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Solar neutrino results from Super Kamiokande

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Super-Kamiokande (SK), a 50 kton water Cherenkov detector in Japan, observes ^8B solar neutrinos with neutrino-electron elastic scattering. SK searches for distortions of the solar neutrino energy spectrum caused by the edge of the MSW resonance in the core of the sun. It also searches for a day/night solar neutrino flux asymmetry induced by the matter in the Earth.

The installation of new front-end electronics in 2009 marks the beginning of the 4th phase of SK (SK-IV). This phase achieved the lowest energy threshold thus far (3.5 MeV kinetic energy).

SK observed solar neutrinos for 17 years, that is about 1.5 solar activity cycles. An analysis about a possible correlation between solar neutrino flux and 11 year activity cycle will be presented.

The combined energy spectrum and the day/night solar neutrino flux asymmetry from SK-I to SK-IV will be presented.

A global oscillation analysis using SK-I,II,III, and SK-IV data and combined with the results of other solar neutrino experiments as well as KamLAND reactor experiment has been carried out. The results of this global analysis will be presented as well.

Collaboration

– not specified –

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