

SEMPARIS – Séminaires en région parisienne

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Séminaires du LPNHE

Lundi 2 Novembre 2020, 14 :00

LPNHE, Amphi Charpak + Online(Please comment the seminar organizers for obtaining Zoom connection details : seminaires@lpnhe.in2p3.fr)

Domaines : astro-ph

Titre : *The Diffuse Supernova Neutrino Background in Super-Kamiokande*

Orateur : **Sonia El Hedri (LLR)**

Résumé : *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 elusive signal would represent a major breakthrough in astrophysics but also requires state-of-the-art background removal techniques targeting cosmic muon spallation and atmospheric neutrinos. Even in case of an observation, extracting meaningful information about the mechanism of core-collapse supernovae and the history of star formation from a single neutrino spectrum will be a significant challenge. Here, I present an overview of the search for the diffuse supernova neutrino background in Super-Kamiokande and discuss how this signal can be characterized in future experiments, notably in the SuperK-Gd upgrade.*
