

Nuclear Physics and r-Process Nucleosynthesis

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The rapid neutron capture process or "r-process" is believed to be the origin of approximately half of the heavy elements above iron found in the solar system. The thousands of nuclei that participate in this process are short-lived and so present a great challenge to experimental nuclear physics. Quantities such as nuclear masses, beta-decay rates and neutron capture cross-sections are key ingredients for the r-process; however, limited data currently exists. Sensitivity studies play a pivotal role in determining the relative importance of these properties and are used to motivate new experimental campaigns. I'll discuss recent results and provide an update of our progress towards more robust sensitivity studies.