Center for Neutrino Physics Seminar

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Fermi Lab

Next Generation Dark Matter Searches with SuperCDMS

Wednesday, Feb. 15, 2017

4:00pm – 5:00pm

304 Robeson Hall

There is an overwhelming body of astrophysical data that confirms the existence of dark matter. This makes direct searches for dark matter one of the most promising ways to discover new particles and fields. However, the discovery of the Higgs coupled with the lack of any confirmed new physics beyond the Standard Model, has made it increasingly important to explore all regions of parameter space in the search for dark matter. Thus the SuperCDMS collaboration is now focusing on the search for low mass WIMPs and other light dark matter particles. A "next-generation" experiment, to be built at SNOLAB, will push sensitivity to these particles many orders of magnitude below present-day limits. This will be achieved with a mixed payload of germanium and silicon detectors and with two designs, the iZIP and the HV detector. I will describe the concept for the SuperCDMS SNOLAB experiment, discuss the sensitivity to dark matter, and present the current status and progress towards construction. Time permitting, I will discuss the implications of understanding the energy scale for the experiment and why this calibration is critical to its success.