$\label{eq:model_model} \begin{tabular}{ll} MoG model with $d=100$, $q=10$, and $n=m=10^4$ \\ \end{tabular}$						
$\mu ext{-deformation}$				Σ_{ii} -deformation		
Statistic	$\epsilon_{95\%\mathrm{CL}}$	$\epsilon_{99\%\mathrm{CL}}$	t (s)	$\epsilon_{95\% ext{CL}}$	$\epsilon_{99\%\mathrm{CL}}$	t (s)
$t_{ m SW}$	$0.09504^{+0.024}_{-0.028}$	$0.12338^{+0.023}_{-0.024}$	648	$0.03044^{+0.0066}_{-0.0084}$	$0.03963^{+0.0061}_{-0.0067}$	711
$t_{\overline{ ext{KS}}}$	$0.00787^{+0.0031}_{-0.0029}$	$0.01207^{+0.0034}$	1244	$\begin{array}{c} \textbf{0.00311}_{-0.0084} \\ \textbf{0.00217}_{-0.00099}^{+0.0011} \\ 0.02687_{-0.0056}^{+0.0041} \\ \end{array}$	$0.00375^{+0.0011}_{-0.0012}$	1389
$t_{ m SKS}$	$ \begin{vmatrix} 0.07672^{+0.018}_{-0.021} \\ 0.13134^{+0.032}_{-0.034} \end{vmatrix} $	$\begin{array}{c} 0.10153^{+0.016}_{-0.018} \\ 0.10153^{+0.018}_{-0.018} \\ 0.16599^{+0.028}_{-0.028} \\ 0.14183^{+0.023}_{-0.028} \end{array}$	688	$0.02687^{+0.0041}_{-0.0056}$	$0.0345^{+0.0036}_{-0.004}$	736
$t_{ m FGD}$	$0.13134^{+0.032}_{-0.034}$	$0.16599^{+0.028}_{-0.028}$	2715	$0.04142^{+0.0081}_{-0.01}$	$0.05232^{+0.0067}_{-0.0074}$	2955
$t_{ m MMD}$	$\begin{array}{c} 0.1031_{-0.034} \\ 0.10962_{-0.035}^{+0.028} \\ 0.01022_{-0.0039}^{+0.003} \end{array}$	$0.14183^{+0.023}_{-0.026}$	1350	$0.02117^{+0.007}_{-0.0078}$	$0.05232^{+0.0067}_{-0.0074} \ 0.02757^{+0.0062}_{-0.0064}$	1536
$t_{ m NPLM}$	$0.01022^{+0.003}_{-0.0039}$	$0.01227^{+0.0027}_{-0.0021}$	3690	$\begin{array}{c} 0.02117^{+0.007}_{-0.0078} \\ 0.00333^{+0.00099}_{-0.0013} \end{array}$	$0.00399^{+0.00089}$	4008
$t_{\rm LLR}$	$9e - 05^{+6e - 05}_{-6e - 05}$	$0.00012^{+6e-05}_{-6e-05}$	3225	$2e - 05^{+1}_{-1}e^{-05}_{-05}$	$2e - 05^{+2e - 05}_{-1e - 05}$	3499
$\Sigma_{i\neq j}$ -deformation				pow_+ -deformation		
Statistic	$\epsilon_{95\%\mathrm{CL}}$	$\epsilon_{99\%\mathrm{CL}}$	t (s)	$\epsilon_{95\%\mathrm{CL}}$	$\epsilon_{99\%\mathrm{CL}}$	t (s)
$t_{ m SW}$	$ \begin{vmatrix} 0.05622^{+0.011}_{-0.015} \\ 1.00157^{+0.00038}_{-0.00012} \end{vmatrix} $	$0.07365^{+0.0088}_{-0.011} \\ 1.00402^{+0.00037}_{-0.0018}$	3594	$0.01206^{+0.0028}_{-0.0033}$	$0.01579^{+0.0023}_{-0.0028}$	730
$t_{\overline{ ext{KS}}}$	$1.00157^{+0.00038}_{-0.00012}$	$1.00402^{+0.00037}_{-0.0018}$	10395	$0.00084^{+0.00043}_{-0.00041}$	$0.00144^{+0.00041}$	1467
$t_{ m SKS}$	$0.0607^{+0.013}_{-0.015}$	$0.07996^{+0.011}_{-0.013}$	4297	$0.01088^{+0.0016}_{-0.0021}$	$0.0139^{+0.0013}_{-0.0015}$	773
$t_{ m FGD}$	$ \begin{array}{c c} 0.0607^{+0.013}_{-0.015} \\ 0.00958^{+0.0021}_{-0.0026} \end{array} $	$0.07996^{+0.011}_{-0.013}$ $0.01249^{+0.0018}_{-0.0019}$	7784	$\begin{array}{c} -0.03041 \\ 0.01088^{+0.0016}_{-0.0021} \\ 0.01638^{+0.0032}_{-0.0039} \end{array}$	$0.0139_{-0.0015}^{+0.0013} \\ 0.02069_{-0.003}^{+0.0027}$	2488
