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Numerical Linked-Cluster Algorithms for Quantum Lattice Models TYLER BRYANT, UC Davis, MARCOS RIGOL, USC, RAJIV R. P. SINGH, UC Davis — We discuss recently introduced Numerical Linked-Cluster (NLC) Algorithms that allow one to obtain temperature dependent properties of quantum lattice models, in the thermodynamic limit, from exact diagonalization of finite clusters. We present studies of thermodynamic observables for spin models on square, triangular, and *kagomé* lattices. Results for several choices of clusters and extrapolations methods, that accelerate the convergence of NLC, are presented. We also include a comparison of NLC results with those obtained from exact analytical expressions (where available), High Temperature Expansions (HTE), exact diagonalization (ED) of finite periodic systems, and quantum Monte-Carlo (QMC) simulations. For many models and properties NLC results are substantially more accurate than HTE and ED.

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