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Neutrino Interactions in Core Collapse Supernovae

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Interactions of neutrinos with the hot an dense matter of a proto neutron star play a major role in determining the fate of core collapse supernovae (CCSNe). The influence of neutrinos ranges from (re-)launching the supernova explosion through neutrino heating, to the nucleosynthesis of heavy elements in the neutrino driven wind or neutrino-nucleosynthesis.
This talk will partly review the current implementation of neutrino interactions in CCSNe and point to open questions and known problems. In particular, we will ask for the relevant neutrino interactions and how to numerically implement them. Also we will discuss the role of choosing the right equation of state for nuclear matter. Recent progress with respect to many of these aspects will be presented. Eventually we look at possible changes in the predicted neutrino spectra from CCSNe and how they might affect the production of heavy elements in the neutrino driven wind.

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