ID de Contribution: **100** Type: **Non spécifié**

Measuring Terrestrial and Solar Neutrinos with KamLAND

jeudi 11 mars 2010 17:00 (15 minutes)

KamLAND, a large underground neutrino detector located in Japan, has measured neutrino properties by studying electron anti-neutrinos produced in the decay of fission products in nearby nuclear power reactors. KamLAND's 180km average distance to the reactors makes it well-suited to investigate the oscillation parameters in the (1,2) sector. Several shorter baseline reactor neutrino experiments currently under construction will search for the as-yet unknown theta13 neutrino parameter. This talk will review the KamLAND neutrino parameter measurements and provide an outlook on future reactor measurements. The KamLAND experiment underwent extensive purification in late 2008 to lower the radioactive backgrounds to allow for the measurement of solar neutrinos, in particular the contribution of Be7 neutrinos. I will finish the presentation with an update on the current solar phase of KamLAND.

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Classification de Session: Neutrinos