Contribution ID: **52** Type: **Oral**

Prospects for detecting fast-time features in the neutrino lightcurve of nearby supernovae in neutrino telescopes

Wednesday 27 August 2025 14:00 (20 minutes)

Core-collapse supernovae are among the most energetic processes in our Universe and play a crucial role for the chemical composition of the Universe. Neutrinos, produced in vast numbers during the collapse, offer a direct probe into the hydrodynamics and energy transport processes within a supernova. Fast-time variations in the neutrino luminosity and mean energy could carry information about phenomena like turbulence, convection, and shock revival.

In this talk, we examine the capabilities of large-volume neutrino telescopes such as the IceCube Neutrino Observatory and the planned IceCube-Gen2 detector in identifying fast-time features in the neutrino light curve.

Author: BEISE, Jakob (Uppsala University)

Co-authors: O'SULLIVAN, Erin (Uppsala University); VALTONEN-MATTILA, Nora (Ruhr-Universität Bochum); BEN-ZVI, Segev (University of Rochester); GRISWOLD, Spencer (University of Rochester)

Presenter: BEISE, Jakob (Uppsala University)

Session Classification: Neutrino Physics and Astrophysics

Track Classification: Neutrino Physics and Astrophysics