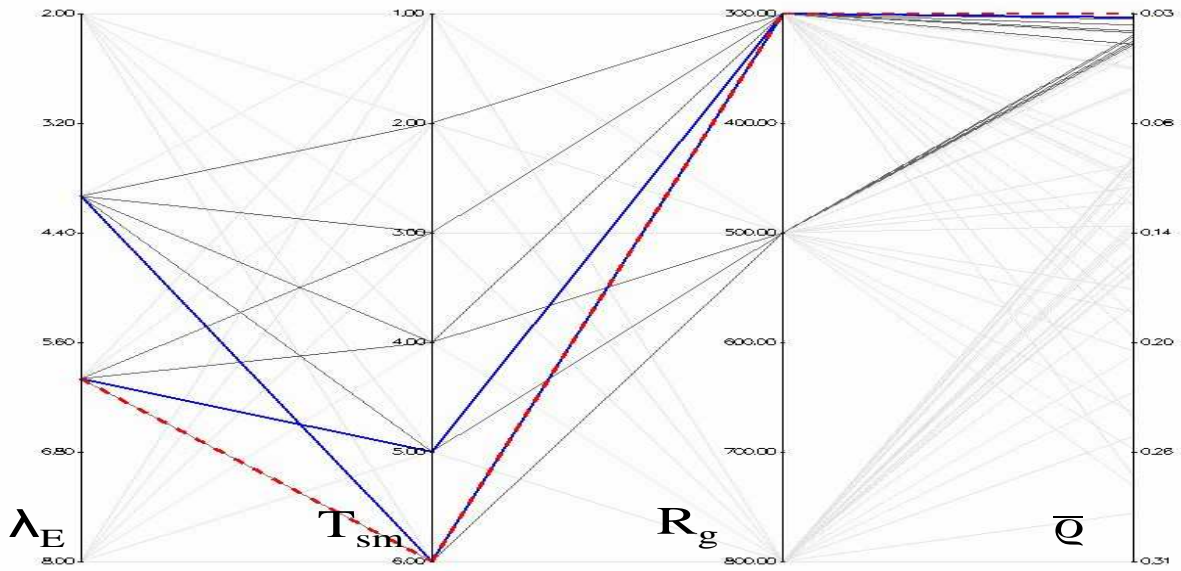


Figure E.59: Influence of  $\lambda_E$  on the  $\bar{q}$  metric for EEMACOMH

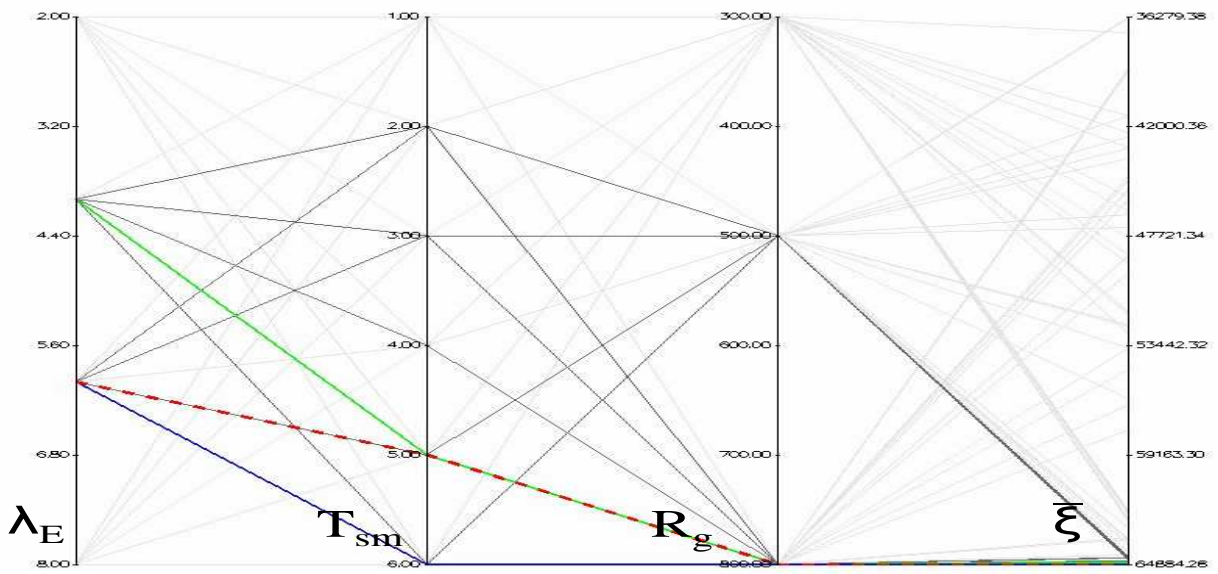


Figure E.60: Influence of  $\lambda_E$  on the  $\bar{\xi}$  metric for EEMACOMH

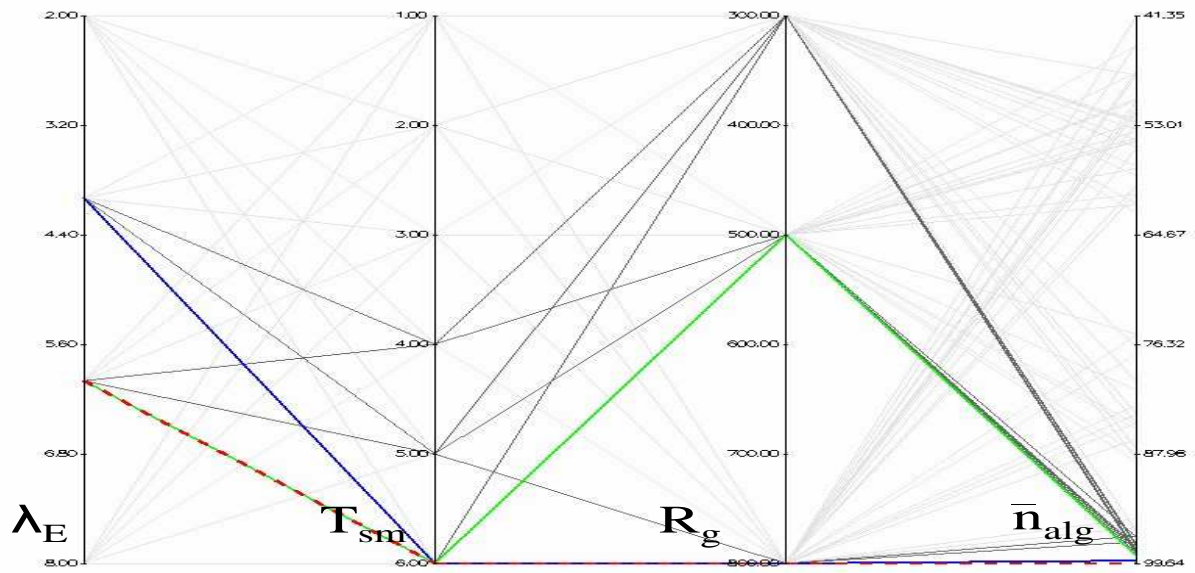


Figure E.61: Influence of  $\lambda_E$  on the  $\bar{n}_{alg}$  metric for EEMMASMP

