

Overview of figures and tables GBM_alpha_1_sigma_2_x0_100

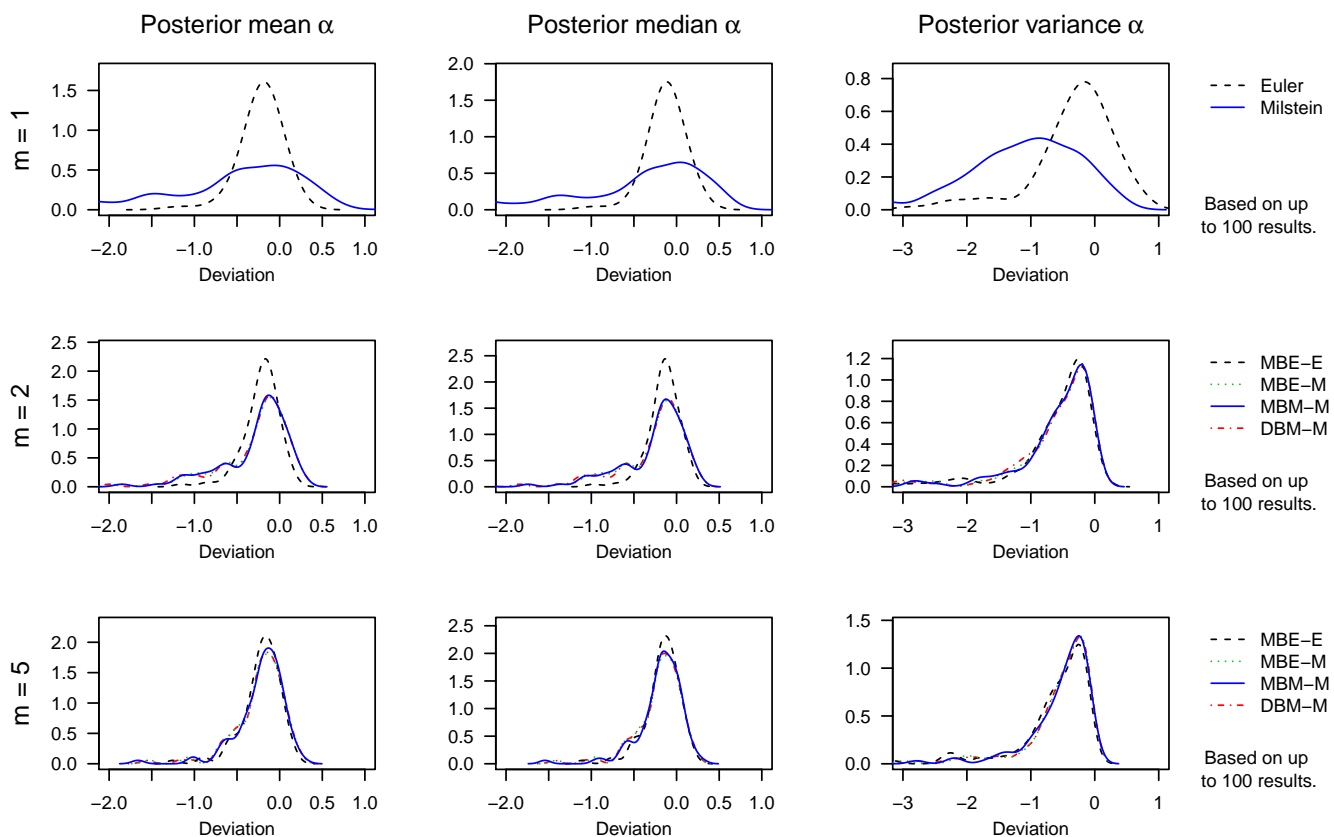
This document provides the same kind of figures and tables as the section “Results” of the article

Pieschner, Fuchs (2020) Bayesian inference for diffusion processes: using higher-order approximations for transition densities

for model and parameter combination GBM_alpha_1_sigma_2_x0_100 and for different numbers M of observations.

