Contribution ID: **200**   Type: **Talk**

The diffuse supernova neutrino background in Super-Kamiokande

Thursday 30 July 2020 10:00 (15 minutes)

Neutrinos have played a key role in astrophysics, from the characterization of nuclear fusion processes in the Sun to the observation of supernova SN1987A and multiple extragalactic events. The Super-Kamiokande experiment has played a major part in past in these astrophysical studies by investigating low energy O(10) MeV neutrinos and currently exhibits the best sensitivity to the diffuse neutrino background from distant supernovae. Discovering and characterizing this signal however presents significant challenges due to important backgrounds from cosmic muon spallation and atmospheric neutrinos. Reducing these backgrounds will require implementing state-of-the-art neutron tagging algorithms to discriminate between different types of interactions, as well as a thorough characterization of spallation-inducing mechanisms. Here, I present an overview of the search for the diffuse supernova background in Super-Kamiokande, and discuss how the current strategies will evolve after the SuperK-Gd upgrade.

Secondary track (number)

Author: EL HEDRI, Sonia (LLR, Ecole Polytechnique)

Presenter: EL HEDRI, Sonia (LLR, Ecole Polytechnique)

Session Classification: Neutrino Physics

Track Classification: 02. Neutrino Physics