Contribution ID: **87** Type: **not specified**

The diffuse supernova neutrino background, a new window to the Universe

Thursday 3 December 2020 08:00 (30 minutes)

Since the first generation of stars, core-collapse supernovae have produced a steady flux of neutrinos, which could be detectable in the next-generation of experiments. Measuring this continuous flux, known as the diffuse supernova neutrino background (DSNB), could put novel bounds on possible beyond-the-Standard Model scenarios, such as lifetimes and oscillations expected if neutrinos are pseudo-Dirac particles. Moreover, the DNSB could teach us about cosmology and astrophysics since these neutrinos have been propagating in an expanding Universe. We will explore these possibilities in this talk.

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Session Classification: Neutrinos