$t_{ m MMD}$	$ 0.03968^{+0.01}_{-0.012} $	$0.05143^{+0.0089}_{-0.0095}$	5795	$0.00761^{+0.0026}_{-0.0028}$	$0.00988^{+0.0023}_{-0.0023}$	1238
$t_{ m NPLM}$	$0.00559_{-0.0025}^{+0.0022}$	$0.00712^{+0.002}_{-0.0021}$	9175	$0.00126^{+0.00038}_{-0.00049}$	$0.00152^{+0.00034}_{-0.0004}$	3952
$t_{\rm LLR}$	-	-	-	$1e - 05^{+0}_{-1e-05}$	$1e - 05^{+0}_{-1e-05}$	3842
$pow\deformation$				$\mathcal{N} ext{-deformation}$		
Statistic	$\epsilon_{95\%\mathrm{CL}}$	$\epsilon_{99\%\mathrm{CL}}$	t (s)	$\epsilon_{95\% ext{CL}}$	$\epsilon_{99\%\mathrm{CL}}$	t (s)
$t_{ m SW}$	$0.01253^{+5}_{-0.0032}$	$0.0164^{+5}_{-0.0026}$	653	$\begin{array}{c} 0.32495^{+0.033}_{-0.046} \\ \textbf{0.02563}^{+0.0081}_{-0.0097} \\ 0.27956^{+0.034}_{-0.043} \end{array}$	$0.37663^{+0.025}_{-0.032}$ $0.03668^{+0.0078}_{-0.008}$ $0.32856^{+0.027}_{-0.033}$	617
$t_{\overline{ ext{KS}}}$	$0.00086^{+0.00044}_{-0.00043}$	$0.00147^{+0.00042}_{-0.00047}$ $0.01376^{+0.0013}_{-0.0015}$	1542	$0.02563^{+0.0081}_{-0.0097}$	$0.03668^{+0.0078}_{-0.008}$	652
$t_{ m SKS}$	$0.01077_{-0.0021}^{+0.0010}$	$0.01376^{+0.0013}_{-0.0015}$	786	$0.27956^{+0.034}_{-0.043}$	$0.32856^{+0.027}_{-0.033}$	657
$t_{ m FGD}$	$0.01685^{+0.0032}_{-0.0038}$	$0.02139^{+0.0026}_{-0.0032}$	3221	$ 0.28803^{+0.027}_{-0.038} $	$0.32529_{-0.025}^{+0.021}$	2636
$t_{ m MMD}$	$0.00834^{+0.0023}_{-0.0025}$	$0.01083^{+0.002}_{-0.0021}$	1257	$1.17867^{+0.13}_{-0.19}$	$1.33971_{-0.12}^{+0.09}$	731
$t_{ m NPLM}$	$0.00132^{+0.00037}_{-0.00048}$	$0.00158^{+0.00033}_{-0.00038}$	3821	$0.21286^{+0.054}_{-0.073}$	$0.25257^{+0.053}_{-0.056}$	2901
$t_{\rm LLR}$	$1e - 05^{+0}_{-1e-05}$	$1e - 05^{+0}_{-1e-05}$	4903	-	-	
$\mathcal{U} ext{-deformation}$			Timing			
Statistic	$\epsilon_{95\%\mathrm{CL}}$	$\epsilon_{99\%\mathrm{CL}}$	t (s)	t^{null} (s)		
$t_{ m SW}$	$ \begin{array}{c} 0.56347^{+0.054}_{-0.083} \\ 0.03885^{+0.012}_{-0.015} \\ 0.48383^{+0.061}_{-0.074} \\ 0.49924^{+0.046}_{-0.066} \\ 0.2324^{+0.023}_{-0.066} \end{array} $	$0.65308^{+0.044}_{-0.056}$	588	285		
$t_{\overline{ ext{KS}}}$	$igg \ 0.03885^{+0.012}_{-0.015}$	$\begin{array}{c} \textbf{0.0555}_{-0.011}^{+0.011} \\ \textbf{0.56865}_{-0.057}^{+0.048} \end{array}$	644	511		
$t_{ m SKS}$	$0.48383^{+0.061}_{-0.074}$	$0.56865^{+0.048}_{-0.057}$	631	456		
$t_{ m FGD}$	$0.49924^{+0.046}_{-0.066}$	$0.56865^{+0.048}_{-0.057}$ $0.56381^{+0.036}_{-0.047}$	2515	3225		
$t_{ m MMD}$	$\begin{array}{c} 2.02548^{+0.23}_{-0.32} \\ 0.37095^{+0.096}_{-0.13} \end{array}$	$2.31/27_{-0.2}$	1113	665		
$t_{ m NPLM}$	$0.37095^{+0.096}_{-0.13}$	$0.43272^{+0.082}_{-0.094}$	2769	5141		
$t_{ m LLR}$	_	-	_	_		