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Metal-Insulator Transition from Isotope Effects in the Strongly Correlated Local Jahn-Teller Phonon Systems JONG E. HAN, State University of New York at Buffalo — Electron-phonon coupling in the strong correlated regime has received a great deal of attention in the past few years, particularly motivated by the suggestion that the phonons in cuprate HTSC systems could play significant role in the *d*-wave pairing. Here we investigate a related model of local Jahn-Teller (JT) phonons interacting with electrons in the strong Coulomb limit, using the dynamical mean-field theory with quantum Monte Carlo technique. It is shown that the isotope effects become important with local JT phonons at low phonon frequency as the local polaron regime is approached. The system eventually goes through a metal-insulator transition driven by the isotope effects in such regime. The JT system is qualitatively different from the the non-JT phonon systems in that the metal-insulator transition in JT coupling is not driven by the strong charge fluctuation, but by internal multiplet fluctuation.

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