

凝縮系物理学ゼミナール

Condensed Matter Seminar

Location: Room 413, School of Science Bldg. 5 (理学部 5 号館 413 号室)

Date: 16:00-17:30, 15 March 2011

Speaker: Prof. Dr. Thomas Pruschke

(Institut für Theoretische Physik, Georg-August-Universität Göttingen)

Title:

“Properties of the 3D Hubbard model from Dynamical Cluster Approximation”

Abstract:

The half-filled Hubbard model with nearest and next nearest-neighbor hopping is studied with dynamical cluster approximation. We show that, although basic features appear to be similar to dynamical mean-field results, there are important differences due to the presence of non-local fluctuations. In particular, the Mott-Hubbard metal-insulator transition appears at smaller critical values and shows a rather strong dependence on momentum.

Spectral functions in the paramagnetic state as well as for the antiferromagnetically ordered state are discussed and the influence of nonlocal physics on the magnetic phase discussed.