Overview of figures and tables
CIR_alpha_1_beta_1_sigma_0.25_x0_3

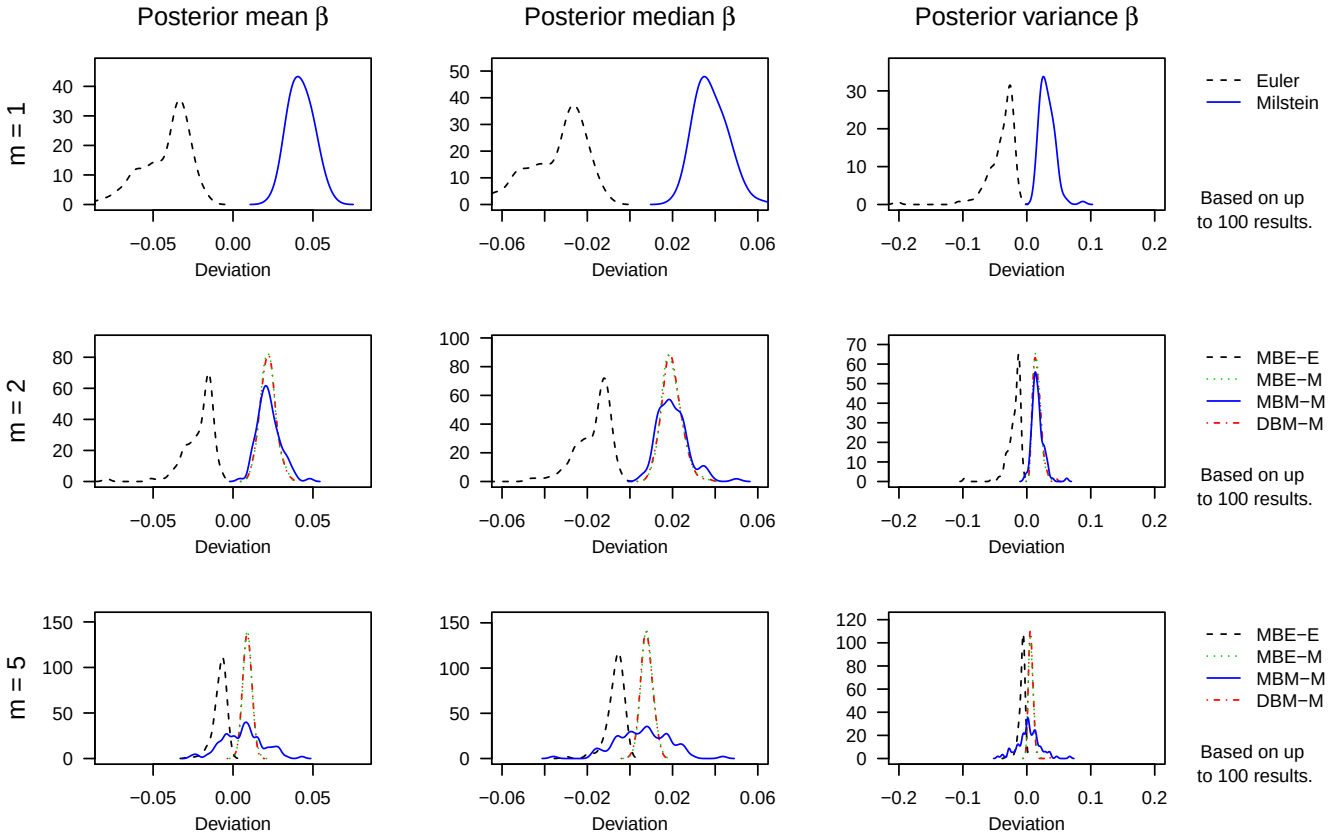
This document provides the same kind of figures and tables as the section "Results" of the article

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

for model and parameter combination CIR_alpha_1_beta_1_sigma_0.25_x0_3 and for different numbers M of observations.

