



Contribution ID: **108**

Type: **Oral**

## Super-Kamiokande Strongly Constrains Leptophilic Dark Matter Capture in the Sun

*Wednesday 9 July 2025 14:24 (12 minutes)*

The Sun can efficiently capture leptophilic dark matter that scatters with free electrons. If this dark matter subsequently annihilates into leptonic states, it can produce a detectable neutrino flux. Using 10 years of Super-Kamiokande observations, we set constraints on the dark-matter/electron scattering cross-section that exceed terrestrial direct detection searches by more than an order of magnitude for dark matter masses below 100 GeV, and reach cross-sections as low as  $4 \times 10^{-41} \text{ cm}^2$ .

**Author:** NGUYEN, Thong (Stockholm University)

**Co-authors:** WIDMARK, Axel (Stockholm University); CARENZA, Pierluca (Stockholm University); LINDEN, Tim (Stockholm University)

**Presenter:** NGUYEN, Thong (Stockholm University)

**Session Classification:** Student Talks