

Effect of coherent neutrino elastic scattering off many atoms to core-collapse supernova explosions

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It has been a long-standing problem that the available kinetic energy is insufficient in the theoretical simulation of the core-collapse supernova explosions. In this work, the energy transfer via the coherent scattering of neutrinos with matter in outgoing shockwave is studied by numerical evaluation for the expected energy transfer. It was found that the process can be a candidate of a new source of the additional kinetic energy to the exploding matter.

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