M = 10

Density plots of discrepancies



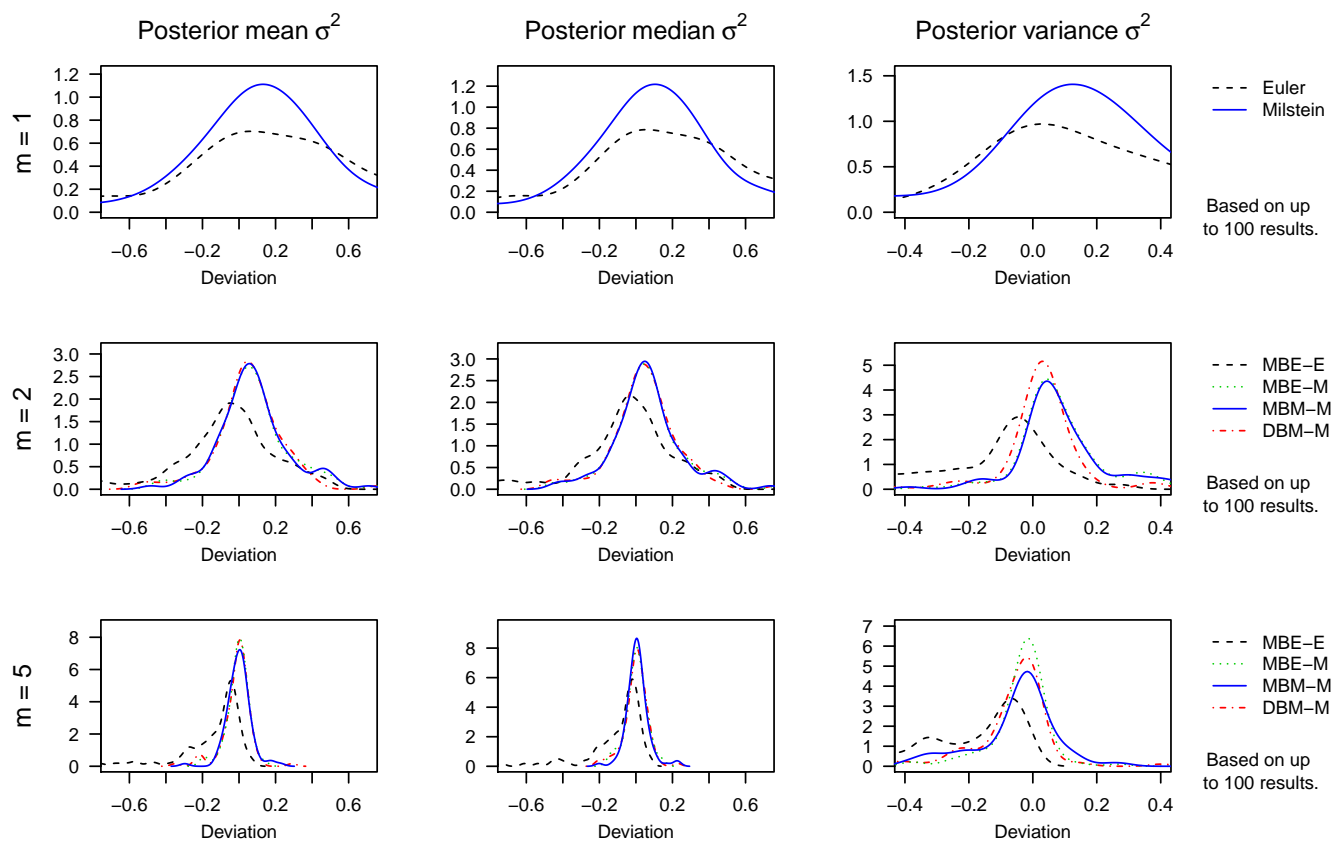


Table of RMSE

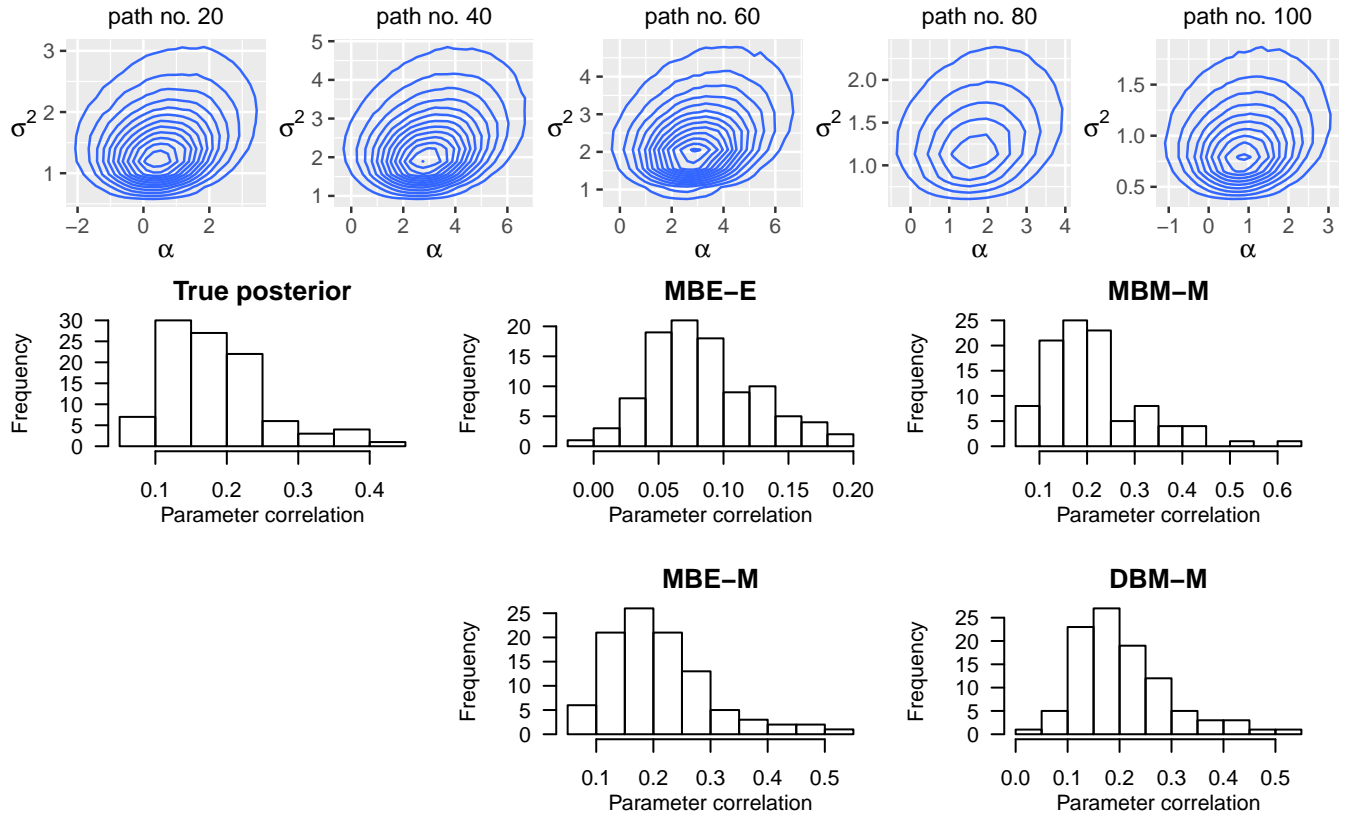
	mean_alpha	median_alpha	variance_alpha	mean_sigma2	median_sigma2	variance_sigma2
Euler_m_1	0.304	0.230	0.745	1.059	0.945	2.254
Milstein_m_1	1.164	1.111	1.586	0.462	0.424	0.501
MBE-E_m_2	0.299	0.236	0.850	0.384	0.336	0.593
MBE-M_m_2	0.538	0.501	0.905	0.211	0.202	0.222
MBM-M_m_2	0.539	0.506	0.886	0.206	0.199	0.224
DBM-M_m_2	0.561	0.521	0.939	0.195	0.190	0.246
MBE-E_m_5	0.314	0.265	0.827	0.273	0.214	0.654
MBE-M_m_5	0.359	0.323	0.738	0.060	0.057	0.218
MBM-M_m_5	0.355	0.319	0.717	0.065	0.059	0.283
DBM-M_m_5	0.364	0.327	0.739	0.080	0.065	0.296

Table of performance measures

	numIter_mean	numIter_cv	multESS_mean	multESS_cv
Euler_m_1	26648991	0.03	1218564	0.19
Milstein_m_1	7487530	0.02	145030	0.52
MBE-E_m_2	9015192	0.03	246491	0.18
MBE-M_m_2	2830801	0.03	28411	0.64
MBM-M_m_2	332424	0.02	6588	0.47
DBM-M_m_2	2742274	0.02	31756	0.67
MBE-E_m_5	7274387	0.03	82976	0.17
MBE-M_m_5	1544016	0.02	10818	0.38
MBM-M_m_5	82345	0.03	844	0.30
DBM-M_m_5	1489759	0.03	11825	0.36

