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Neutrinos and the Origin of the Elements

Department of Physics Colloquium

Neutrinos are important in driving the expansion of the universe shortly after the big bang and play dynamic roles in supernovae. They also determine the conditions for nucleosynthesis in these two environments. Consequently, big bang and supernova nucleosynthesis is a sensitive probe of the fundamental properties of neutrinos, such as the number of neutrino flavors and the parameters of neutrino oscillations. This talk focuses on the supernova nucleosynthesis probe in view of the recent major advances in experimental studies of neutrino oscillations and in astrophysical observations of elemental abundances. The strong interplay among nuclear, particle physics and astrophysics is emphasized.

