

Abstract Submitted
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Introducing the Reduced Monte Carlo Scheme (RMCS): Application to ideal quantum gases and classical hard sphere systems UDUZEI EDGAL, Old Dominion University — The development of a new Monte Carlo scheme is provided – the Reduced Monte Carlo Scheme (RMCS). The term “reduced” is used because only a small number of particles (n) is needed in the simulation for accurate calculation of material properties. I.e., $n \gtrsim 10$. The fundamental ensemble used as basis for the scheme is the canonical ensemble. The power and efficiency of RMCS is demonstrated by reproducing well known results for the statistical thermodynamic properties of ideal quantum systems (Fermi and Bose cases) and the classical hard sphere system at all densities.

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