

Detection horizon of neutrinos from core-collapse supernovae using high energy neutrinos

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Large-scale neutrino telescopes like IceCube monitor for supernovae using low energy neutrinos $O(10 \text{ MeV})$, with a detection horizon out to the Magellanic Clouds. However, some models predict the emission of high-energy neutrinos $O(>\text{TeV})$ in core-collapse supernovae through the interaction of the ejecta with the circumstellar material or through choked jets. In this talk, I will explore the detection horizon of high-energy neutrinos emitted from core-collapse supernovae for the IceCube telescope, demonstrating that the reach for these objects can be pushed past the LMC and out to the neighboring galaxies in the Mpc range.

Author: VALTONEN-MATTILA, Nora

Presenter: VALTONEN-MATTILA, Nora

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