M = 10

Density plots of discrepancies



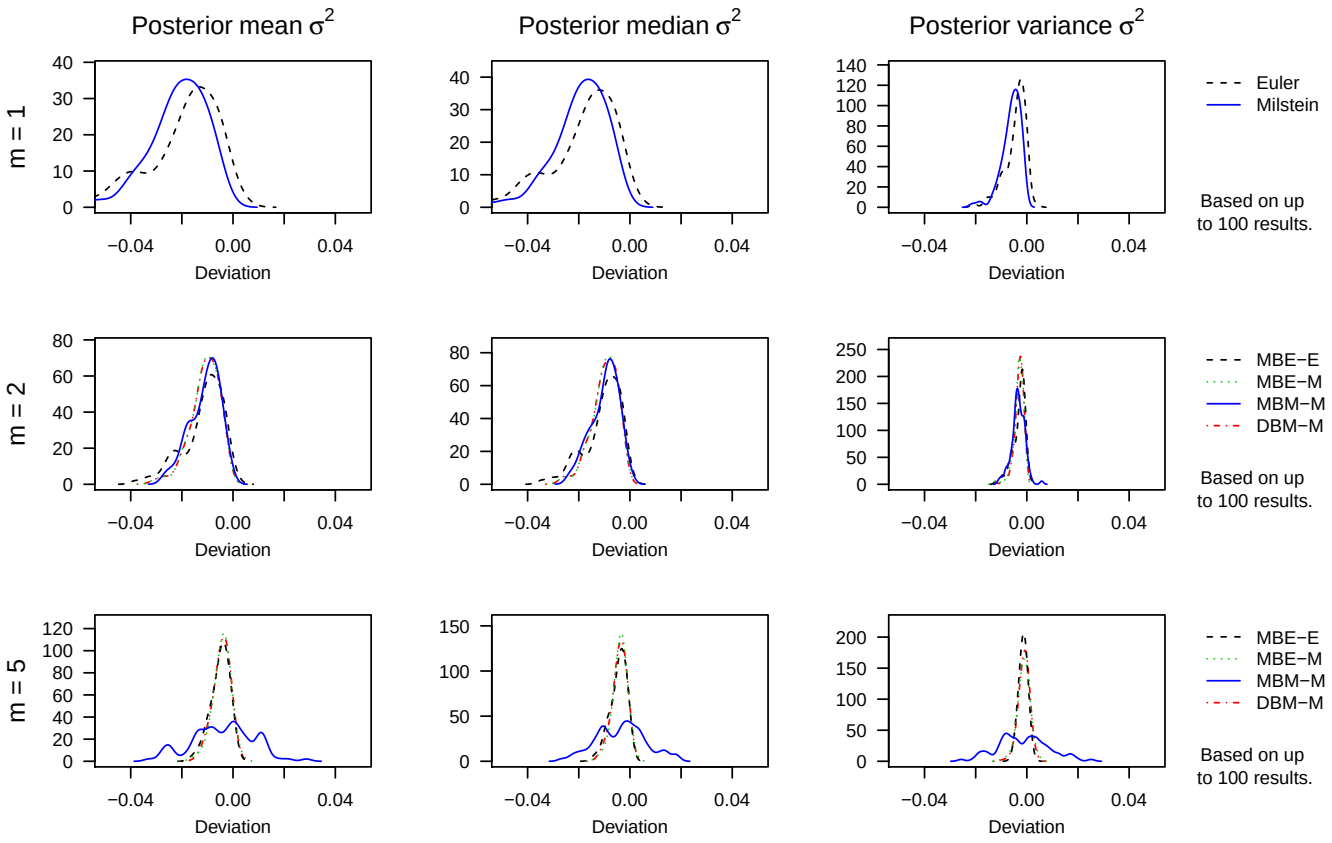

Posterior mean σ2
Posterior median σ2
Posterior variance σ2
m = 1
m = 2
m = 5
Deviation
Euler
Milstein
MBE−E
MBE−M
MBM−M
DBM−M
Based on up to 100 results.