	ARpath_mean	ARpath_cv	ARparam_mean	ARparam_cv
Euler_m_1	0.593	0.02	NA	NA
Milstein_m_1	0.395	0.22	NA	NA
MBE-E_m_2	0.530	0.02	0.784	0.07
MBE-M_m_2	0.442	0.14	0.704	0.12
MBM-M_m_2	0.443	0.14	1.000	0.00
DBM-M_m_2	0.443	0.14	0.752	0.11
MBE-E_m_5	0.399	0.02	0.851	0.04
MBE-M_m_5	0.380	0.03	0.782	0.07
MBM-M_m_5	0.380	0.03	0.939	0.04
DBM-M_m_5	0.380	0.03	0.833	0.05

Parameter correlations



$M = 20$

Density plots of discrepancies

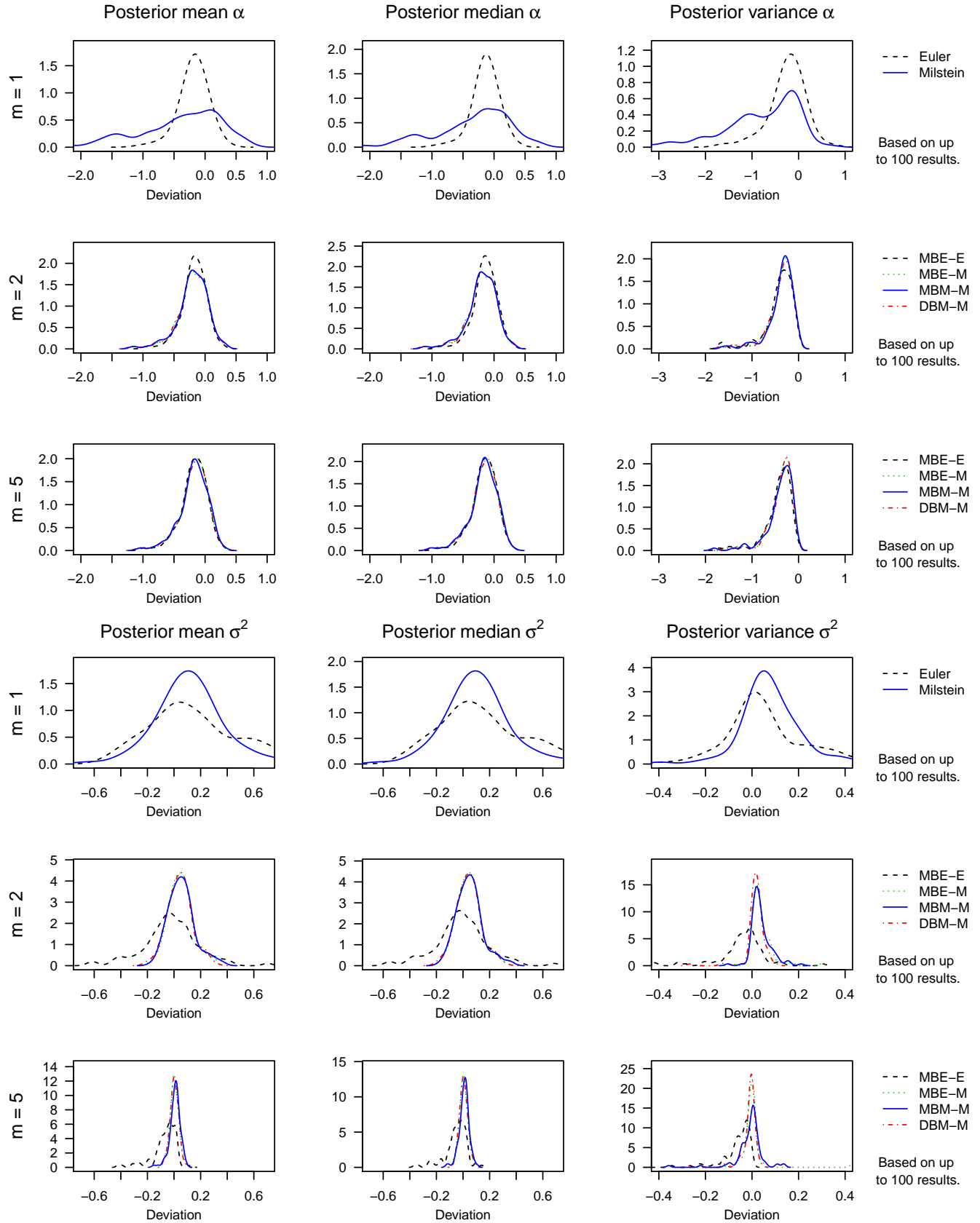


Table of RMSE

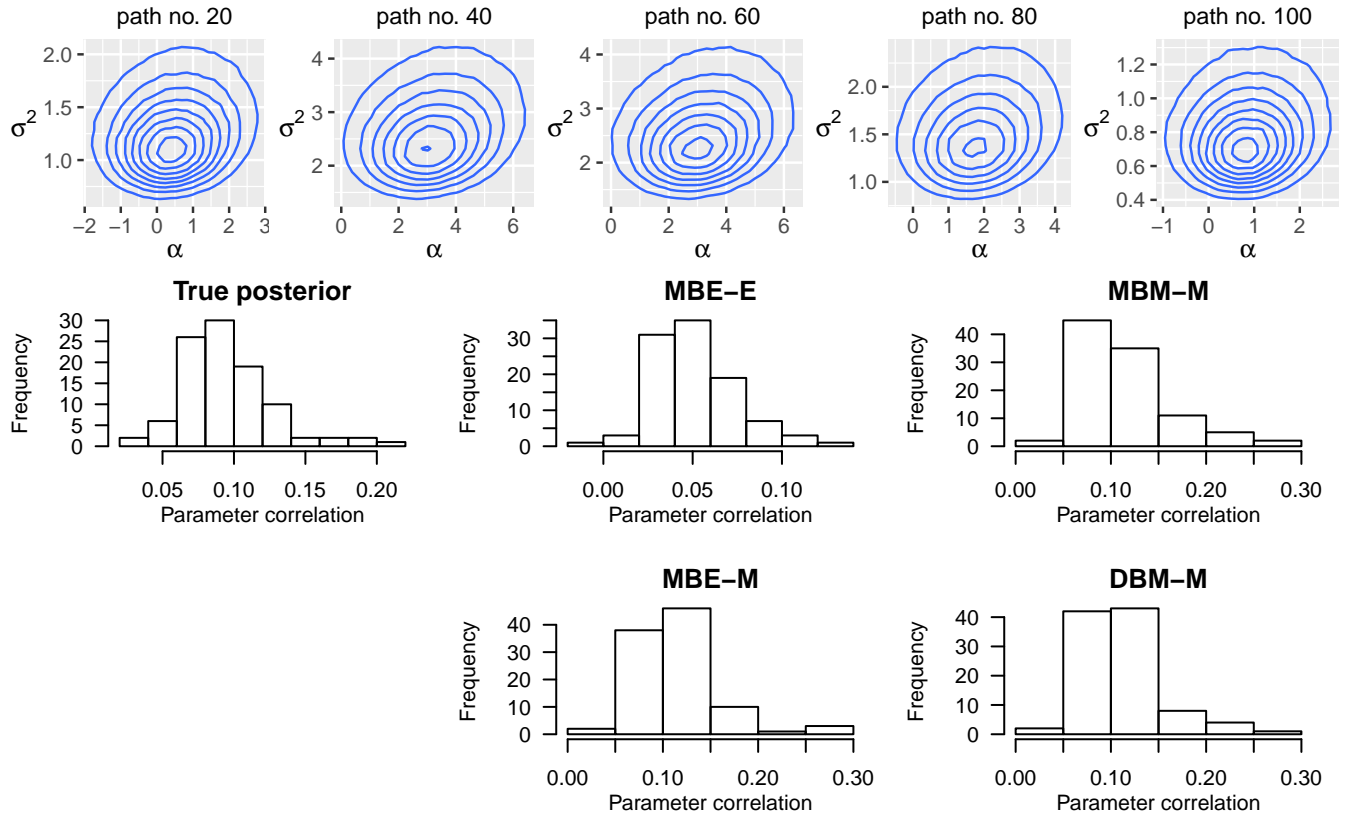
	mean_alpha	median_alpha	variance_alpha	mean_sigma2	median_sigma2	variance_sigma2
Euler_m_1	0.282	0.244	0.456	0.638	0.600	0.471
Milstein_m_1	0.851	0.780	1.158	0.282	0.265	0.176
MBE-E_m_2	0.266	0.238	0.526	0.211	0.198	0.141
MBE-M_m_2	0.311	0.302	0.476	0.109	0.106	0.057
MBM-M_m_2	0.315	0.305	0.470	0.112	0.107	0.057
DBM-M_m_2	0.318	0.308	0.485	0.101	0.099	0.044
MBE-E_m_5	0.277	0.254	0.524	0.113	0.098	0.127
MBE-M_m_5	0.288	0.274	0.474	0.031	0.031	0.050
MBM-M_m_5	0.292	0.278	0.492	0.040	0.037	0.058
DBM-M_m_5	0.291	0.275	0.472	0.031	0.030	0.037

