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Analytical approximation of neutrino distribution function in core-collapse supernova

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Results of the 1D numerical simulations of the neutrino radiation in core-collapse supernova were analyzed. Simple analytical approximation of local angular distribution of neutrino momentum is suggested. The proposed approximation is verified on results of numerical simulation in different parts of supernova and at some values of times after a bounce. With well-known analytical approximation of neutrino energy distribution, the local distribution function of neutrino in supernova is constructed. Obtained results can be used for estimations of significance of neutrino processes in core-collapse supernova. The work is supported by the Russian Science Foundation (Grant No. 18-72-10070).

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