Thursday, February 23rd, 2006  
3:30-5:00 PM  
1-434 PAB

Speaker: Laura Baudis  
University of Florida

Title: Direct and Indirect Dark Matter Searches

Abstract: We have strong evidence on all cosmic scales, from galaxies to the largest structures ever observed, that there is more matter in the universe than we can see. Galaxies and clusters would fly apart unless they would be held together by material which we call dark, because it does not emit electromagnetic radiation. Although the amount of dark matter and its distribution are fairly well established, we are clueless regarding its composition. Leading candidates are Weakly Interacting Massive Particles (WIMPs), which are 'cold' thermal relics of the Big Bang, ie moving non-relativistically at the time of structure formation. An example is the neutralino, or the lightest supersymmetric particle, which arises naturally in supersymmetric extensions of the Standard Model of particle physics and has a typical mass of about 100 GeV. Another example is the lightest Kaluza-Klein excitation in theories with universal extra dimensions. I will review current searches for these hypothetical particles, both via elastic scattering from nuclei in deep underground detectors, and via the observation of their annihilation products in the Sun, galactic halo and galactic center. The emphasis will be on most recent results, and on comparison with reaches of future particle colliders, such as the LHC and ILC.

Refreshments to follow in room 2-222 Leonard Lounge, Knudsen Hall

→ Colloquium poster will be available by Feb. 23, 2006 ←