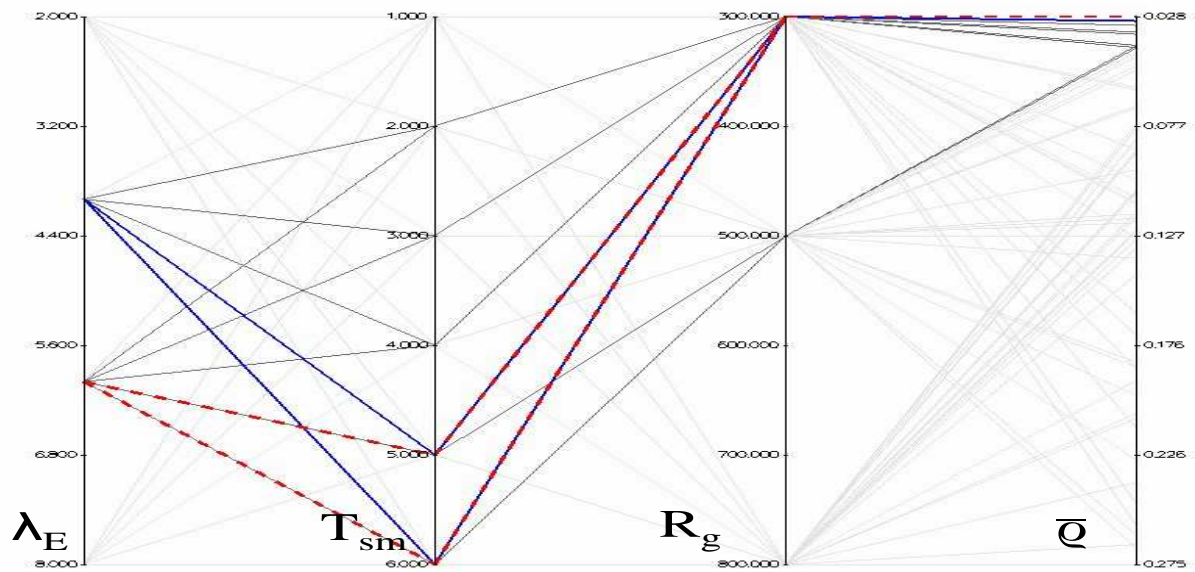


Figure E.62: Influence of  $\lambda_E$  on the  $\bar{q}$  metric for EEMMASMP



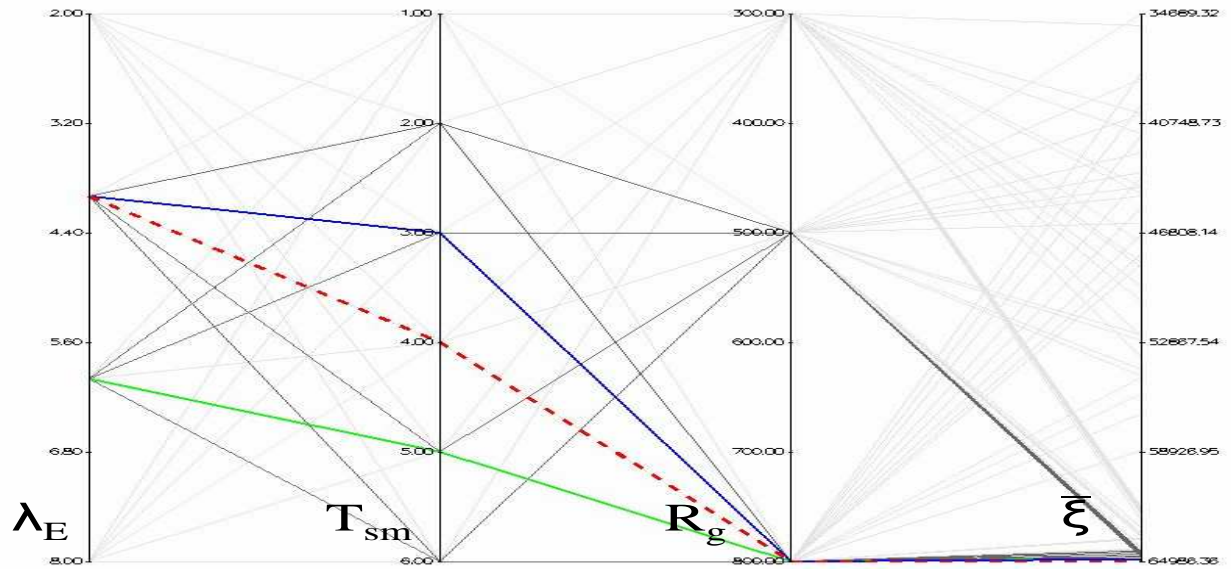


