

CU Physics Department Particle Seminar

Wednesday, October 6, 2010 705 Pupin Hall 1:00 PM



MiniBooNE, LSND, and the sterile neutrino roller coaster

The MiniBooNE neutrino oscillation search experiment at Fermilab has recently updated the analysis of antineutrino data it has collected in Fermilab's booster neutrino beam. With 5.66×10^{20} protons on target in antineutrino mode, the experiment is now becoming sensitive to the muon antineutrino to electron antineutrino oscillation signal observed by the LSND experiment in the nineties, which was attributed to the existence of a single sterile neutrino. While no corresponding signal had been previously observed by MiniBooNE in a more sensitive, neutrino mode search for muon neutrino to electron neutrino oscillations, the recent antineutrino oscillation results show an excess which is consistent with oscillations. This presentation will discuss the MiniBooNE neutrino and antineutrino results and the viability of various sterile neutrino oscillation interpretations.



Georgia Karagiorgi, Columbia University