

HAW05-2005-000325

Abstract for an Invited Paper  
for the HAW05 Meeting of  
the American Physical Society

### **Supernova Neutrinos and Nucleosynthesis of Light Elements**

TAKASHI YOSHIDA, Tohoku University

During supernova explosions, a huge amount of neutrinos are emitted from the proto-neutron star. The neutrinos interact with nuclei in the supernova ejecta and change the compositions. This is called the neutrino-process. The neutrino-process plays an important role for  $^{11}\text{B}$  and  $^7\text{Li}$  production in supernovae and the amounts of  $^{11}\text{B}$  and  $^7\text{Li}$  strongly depend on the characteristics of supernova neutrinos, such as the total neutrino energy and the neutrino spectra. The continuous  $^{11}\text{B}$  and  $^7\text{Li}$  production in supernovae contributes to Galactic chemical evolution of the light elements. In this workshop, we show the dependence of the yields of  $^{11}\text{B}$  and  $^7\text{Li}$  in supernovae on the characteristics of supernova neutrinos such as the total neutrino energy and the neutrino energy spectra. Then, we constrain the supernova neutrino spectra from recent Galactic chemical evolution models of light elements. It is known that neutrino oscillation changes the energy spectra of supernova neutrinos during the neutrino propagation in the supernova ejecta. This change would also affect the yields of  $^{11}\text{B}$  and  $^7\text{Li}$  in supernovae. We also discuss the effect of the neutrino oscillation on the light element synthesis in supernova explosions.