Table of RMSE

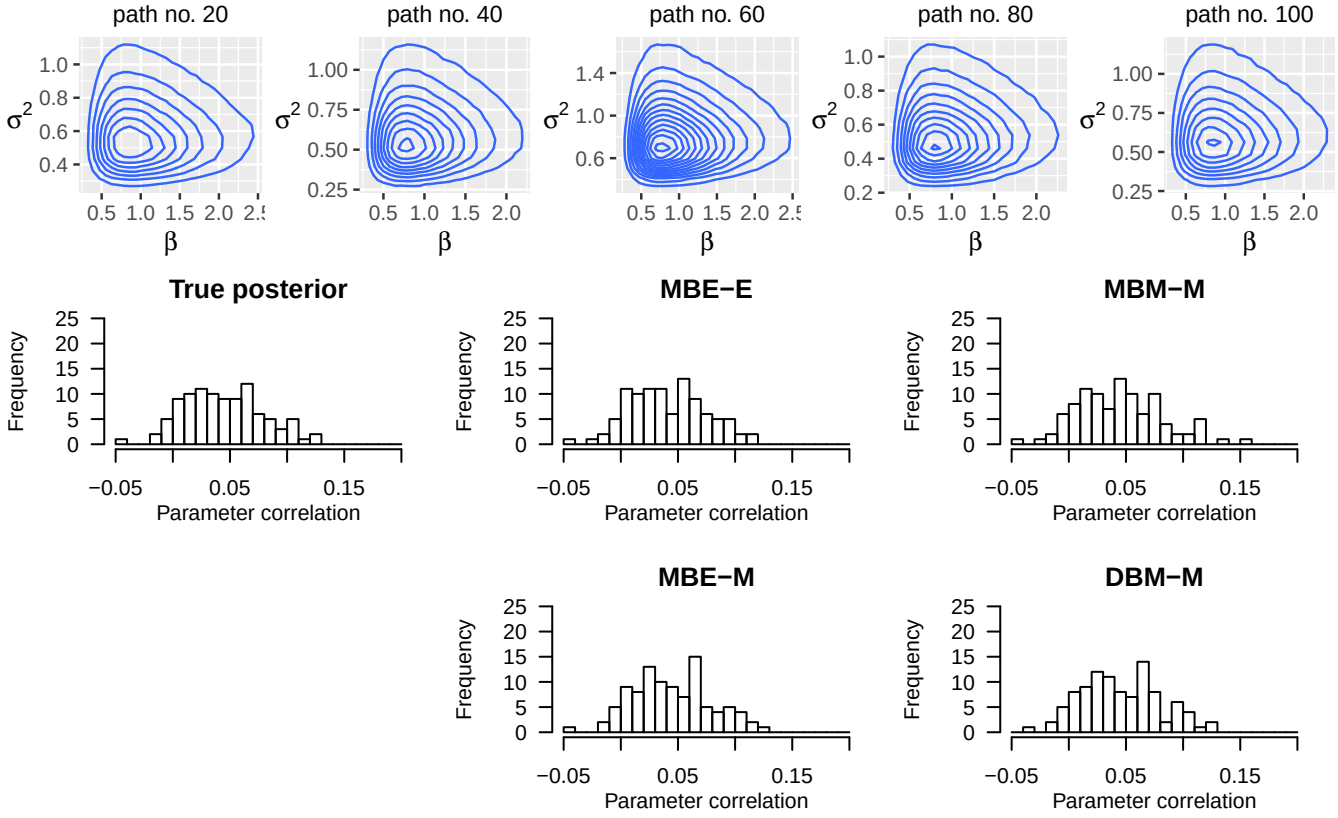
	mean_beta	median_beta	variance_beta	mean_sigma2	median_sigma2	variance_sigma2
Euler_m_1	0.049	0.042	0.047	0.025	0.023	0.006
Milstein_m_1	0.043	0.039	0.034	0.024	0.022	0.007
MBE-E_m_2	0.024	0.021	0.023	0.014	0.013	0.004
MBE-M_m_2	0.022	0.020	0.017	0.012	0.011	0.004
MBM-M_m_2	0.023	0.021	0.019	0.013	0.011	0.004
DBM-M_m_2	0.022	0.020	0.017	0.012	0.011	0.004
MBE-E_m_5	0.009	0.008	0.009	0.006	0.006	0.002
MBE-M_m_5	0.009	0.008	0.007	0.005	0.005	0.003
MBM-M_m_5	0.014	0.014	0.018	0.013	0.010	0.010
DBM-M_m_5	0.009	0.008	0.008	0.005	0.005	0.002

Table of performance measures

	numIter_mean	numIter_cv	multESS_mean	multESS_cv
Euler_m_1	25526341	0.06	2800847	0.06
Milstein_m_1	7701884	0.07	839945	0.07
MBE-E_m_2	8703286	0.05	620479	0.06
MBE-M_m_2	2928042	0.04	202089	0.05
MBM-M_m_2	208360	0.06	14837	0.09
DBM-M_m_2	2827604	0.04	203710	0.05
MBE-E_m_5	6985100	0.04	207675	0.06
MBE-M_m_5	1590029	0.03	45518	0.06
MBM-M_m_5	39749	0.07	1092	0.18
DBM-M_m_5	1556197	0.02	45555	0.06

