

## **Something Old and Something New in One-dimensional Models of Strongly Correlated Electrons**

We address some old and new problems in low dimensional strongly correlated electron systems using the Density Matrix Renormalization Group in conjunction with other techniques. First, we examine the influence of an explicit antiferromagnetic exchange on the Hubbard model in one dimensional and show that, contrary to some recent results in the literature, the behavior is not qualitatively changed.

Second, we reexamine the ground-state phase diagram of the half-filled extended Hubbard model, one of the first strongly correlated systems treated with numerical techniques. Third, we discuss, in the context of one-dimensional interacting spinless fermions, some new results on and insights into how correlations evolve in time when such a system undergoes a sudden change.