

**W61a Occurrence of fast-pairwise collective neutrino oscillations and their role in the explosion mechanism of core-collapse supernovae**

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Neutrinos are believed to play a key role in the explosion mechanism of core-collapse supernovae. They may change their flavor identities through so-called fast-pairwise conversions induced by mutual forward scatterings. If the fast-pairwise neutrino collective oscillation happens, the dynamics of supernova explosion will be influenced, since the conversion may occur near the neutrino sphere, from which the neutrinos are effectively emitted.

In my presentation, I will speak about such possibilities based on the results of fully self-consistent, realistic simulations of a core-collapse supernova explosion in two and three spatial dimensions under axisymmetry. As we solved the Boltzmann equations for neutrino transfer in the simulation not as a post-process but in real time, the angular distributions of neutrinos in momentum space for all points in the core at all times are available, a distinct feature of our simulations. This is a first ever such attempt and the detailed results will be presented.