

Colloquium Cukrovarnická

ve čtvrtek dne 25. listopadu 2010 v 15:00 hod.
ve Fyzikálním ústavu Cukrovarnická v seminární
místnosti (budova A, 1. patro)

Surprising effects of electronic correlations in solids



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In interacting many-particle systems such as electrons in solids, the concept of a single, elementary particle loses its meaning. Completely new and surprising phenomena can then emerge. In this context the term "electronic correlations" plays an important role. It refers to effects which cannot be explained if the interaction acting on a particle is approximated by a static mean field, or "cloud", provided by the other particles. Electronic correlations influence the electronic and magnetic properties of matter strongly. In my talk I will present a basic introduction into the concepts of correlated electronic systems. In particular, I will describe recent theoretical progress, which allows one to go beyond the investigation of simple models and explain properties of correlated materials. Several new developments in the field of many-particle physics will also be discussed.