Contribution ID: **21** Type: **not specified**

Neutrino self-interaction: boosting cosmic neutrinos with DSNB

Monday, 18 July 2022 20:40 (20 minutes)

Neutrinos might interact among themselves through forces that have so far remained hidden.
Throughout the history of the Universe, such secret interactions could lead to scatterings between the neutrinos from supernova explosions and the non-relativistic relic neutrinos left over from the Big Bang. Such scatterings can boost the cosmic neutrino background to O(MeV) energies, making it, in principle, observable in experiments searching for the diffuse supernova neutrino background.
Assuming a model-independent four-Fermi interaction, we determine the upscattered cosmic neutrino flux, and derive constraints on such secret interactions from the latest results from Super-Kamiokande. Furthermore, we also study prospects for detection of the boosted flux in future lead-based coherent elastic neutrino-nucleus scattering experiments.

In-person or Virtual?

In-person

Primary author: DAS, Anirban (SLAC National Accelerator Laboratory)

Presenter: DAS, Anirban (SLAC National Accelerator Laboratory)

Session Classification: Poster Session