

Physics Colloquium

Friday, March 2nd at 3:30 pm in ESB 120

Dr. David Martinez Caicedo

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Exploring experimental anomalies in Accelerator and Reactor neutrino experiments

Experimental anomalies in reactor and accelerator neutrino experiments, discovery of CP violation in the leptonic sector and measurement of neutrinos from a supernova explosion are major topics in neutrino physics. The reactor antineutrino anomaly (RAA) has been puzzling reactor neutrino physics community since 2011. The RAA refers to the deficit of electron antineutrinos detected by reactor neutrino experiments compared with the number of electron antineutrinos predicted by state of the art reactor models. Accelerator-based short baseline neutrino experiments as MiniBooNE and LSND have shown anomalies that can not be described by oscillations between the three standard model neutrinos. In this talk, I will discuss the recent results from Daya Bay reactor neutrino experiment and their direct implication on the RAA. I will follow with an overview of the Short Baseline Neutrino (SBN) program at Fermilab, and its relevance trying to solve the puzzle of the accelerator-based anomalies. I will end remarking how all the lessons learned within SBN program will benefit the future of the next big global project in particle physics, the Deep Underground Neutrino Experiment (DUNE).

Meet and Greet Graduate Students

3:00 pm in ESB 120 Lobby