

Earth tomography with supernova neutrinos

One of the main approaches to study the Earth's interior with neutrinos is neutrino oscillation tomography, which is based on coherent Earth matter effects modifying neutrino oscillations patterns. This is usually discussed in the context of GeV atmospheric neutrinos. In this talk, I will focus on supernova neutrinos with tens of MeV. Whereas at GeV energies, Earth matter effects are driven by the atmospheric mass-squared difference, at energies below ~ 100 MeV, it is the solar mass-squared difference what controls them. The capabilities of future neutrino detectors, such as DUNE, Hyper-Kamiokande and JUNO will be presented, including the impact of the energy resolution and other factors.

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