

A ν look at the Sun: Probing the conditions of the solar core using ^8B neutrinos

Saturday 8 November 2025 09:15 (15 minutes)

In the coming age of precision neutrino physics, neutrinos from the Sun become robust probes of the conditions of the solar core. Here, we focus on ^8B neutrinos, for which there are already high precision measurements by the Sudbury Neutrino Observatory and Super-Kamiokande. Using only basic physical principles and straightforward statistical tools, we estimate projected constraints on the temperature and density of the ^8B neutrino production zone compared to a reference solar model. We outline how to better understand the astrophysics of the solar interior using forthcoming neutrino data and solar models. Finally, we note that detailed forward modeling will be needed to develop the full potential of this approach.

Authors: Prof. BEACOM, John (Ohio State University); Ms ZAIDEL, Melanie (Ohio State University)

Presenter: Ms ZAIDEL, Melanie (Ohio State University)

Session Classification: Regular Sessions