Table of performance measures

	numIter_mean	numIter_cv	multESS_mean	multESS_cv
Euler_m_1	25134301	0.03	1273744	0.16
Milstein_m_1	4454863	0.03	146362	0.41
MBE-E_m_2	8583614	0.03	170827	0.19
MBE-M_m_2	1816144	0.03	24090	0.38
MBM-M_m_2	300870	0.03	6881	0.21
DBM-M_m_2	1754024	0.10	28089	0.31
MBE-E_m_5	6765054	0.10	49885	0.18
MBE-M_m_5	892487	0.02	5033	0.24
MBM-M_m_5	78215	0.04	573	0.20
DBM-M_m_5	879227	0.03	5535	0.21

	ARpath_mean	ARpath_cv	ARparam_mean	ARparam_cv
Euler_m_1	0.518	0.02	NA	NA
Milstein_m_1	0.425	0.14	NA	NA
MBE-E_m_2	0.442	0.01	0.842	0.04
MBE-M_m_2	0.417	0.03	0.799	0.05
MBM-M_m_2	0.417	0.03	1.000	0.00
DBM-M_m_2	0.417	0.03	0.839	0.04
MBE-E_m_5	0.310	0.01	0.892	0.02
MBE-M_m_5	0.304	0.01	0.844	0.03
MBM-M_m_5	0.304	0.01	0.978	0.01
DBM-M_m_5	0.304	0.01	0.884	0.02

