

Recent Developments in the Study of Strongly Correlated Electronic Systems in Bulk and Nanoscopic Forms

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I will review recent theoretical results obtained in the area of correlated electronic systems. This includes: (i) The first Monte Carlo studies of double exchange models for manganites that show the CMR phenomenon. The key importance of competing phases and quenched disorder will be emphasized. (ii) A DMRG-based method to study transport of charge in simple strongly correlated models representing quantum dots and small molecules. Kondo effects and I-V curves for Mott insulators will be shown as examples."