

Nucleosynthesis of trans-iron elements in magneto-rotational core-collapse supernovae

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Magnetically driven supernovae of massive stars are expected as viable sites of heavy-nuclei including r-process nuclei as well as the central engine of gamma-ray bursts and magnetar formation supernovae. In this talk, I show recent results of r-process nucleosynthesis based on magneto-hydrodynamical models taking into account the enhancement processes of magnetic fields due to magneto-rotational instability around the proto-neutron star. We found that the weak r-process occurs in models with the weaker magnetic-driven jet influenced by neutrino-heating, while the cases with strong magnetic-jets produce heavy nuclei. I also discuss the role of magnetically driven supernovae in the chemical enrichment history in galaxies as an alternative source of heavy elements.

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