Figure E.63: Influence of  $\lambda_E$  on the  $\bar{\xi}$  metric for EEMMASMP

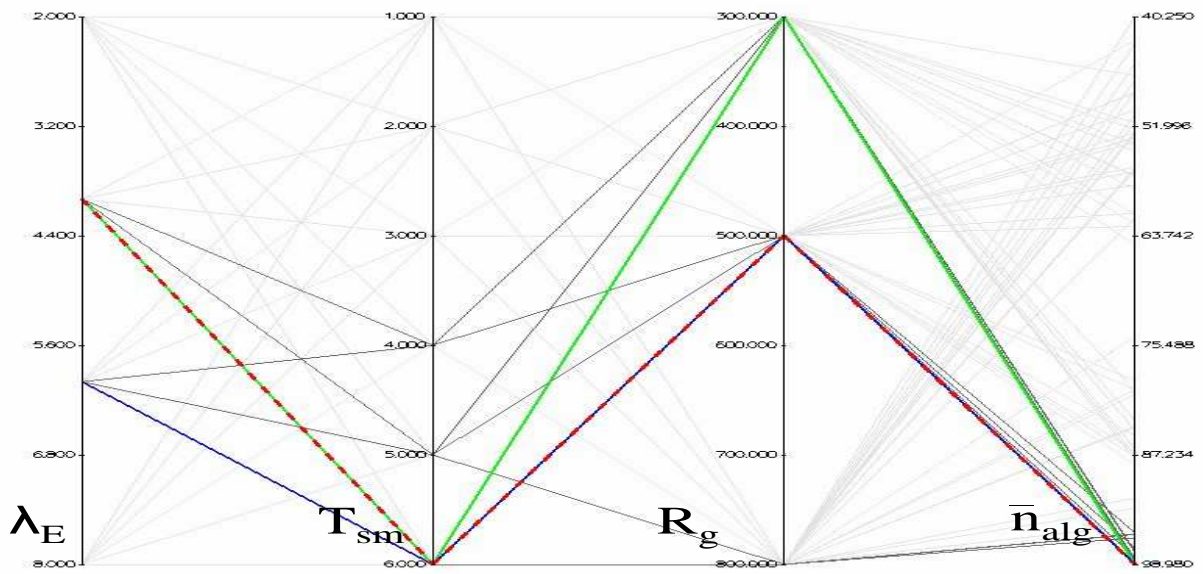


Figure E.64: Influence of  $\lambda_E$  on the  $\bar{n}_{alg}$  metric for EEMMASMH



