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The Role of Neutrinos in Explosive Nucleosynthesis

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A new nucleosynthesis process, that we denote νp-process, will be presented. It occurs in supernovae (and possibly gamma-ray bursts) when strong neutrino fluxes create proton-rich ejecta. In this process, antineutrino absorptions in the proton-rich environment produce neutrons that are immediately captured by neutron-deficient nuclei. This allows for the nucleosynthesis of nuclei with mass numbers $A > 64$. Making this process a possible candidate to explain the origin of the solar abundances of the light p-nulcei (such as ^{92,94}Mo and ^{96,98}Ru). This process also offers a natural explanation for the large abundance of Sr seen in an hyper-metal-poor star.

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