

Abstract for an Invited Paper
for the DNP06 Meeting of
The American Physical Society

The Astrophysical Site of the r-process

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Over half the heavy elements with mass number $A > 100$ are made by rapid neutron capture. However, the astrophysical site of this element synthesis is not yet known. There are a few sites under consideration, including core collapse supernovae, gamma ray bursts and neutron star mergers. I will discuss the prospects for obtaining an r-process in these cases, as well as the roles played by neutrinos and fission cycling.