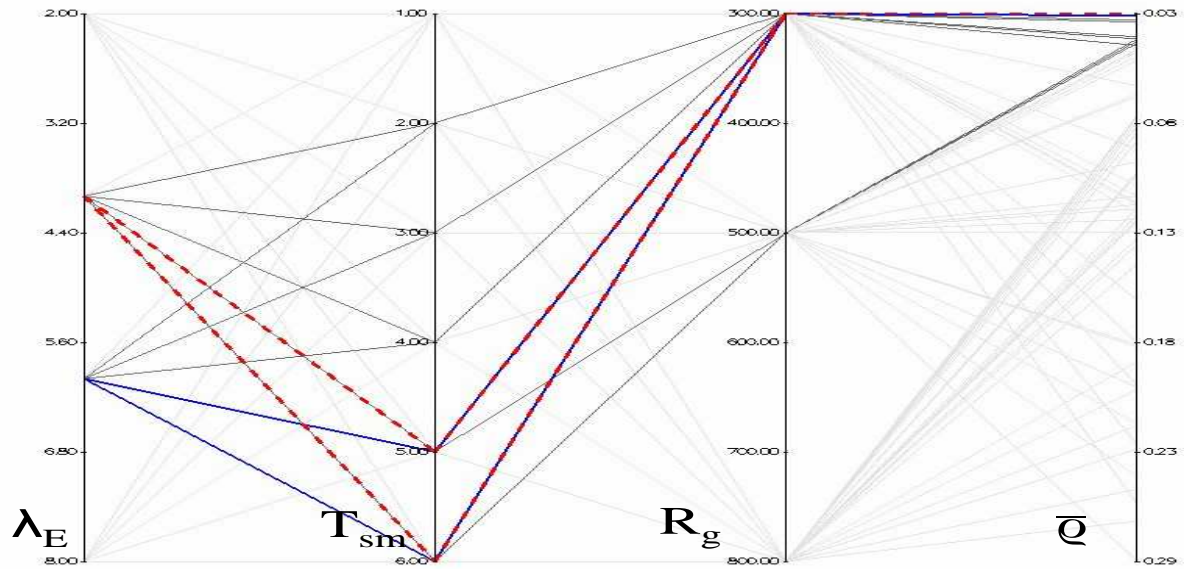


Figure E.65: Influence of  $\lambda_E$  on the  $\bar{q}$  metric for EEMMASMH

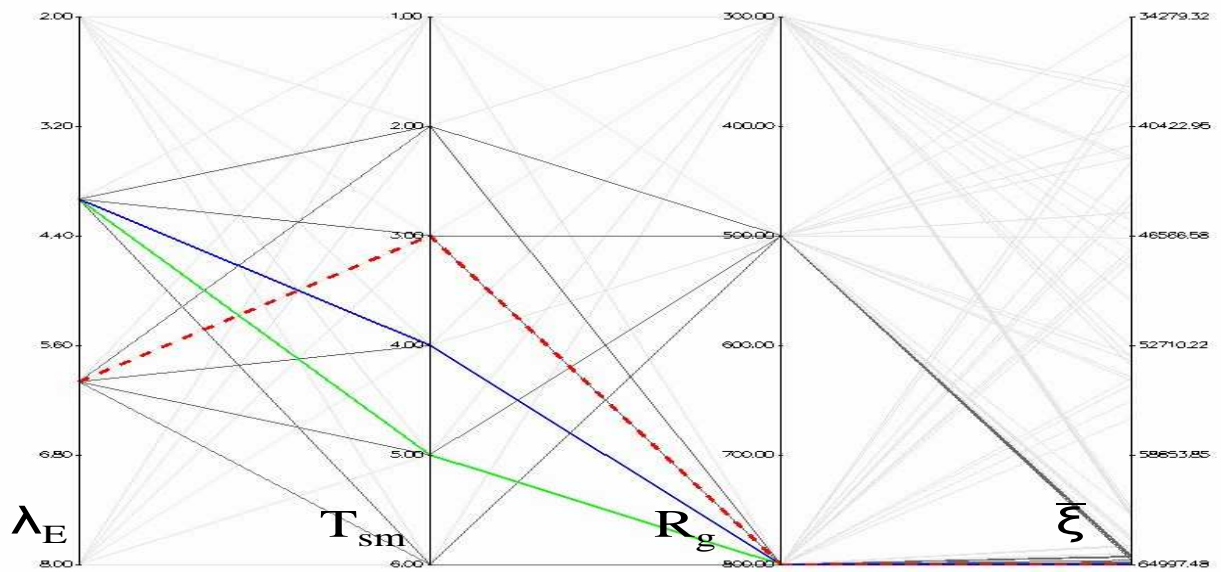