	ARpath_mean	ARpath_cv	ARparam_mean	ARparam_cv
Euler_m_1	0.481	0.02	NA	NA
Milstein_m_1	0.484	0.02	NA	NA
MBE-E_m_2	0.439	0.02	0.960	0.01
MBE-M_m_2	0.440	0.02	0.956	0.01
MBM-M_m_2	0.440	0.02	1.000	0.00
DBM-M_m_2	0.440	0.02	0.972	0.01
MBE-E_m_5	0.336	0.02	0.972	0.00
MBE-M_m_5	0.336	0.02	0.959	0.00
MBM-M_m_5	0.336	0.02	0.991	0.00
DBM-M_m_5	0.336	0.02	0.973	0.00

Parameter correlations



M = 20

Density plots of discrepancies

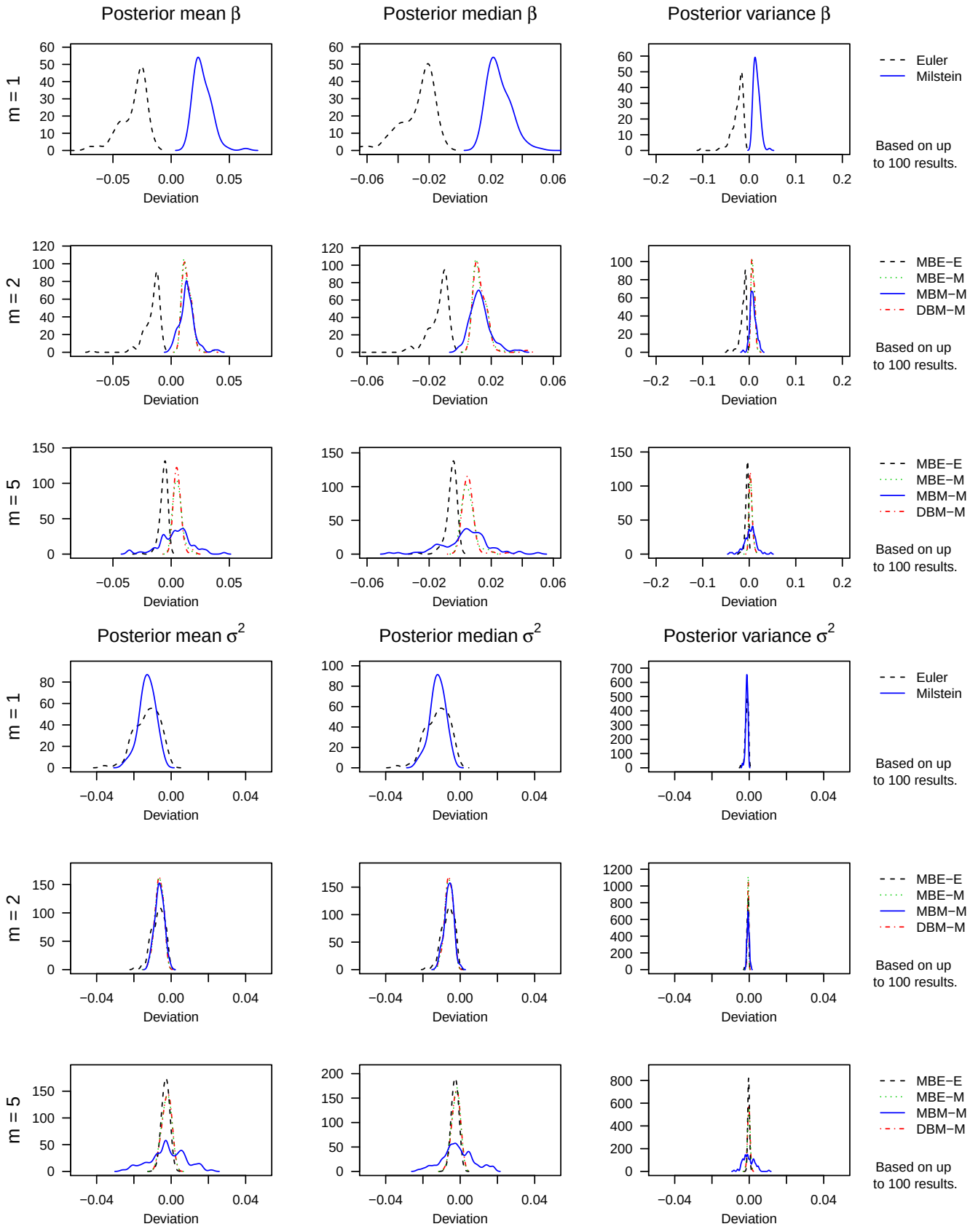


Table of RMSE

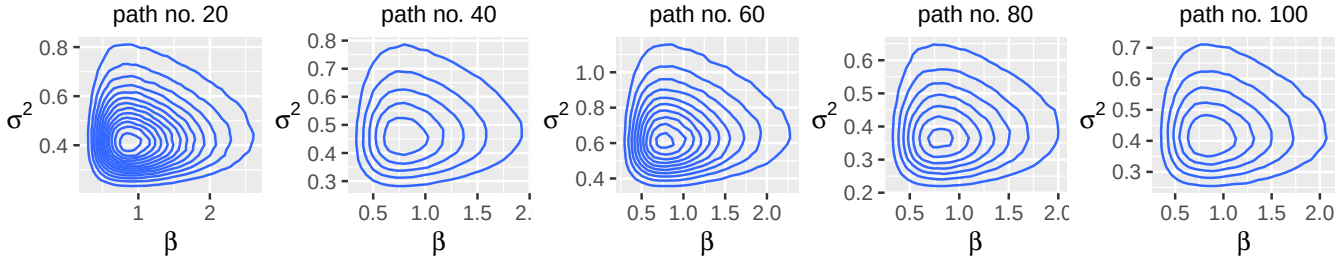
	mean_beta	median_beta	variance_beta	mean_sigma2	median_sigma2	variance_sigma2
Euler_m_1	0.037	0.034	0.028	0.014	0.014	0.001
Milstein_m_1	0.028	0.027	0.017	0.014	0.013	0.001
MBE-E_m_2	0.018	0.017	0.014	0.008	0.007	0.001
MBE-M_m_2	0.014	0.014	0.009	0.007	0.006	0.001
MBM-M_m_2	0.015	0.014	0.011	0.007	0.007	0.001
DBM-M_m_2	0.014	0.014	0.009	0.007	0.006	0.001
MBE-E_m_5	0.007	0.007	0.006	0.003	0.003	0.000
MBE-M_m_5	0.006	0.007	0.005	0.003	0.003	0.001
MBM-M_m_5	0.015	0.016	0.013	0.010	0.009	0.003
DBM-M_m_5	0.006	0.007	0.005	0.003	0.003	0.001