Parameter correlations



$M = 50$

Density plots of discrepancies

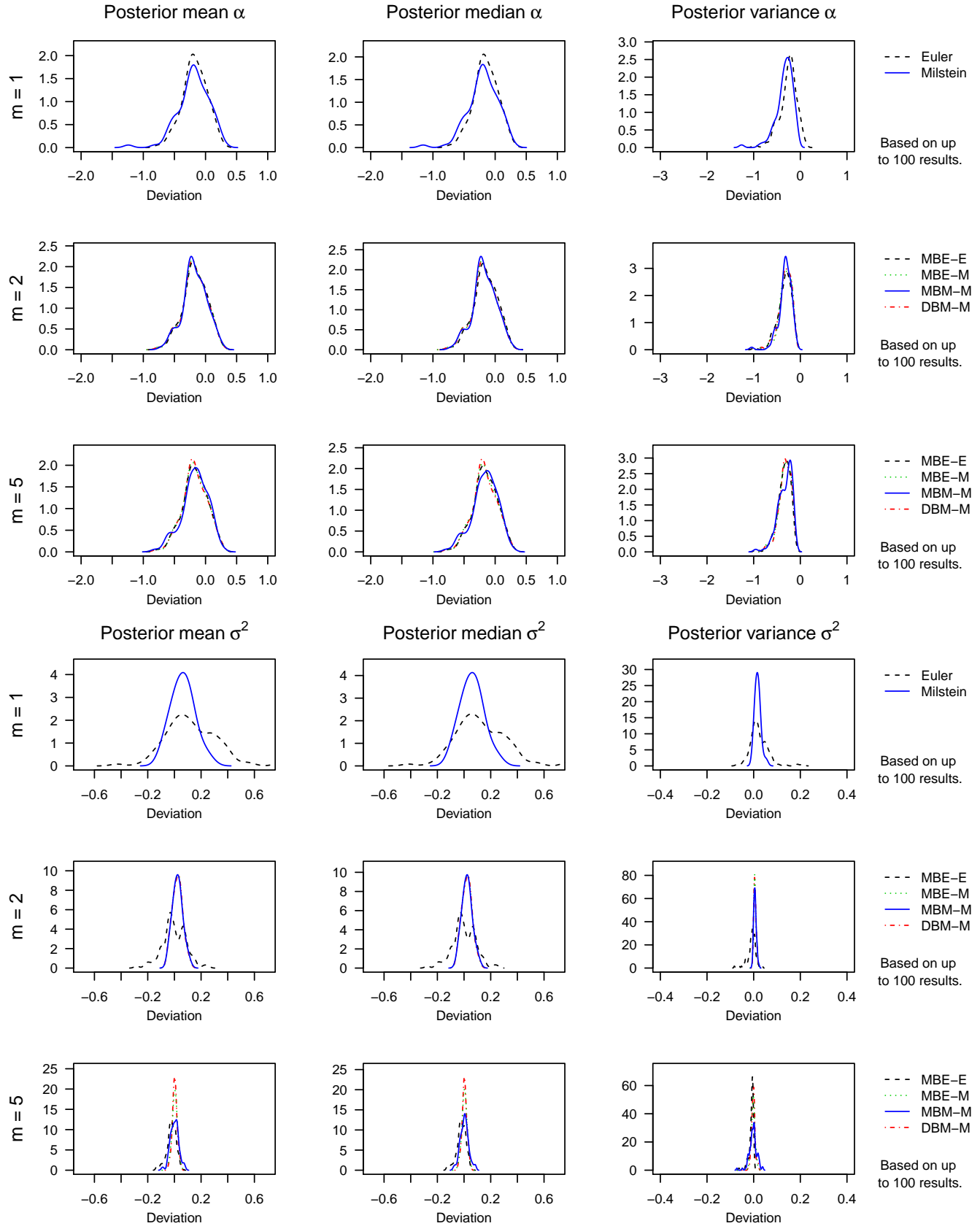


Table of RMSE

	mean_alpha	median_alpha	variance_alpha	mean_sigma2	median_sigma2	variance_sigma2
Euler_m_1	0.259	0.244	0.319	0.240	0.234	0.048
Milstein_m_1	0.313	0.310	0.384	0.105	0.102	0.021
MBE-E_m_2	0.253	0.242	0.373	0.091	0.089	0.019
MBE-M_m_2	0.259	0.258	0.346	0.044	0.043	0.007
MBM-M_m_2	0.257	0.255	0.350	0.045	0.044	0.008
DBM-M_m_2	0.260	0.258	0.348	0.044	0.043	0.007
MBE-E_m_5	0.258	0.249	0.375	0.042	0.040	0.014
MBE-M_m_5	0.262	0.258	0.355	0.021	0.020	0.011
MBM-M_m_5	0.269	0.261	0.368	0.032	0.032	0.017
DBM-M_m_5	0.263	0.258	0.354	0.017	0.018	0.009

Table of performance measures

	numIter_mean	numIter_cv	multESS_mean	multESS_cv
Euler_m_1	23195646	0.03	1156494	0.09
Milstein_m_1	2011421	0.03	94538	0.11
MBE-E_m_2	7891530	0.06	100013	0.13
MBE-M_m_2	888981	0.04	9416	0.17
MBM-M_m_2	250083	0.03	3972	0.12
DBM-M_m_2	871113	0.04	10625	0.16
MBE-E_m_5	5988019	0.03	23951	0.10
MBE-M_m_5	396953	0.03	1388	0.14
MBM-M_m_5	69078	0.03	285	0.17
DBM-M_m_5	393650	0.02	1469	0.13

	ARpath_mean	ARpath_cv	ARparam_mean	ARparam_cv
Euler_m_1	0.398	0.01	NA	NA
Milstein_m_1	0.381	0.01	NA	NA
MBE-E_m_2	0.320	0.01	0.898	0.01
MBE-M_m_2	0.313	0.00	0.872	0.02
MBM-M_m_2	0.313	0.00	1.000	0.00
DBM-M_m_2	0.313	0.00	0.899	0.01
MBE-E_m_5	0.210	0.01	0.930	0.01
MBE-M_m_5	0.208	0.01	0.899	0.01
MBM-M_m_5	0.208	0.01	0.993	0.00
DBM-M_m_5	0.208	0.01	0.926	0.01

Parameter correlations

