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### **Explosive and Neutrino Nucleosynthesis in Supernovae**

TAKASHI YOSHIDA, University of Tokyo

Supernova (SN) neutrinos play important roles for neutrino nucleosynthesis (the  $\nu$ -process). Light elements such as  ${}^7\text{Li}$  and  ${}^{11}\text{B}$  are mainly produced through the  $\nu$ -process. A part of Mn is also produced through this process in Si burning-region. The produced yields strongly depend on the luminosity and energy spectra of SN neutrinos. Neutrino oscillation also affects the yields of these elements. In this presentation, the  $\nu$ -process in SNe calculated using neutrino-nucleus reaction cross sections with new shell model Hamiltonians is shown. The influence of neutrino oscillation on the yields of the light elements and the dependence on mass hierarchy and the mixing angle  $\theta_{13}$  will be presented. Recently, the effects of neutrino self-interaction on neutrino flavor change in SNe have been discussed. Owing to the flavor change occurring in deep region of SN ejecta, the flavor change may affect r-process nucleosynthesis. The neutrino flavor change by neutrino self-interaction in SNe is explained and the influence to r-process nucleosynthesis will be discussed.