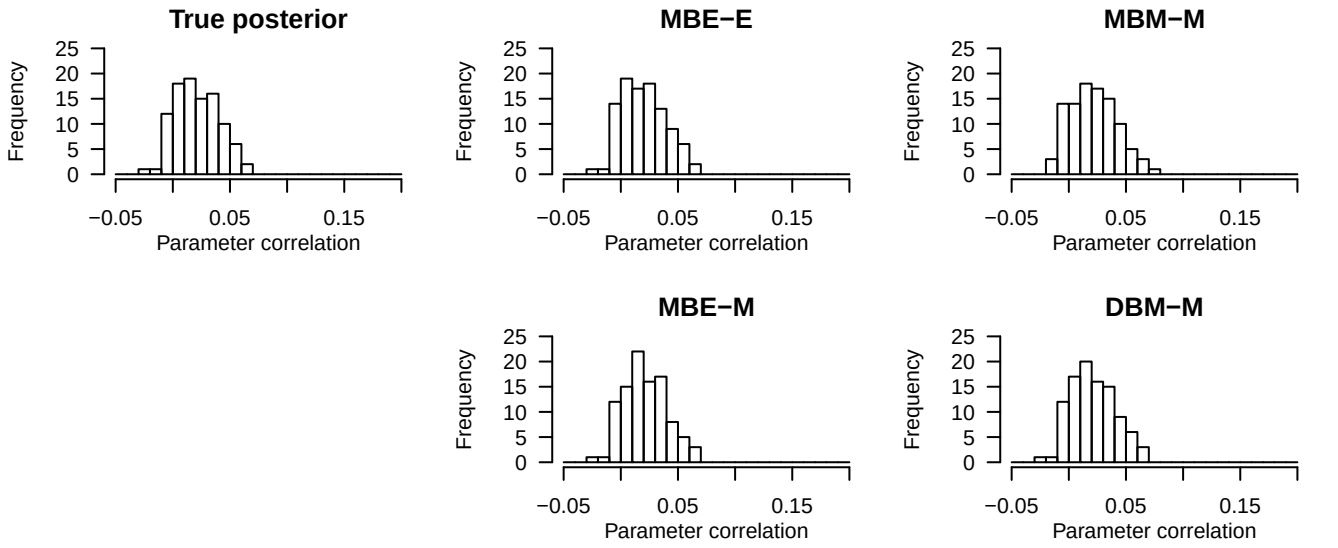
Table of performance measures

	numIter_mean	numIter_cv	multESS_mean	multESS_cv
Euler_m_1	24235310	0.04	2875908	0.05
Milstein_m_1	4710795	0.03	551467	0.04
MBE-E_m_2	8463062	0.03	492772	0.05
MBE-M_m_2	1935561	0.02	109873	0.05
MBM-M_m_2	179130	0.04	10264	0.07
DBM-M_m_2	1883743	0.02	109705	0.05
MBE-E_m_5	6758898	0.03	130635	0.05
MBE-M_m_5	950894	0.02	17775	0.07
MBM-M_m_5	37288	0.05	662	0.15
DBM-M_m_5	934422	0.02	17770	0.08

	ARpath_mean	ARpath_cv	ARparam_mean	ARparam_cv
Euler_m_1	0.419	0.02	NA	NA
Milstein_m_1	0.420	0.02	NA	NA
MBE-E_m_2	0.363	0.02	0.975	0
MBE-M_m_2	0.364	0.02	0.972	0
MBM-M_m_2	0.364	0.02	1.000	0
DBM-M_m_2	0.364	0.02	0.981	0
MBE-E_m_5	0.258	0.02	0.983	0
MBE-M_m_5	0.258	0.02	0.975	0
MBM-M_m_5	0.258	0.02	0.995	0
DBM-M_m_5	0.258	0.02	0.983	0

