

Abstract Submitted
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Infinite Variance in Fermion Quantum Monte Carlo Calculations Without the Sign Problem¹ SHIWEI ZHANG, HAO SHI, William & Mary Coll — For several important classes of fermion problems, for example the half-filled repulsive Hubbard model and the spin-balanced attractive Hubbard model, quantum Monte Carlo methods using auxiliary-fields allow exact calculations without the sign problem. We show, however, that in most commonly employed algorithms the variance diverges, leading to unreliable estimate of the Monte Carlo statistical error. An approach is proposed to solve the problem. Illustrative results in Hubbard model will be presented.

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