Figure E.66: Influence of  $\lambda_E$  on the  $\bar{\xi}$  metric for EEMMASMH

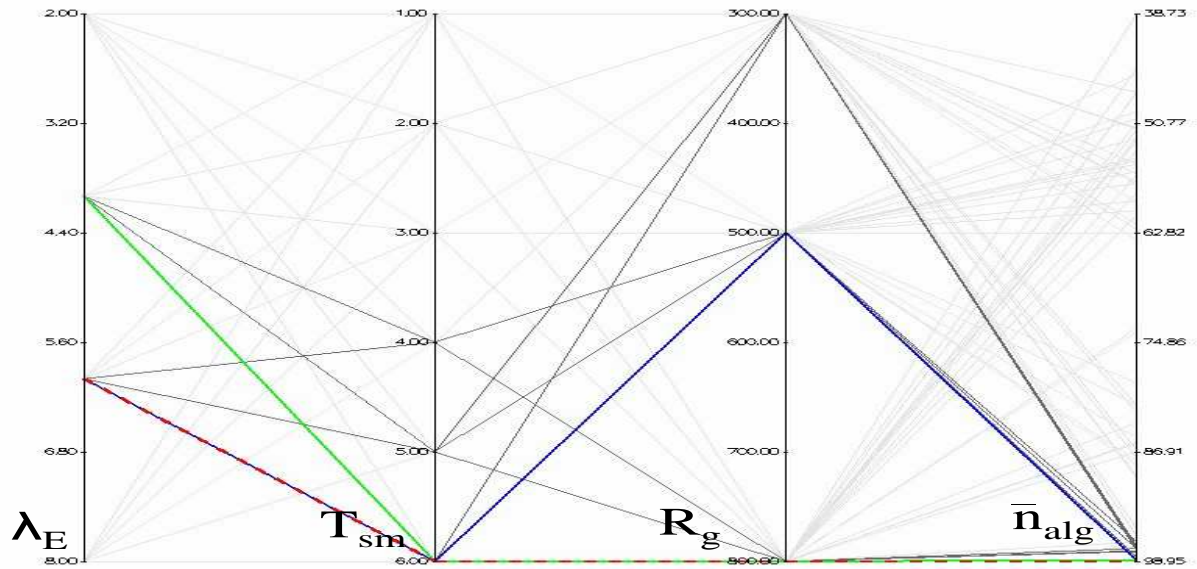


Figure E.67: Influence of  $\lambda_E$  on the  $\bar{n}_{alg}$  metric for EEMACOMC

