

Measurement of below 3.49 MeV solar neutrinos at Super-Kamiokande

Friday, 21 June 2024 17:30 (2 hours)

Super-Kamiokande has observed ^8B solar neutrino elastic scattering on electrons with recoil electrons at kinetic energies as low as 3.49 MeV to study neutrino flavor conversion within the sun. At SK-observable energies, these conversions are dominated by the Mikheyev–Smirnov–Wolfenstein effect. An upturn in the electron survival probability in which vacuum neutrino oscillations become dominant is predicted to occur at lower energies, but radioactive background increases exponentially with decreasing energy. New machine learning approaches provide substantial background reduction below 3.49 MeV such that statistical extraction of solar neutrino interactions becomes feasible. Measurements of the solar neutrino flux in this energy region using a boosted decision tree for event selection will be presented.

Poster prize

Yes

Given name

Alejandro

Surname

Yankelevich

First affiliation

University of California, Irvine

Second affiliation

Institutional email

ayankele@uci.edu

Gender

Male

Collaboration (if any)

Super-Kamiokande

Primary author: YANKELEVICH, Alejandro (University of California, Irvine)

Presenter: YANKELEVICH, Alejandro (University of California, Irvine)

Session Classification: Poster session and reception 2

Track Classification: Solar neutrinos