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# Discrepancy bounds for uniformly ergodic Markov chain quasi-Monte Carlo

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In [Chen, D., Owen, Ann. Stat., 39, 673--701, 2011] Markov chain Monte Carlo (MCMC) was studied under the assumption that the driver sequence is a deterministic sequence rather than independent U(0,1) random variables. Therein it was shown that as long as the driver sequence is completely uniformly distributed, the Markov chain consistently samples the target distribution. The present work extends these results by providing bounds on the convergence rate of the discrepancy between the empirical distribution of the Markov chain and the target distribution, under the assumption that the Markov chain is uniformly ergodic.

In a general setting we show the existence of driver sequences for which the discrepancy of the Markov chain from the target distribution with respect to certain test sets converges with (almost) the usual Monte Carlo rate of $n^{-1/2}$.

## Submission history

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