

Influence of Doping on the Mott Metal-Insulator Transition in Infinite Dimensions

TONG Ning-Hua

State Key Laboratory of Magnetism, Institute of Physics, the Chinese Academy of Sciences, P.O. Box 603-12, Beijing 100080, China
(Received: 2001-10-25; Revised:)

Abstract: We have studied the effect of hole-doping on the established scenerio of the first-order Mott metal-insulator transition (MIT) at half-filling using dynamical mean-field theory and exact diagonalization technique. The Mott insulator state is changed into metallic state immediately as holes are doped into the system. The latter is expected to be Fermi liquid. The previously found unanalytical structure of MIT no longer exists for doping as small as 2 percent. We compare our results with that obtained from Gutzwiller approximation.

PACS: 71.30.+h, 71.10.Fd, 71.27.+a, 74.20.Mn

Key words: Hubbard model, metal-insulator transition, doping, Fermi liquid

[\[Full text: PDF\]](#)

Close