Tuesday
Sept 10th
At 2:45pm

The HUNTER Sterile Neutrino Search Experiment

Abstract:

The HUNTER experiment (Heavy Unseen Neutrinos from Total Energy-momentum Reconstruction) is a search for sterile neutrinos with masses in the keV range. The neutrino missing mass will be reconstructed from 131-Cs electron capture decays occurring in a magneto-optically trapped sample of atoms. Reaction-microscope spectrometers will be used to detect all charged decay products with high solid angle efficiency, and LYSO scintillators read out by silicon photomultiplier arrays to detect x-rays, each with sufficient resolution to reconstruct the neutrino missing mass. The overall design of this W. M. Keck Foundation-funded experiment will be discussed and simulations shown. Improvement of the mixing angle sensitivity by orders of magnitude will be discussed, through the use of radioactive beams in place of the stock 131-Cs source.

CYCLOTRON COLLOQUIUM

Dr. C. Jeff Martoff

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Temple University

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Room 228

Refreshments will be served at 2:30 pm

TEXAS A&M UNIVERSITY