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Determinant Quantum Monte Carlo method applied to the t-J model ALEKSANDER ZUJEV, UC Davis, RICHARD FYE, 825 La Charles NE Albuquerque, NM 87123, RICHARD SCALETTAR, UC Davis — The usual approach to simulating the t-J model with the Determinant Quantum Monte Carlo (DQMC) method starts with the Hubbard model with a finite on-site interaction U which is then increased to "almost" infinity. This approach, however, has considerable difficulties with large round-off errors (stability) and variances, and also a very bad fermion sign problem. In this talk, I will describe a different approach which starts with (almost) infinite U by means of a projector operator and further prohibiting double occupancy by using a modified creation operator. The new technique will be shown to solve some of these difficulties. Unfortunately, the sign problem remains significant. I will discuss the different attempts we have made to reduce it.

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