The r-process in black-hole winds

Shinya Wanajo

Technische Universitaet Muenchen

Y. Ishimaru\textsuperscript{1}, H.T. Janka\textsuperscript{2}

\textsuperscript{1} International Christian University
\textsuperscript{2} Max-Planck-Institut fuer Astrophysik

All the existing models of supernova r-process are now facing severe difficulties. In particular, recent hydrodynamic studies show no sign of neutron-rich matter ejection in the neutrino-driven winds of core-collapse supernovae. On the other hand, a recent study of Galactic chemical evolution suggests double neutron-star mergers or neutron-star and black-hole mergers can be the dominant sources of the r-process nuclei. We discuss the possibility of r-processing in the neutrino-driven winds from the black-hole accretion disk, based on a semi-analytic, general-relativistic wind model. This condition is assumed to be realized in black-hole and neutron-star mergers or hypernovae, both of which can be also the origins of gamma-ray bursts.