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**Effect of a Magnetic Field on Mott-Hubbard Systems: A Dynamical Mean-Field Theory Study** WEI ZHU, JIAN-XIN ZHU, Los Alamos National Laboratory — The dynamic mean-field theory (DMFT) is the most successful method to study strongly correlated electron systems in dimensions higher than one. As the impurity problem of DMFT is one-dimensional, it is available to solve it using density matrix renormalization group (DMRG). Motivated by this idea, we develop a systematical tool combining DMFT and DMRG, which is expected to provide an efficient, precise and controlled way to solve DMFT problems with multiorbitals on the real frequency axis with feasible extensions to problems with more bands. As a concrete example, we study the magnetic field dependent dynamical properties of the two-dimensional Hubbard model on the Bethe lattice. The field dependence of the magnetization, one-particle response function and susceptibility are studied. The corresponding phase transition between metal and Mott insulator is also discussed.

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