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## Role of the light mass nuclear reactions to the r-process nucleosynthesis

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We investigate the sensitivity of the r-process nucleosynthesis to light mass nuclear reactions. In the core-collapsed supernova and the collapsar, the light mass nuclear reactions play important roles. However, many light mass nuclear reactions with neutron-rich nuclei are still uncertain and the r-process sites are not fully understood. We use the Meyer's code for the reaction network calculation and include additional reactions rates near drip-line and update some reaction rates using recent experimental data. Then, we calculate the r-process nucleosynthesis in the core-collapsed supernovae for two different scenarios, the neutrino-driven wind model for the weak r-process and magnetohydrodynamic (MHD) jet model and also in the collapsar. The sensitivity of the r-abundances to these reactions are estimated when there is artificial increase of thermonuclear reaction rates. We discuss reaction network flows under the various conditions and importance of light mass nuclear reactions to understand the r-process nucleosynthesis.

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