Parameter correlations





M = 50

Density plots of discrepancies

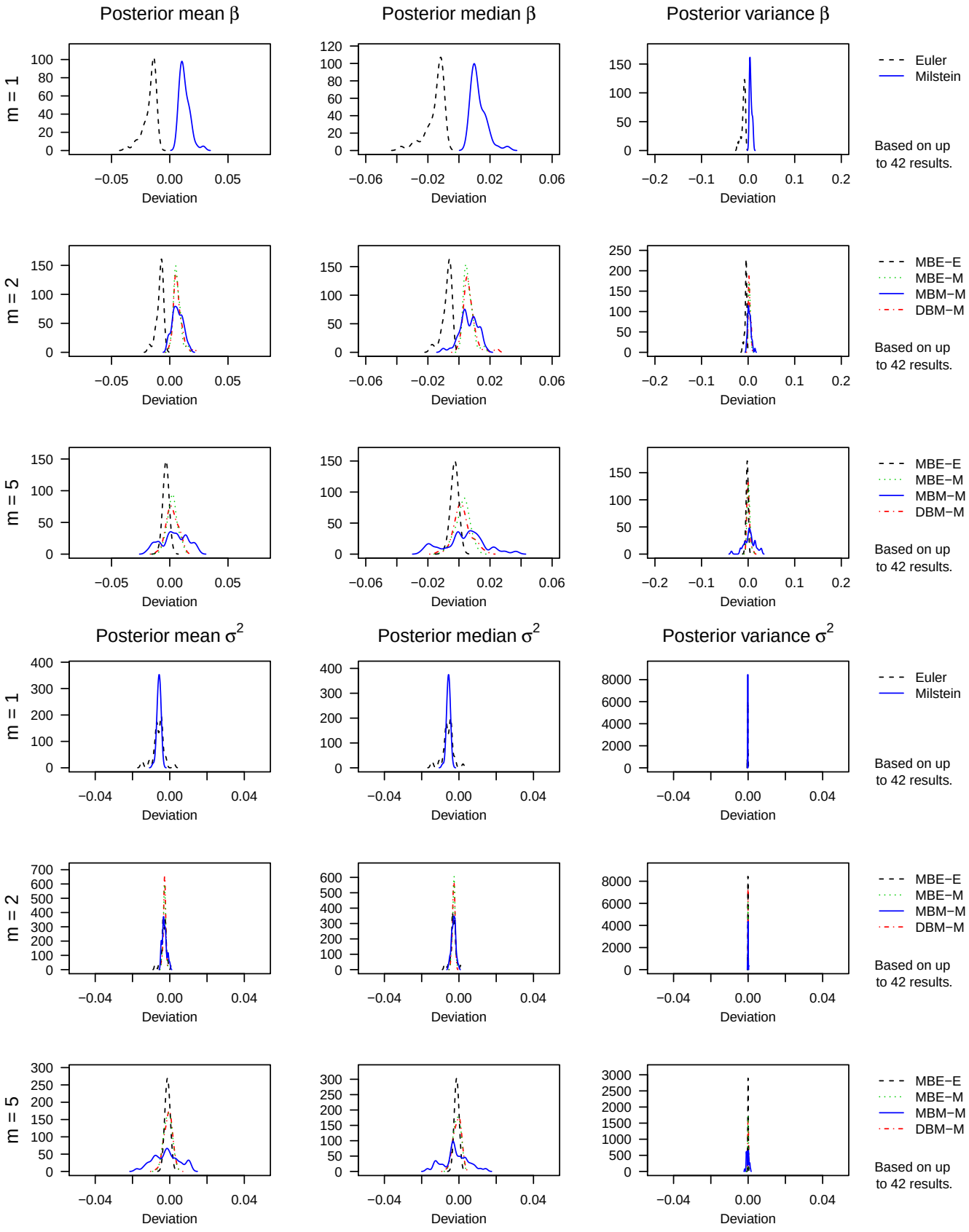


Table of RMSE

	mean_beta	median_beta	variance_beta	mean_sigma2	median_sigma2	variance_sigma2
Euler_m_1	0.018	0.017	0.011	0.007	0.007	0.000
Milstein_m_1	0.014	0.014	0.006	0.006	0.006	0.000
MBE-E_m_2	0.009	0.008	0.006	0.004	0.003	0.000
MBE-M_m_2	0.007	0.007	0.003	0.003	0.003	0.000
MBM-M_m_2	0.008	0.009	0.005	0.003	0.003	0.000
DBM-M_m_2	0.008	0.008	0.004	0.003	0.003	0.000
MBE-E_m_5	0.004	0.003	0.003	0.001	0.001	0.000
MBE-M_m_5	0.005	0.005	0.003	0.002	0.002	0.000
MBM-M_m_5	0.012	0.014	0.013	0.007	0.007	0.001
DBM-M_m_5	0.005	0.006	0.003	0.002	0.002	0.000

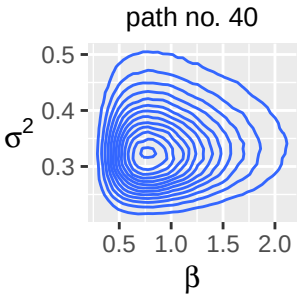
Table of performance measures

	numIter_mean	numIter_cv	multESS_mean	multESS_cv
Euler_m_1	22636393	0.03	2564921	0.04
Milstein_m_1	2151260	0.03	240572	0.04
