Spring 13

Colloquium Cukrovarnická

**Ve čtvrtek dne 9. května 2012 ve 15:00 hod.
ve Fyzikálním ústavu Cukrovarnická v seminární místnosti (budova A, 1. patro)**

Superconductivity and Two-dimensionality: Experimental Facts, Theoretical Issues

Warren E. Pickett

Department of Physics, UC Davis

Fe-based pnictide and chalcogenide superconductors have reinvigorated research in superconducting materials and theory, and the cuprate high temperature superconductors continue to attract strong attention as they resist any convincing explanation of their high critical temperature. The strong two-dimensionality (2D) of their crystal structures and electronic properties are fundamental to the proposed theories, and the relation to strong magnetic fluctuations is evident. These materials tend to obscure several other superconductors that present their own enigmas. Many of these are strongly layered structurally, i.e. quasi-2D, but do not display any magnetic character beyond Pauli paramagnetism. In this talk I will discuss several examples, viz. HfNCl which when electron-doped has Tc = 25K, and survey specific aspects of 2D physics that may be contributing to unconventional pairing.

J.J. Mareš, ved. sekce 3