

# Neutron-Burst Nucleosynthesis and Its Importance for Meteoritic Presolar Grains and Extinct Radioactivities

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Neutron-burst nucleosynthesis occurs in the shells of exploding massive stars as the passing shock wave causes the sudden release of a large supply of neutrons. While this process is a minor contributor to the abundance of elements in the Solar System, it apparently provides important source material for meteoritic presolar silicon carbide X grains [1]. It also contributes to the supply of key short-lived radioactivities that were once alive but are now extinct in the Solar System. We present both detailed computational and simple analytic calculations of neutron-burst nucleosynthesis and consider some implications for isotopic abundances in primitive Solar System materials. We also discuss key nuclear reaction rate uncertainties in the process.

[1] Meyer, B. S., The, L.-S., and Clayton, D. D. (2001) *Astrophys. J. Lett.*, **540**, L49-L52.