MBE-E_m_2	7669843	0.11	282143	0.11
MBE-M_m_2	951493	0.02	33907	0.05
MBM-M_m_2	161801	0.02	5761	0.07
DBM-M_m_2	938174	0.03	33939	0.05
MBE-E_m_5	5903543	0.03	60842	0.06
MBE-M_m_5	424196	0.04	4273	0.09
MBM-M_m_5	34370	0.04	363	0.15
DBM-M_m_5	423190	0.02	4340	0.08

	ARpath_mean	ARpath_cv	ARparam_mean	ARparam_cv
Euler_m_1	0.320	0.02	NA	NA
Milstein_m_1	0.321	0.02	NA	NA
MBE-E_m_2	0.260	0.02	0.986	0
MBE-M_m_2	0.260	0.02	0.984	0
MBM-M_m_2	0.260	0.02	1.000	0
DBM-M_m_2	0.260	0.02	0.988	0
MBE-E_m_5	0.172	0.02	0.990	0
MBE-M_m_5	0.172	0.02	0.986	0
MBM-M_m_5	0.172	0.03	0.998	0
DBM-M_m_5	0.172	0.02	0.990	0

Parameter correlations

```
## Error in gzfile(file, "rb") : cannot open the connection
## Error in gzfile(file, "rb") : cannot open the connection
## Error in gzfile(file, "rb") : cannot open the connection
## Error in gzfile(file, "rb") : cannot open the connection
```




```
## NULL
```