

Neutrino-neutrino interactions in core-collapse supernovae

In core-collapse supernovae, the neutrino density is high enough to render the nu-nu interactions not negligible. In particular, they can couple the flavor evolution of neutrinos and induce collective flavor changes. We discuss the most important feature observable in the energy spectra (the so called spectral split), both in the case of luminosity equipartition among flavors and for unconstrained luminosities. The spectral split pattern is shown to depend strongly on the initial luminosity for each flavor and the neutrino mass hierarchy. Pure collective three-flavor effects are also analyzed.

Primary author: Mrs TAMBORRA, Irene (U. of Bari & INFN (Bari), MPI for Physics, Munich)

Presenter: Mrs TAMBORRA, Irene (U. of Bari & INFN (Bari), MPI for Physics, Munich)