

Abstract Submitted  
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**Efficiency of Rejection-Free Monte Carlo Algorithms for Particles Systems** MARTA GUERRA, MARK NOVOTNY, Mississippi State University — We calculated the efficiency of rejection-free methods for dynamic Monte Carlo studies of off-lattice systems. Following the methodology of Watanabe et al<sup>1</sup>, we studied  $d = 1$  particles models including the hard rod model, and models with both harmonic and Lennard-Jones potentials. The hard-rod results are in agreement with [1], namely the efficiency near the close-packing density  $\rho_{cp}$  is proportional to  $(\rho_{cp} - \rho)^{-d}$ , where  $d$  is the dimension of the system and  $\rho$  the system density. We also report on the algorithmic efficiency for cases with heterogenous particles. Some results in  $d = 2$  will also be presented.

<sup>1</sup>H. Watanabe, S. Yukawa, M.A. Novotny and N. Ito, *Efficiency of Rejection-free dynamic Monte Carlo methods for homogenous spin models, hard disk systems, and hard sphere system*, Phys. Rev. E, **74**, 026707 (2006)

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