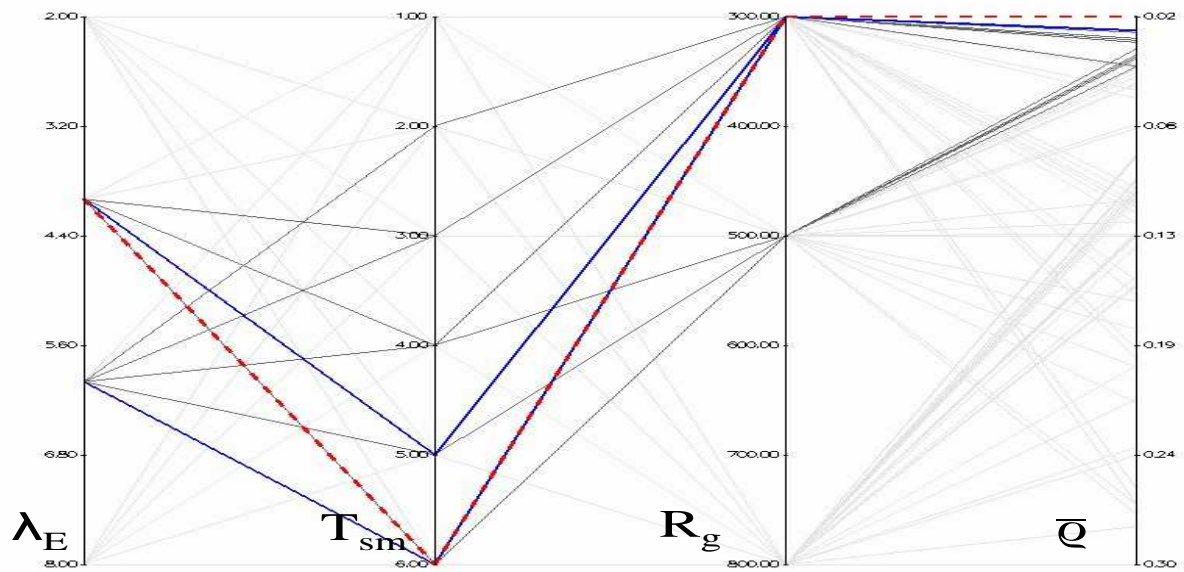


Figure E.68: Influence of  $\lambda_E$  on the  $\bar{q}$  metric for EEMACOMC

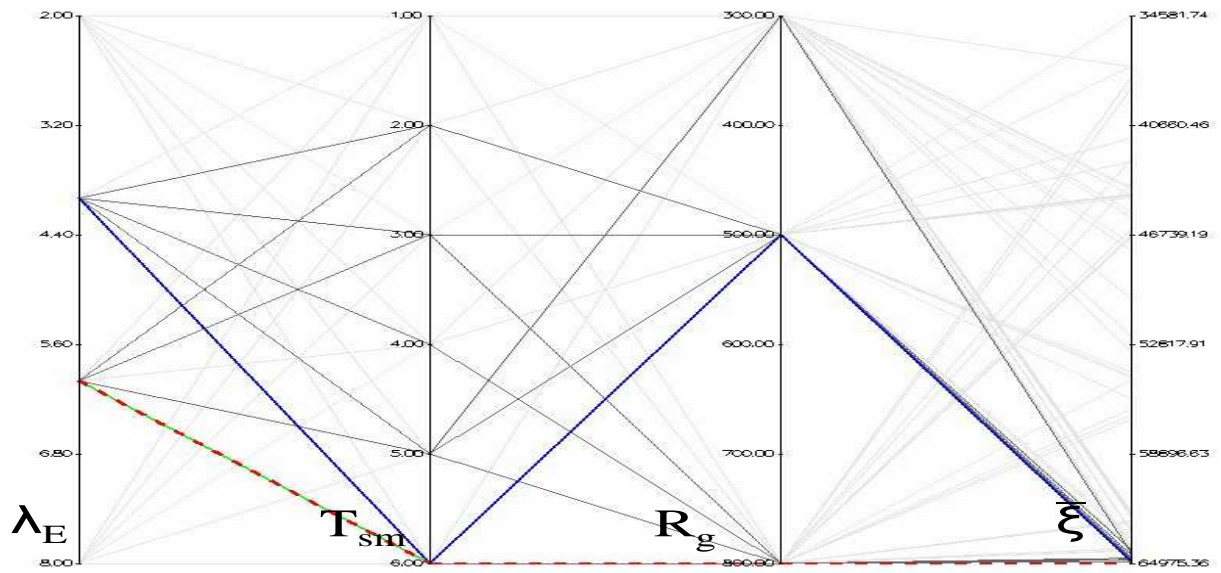


Figure E.69: Influence of  $\lambda_E$  on the  $\bar{\xi}$  metric for EEMACOMC