Contribution ID: **40** Type: **talk**

Sterile neutrino oscillations: the global picture

Friday 20 September 2013 09:00 (22 minutes)

Neutrino oscillations involving eV-scale neutrino mass states are investigated in the context of global neutrino oscillation data including short and long-baseline accelerator, reactor, and radioactive source experiments, as well as atmospheric and solar neutrinos. We consider sterile neutrino mass schemes involving one or two mass-squared differences at the eVˆ2 scale denoted by 3+1, 3+2, and 1+3+1. We discuss the hints for eV-scale neutrinos from nu_e disappearance (reactor and Gallium anomalies) and nu_mu to nu_e appearance (LSND and MiniBooNE) searches, and we present constraints on sterile neutrino mixing from nu_mu and neutral-current disappearance data. An explanation of all hints in terms of oscillations suffers from severe tension between appearance and disappearance data. The best compatibility is obtained in the 1+3+1 scheme with a p-value of 0.2% and exceedingly worse compatibilities in the 3+1 and 3+2 schemes.

Authors: KOPP, Joachim (Max Planck Institut für Kernphysik, Heidelberg, Germany); MALTONI, Michele (IFT-UAM/CSIC); MACHADO, Pedro A N (Universidade de Sao Paulo (BR)); SCHWETZ-MANGOLD, Thomas (Max Planck Institut für Kernphysik, Heidelberg, Germany)

Presenter: MACHADO, Pedro A N (Universidade de Sao Paulo (BR))

Session Classification: Working Group 2

Track Classification: Working Group 2