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Siu A. Chin* (chin@physics.tamu.edu), MS 4242, College Station, TX 77843. *High-order Path-Integral Monte Carlo methods for solving many-fermion problems.*

Recent advances in forward, or positive-coefficients splitting algorithms for solving the time-irreversible, Schrodinger equation in imaginary time has greatly accelerated physical calculations range from Density Functional Theory for calculating metallic cluster structures to path-integral Monte Carlo methods for solving the ground state energy of liquid Helium. In this work, we show how high-order forward splitting algorithms can be applied to yield high-order Path-Integral Monte Carlo methods for solving many-fermion problems, despite the fermion-sign problem. Results for quantum dots with up to 20 polarized electrons will be shown. (Received September 15, 2014)