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Reverse Monte Carlo, by Mak and Sharma, is a technique that allows for stochastic modification of the action of a lattice theory, while respecting the detailed balance condition of the original action. This modification of the action may permit more efficient
evolution of modes with large autocorrelation times. The classic
Swendsen and Wang cluster algorithm for the Ising model is in fact a
special case of Reverse Monte Carlo, where the action is modified
by stochastically deleting certain bonds (i.e. nearest neighbor interaction terms), resulting in cluster decomposition that allows for large scale updates removing critical slowing down. In this work, Reverse Monte Carlo is generalized to a method which allows for continuous change of the couplings in the action. We test the effectiveness of this new approach on the Ising model and an SU(3) pure gauge theory.

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