

## Phenomenology 2025 Symposium



Contribution ID: 74

Type: **not specified**

### A $\nu$ look at the Sun: Probing the conditions of the solar core using $^8\text{B}$ neutrinos

*Monday 19 May 2025 17:15 (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  $^8\text{B}$  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 calculate projected constraints on the temperature and density of the  $^8\text{B}$  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. Our code is publicly available on Github.

#### Mini Symposia (Invited Talks Only)

#### Plenary (Invited talks only)

**Author:** ZAIDEL, Melanie (Ohio State University)

**Co-author:** Dr BEACOM, John (Ohio State University)

**Presenter:** ZAIDEL, Melanie (Ohio State University)

**Session Classification:** Astro-particle

**Track Classification:** Astro-Particle Physics