



CU Physics Department Colloquium

Monday, April 7, 2008 4:10pm 428 Pupin

Sacha Kopp University of Texas

"Neutrino Oscillations at the Fermilab Main Injector"

THE NEAR-DEGENERACY OF THE THREE KNOWN TYPES OF NEUTRINOS PERMITS, IN QUANTUM MECHANICS, A MIXING OF THESE STATES, AND THUS A PURE BEAM OF ONE TYPE OF NEUTRINO MAY TRANSMUTE TO SPECIES OVER TIME. MEASUREMENTS OF THIS EFFECT FROM THE FERMILAB MINOS EXPERIMENT WILL BE PRESENTED, IN PARTICULAR MEASUREMENTS OF THE MIXING PROBABILITY, FREQUENCY, AND SEARCHES FOR NEUTRINO MIXING TO ELECTRON OR STERILE NEUTRINO FLAVORS. MINOS IS THE FIRST STEP IN A STAGED PROGRAM, TO INCLUDE STUDIES OF THE MASS HIERARCHY OF THE NEUTRINO STATES AND SEARCHES FOR CP VIOLATION IN NEUTRINOS. FUTURE EXPERIMENTS AT FERMILAB PROMISE A WEALTH OF INSIGHT REGARDING THESE UNIQUE PARTICLES, AS WELL AS AN OPPORTUNITY TO TAKE ADVANTAGE OF THE SCIENTIFIC CAPABILITIES OF THE PROPOSED DEEP UNDERGROUND SCIENCE AND ENGINEERING LABORATORY (DUSEL) PLANNED BY THE NSF.



Hosted by Janet Conrad

