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Neutron Capture Rates and the r-Process Abundance Pattern in Shocked Neutrino-Driven Winds DANIEL BARRINGER, REBECCA SURMAN, Union College — The r-process is an important process in nucleosynthesis in which nuclei will undergo rapid neutron captures. Models of the r-process require nuclear data such as neutron capture rates for thousands of individual nuclei, many of which lie far from stability. Among the potential sites for the r-process, and the one that we investigate, is the shocked neutrino-driven wind in core-collapse supernovae. Here we examine the importance of the neutron capture rates of specific, individual nuclei in the second r-process abundance peak occurring at A $\sim$ 130 for a range of parameterized neutrino-driven wind trajectories. Of specific interest are the nuclei whose capture rates affect the abundances of nuclei outside of the A $\sim$ 130 peak. We found that increasing the neutron capture rate for a number of nuclei including ^{135}In, ^{132}Sn, ^{133}Sb, ^{137}Sb, and ^{136}Te can produce changes in the resulting abundance pattern of up to 13%.

Daniel Barringer
Union College

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