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## Photo- and neutrino-induced reactions for SNe nucleosynthesis TATSUSHI SHIMA, Research Center for Nuclear Physics, Osaka University

Neutrino-induced nuclear reactions are considered to play important roles in the dynamics of supernova explosions and in supernova nucleosynthesis. For example, neutrino-inelastic scattering off light nuclei are supposed to assist the explosion by supplying the kinetic energy to the outgoing matters. The neutrino-nucleus reactions via the neutral and charged current of the weak interaction are the key reactions in the r-process nucleosynthesis in neutrino-driven wind. To quantitatively understand those phenomena, precise data of the neutrino-nucleus reaction rates are indispensable. Recently developed secondary particle beams provide good experimental opportunities for determining the neutrino-nucleus reaction rates. A quasi-monochromatic laser Compton-scattered (LCS) photon beam is useful for studying the photonuclear reactions which are the direct analogue of the neutrino inelastic scatterings caused by the weak neutral current. On the other hand, real neutrino beams are ideal tools to directly measure the absolute neutrino-nucleus reaction rates. Another interesting probe will be the nuclear muon-capture reaction, because it can be applied for measurement of the targets with very small quantities thanks to its large capture probability. In this talk recent progress in ongoing experiments with LCS gamma-rays and muon beams will be presented. A new plan for direct measurement of the neutrino-nucleus reactions with an accelerator-driven neutrino beam will be also discussed.