

## Neutrino properties and their astrophysical consequences

*Friday, 29 June 2018 10:20 (30 minutes)*

A brief survey of our present understanding of neutrino properties will be presented. A good fraction of the heavier nuclei were formed in the rapid neutron capture (r-process) nucleosynthesis scenario. Although an astrophysical site of the r-process is not yet identified, one expects such sites to be associated with explosive phenomena since a large number of interactions are required to take place during a rather short time interval. Candidate sites include core-collapse supernovae and neutron-star mergers. The dynamics of these sites very much depend on neutrinos. Implications of neutrino properties especially on various nucleosynthesis scenarios will be discussed with particular emphasis on collective neutrino oscillations. These oscillations of neutrinos represent emergent nonlinear flavor evolution phenomena instigated by neutrino-neutrino interactions in astrophysical environments with sufficiently high neutrino densities.

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