

# The quest for r-process cosmic forges

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Despite the first direct evidence of r-process nucleosynthesis occurring in the merger of two neutron stars, the problem of the presence of one or more sites where the r-process can proceed is not settled. Depending on the merger rate and on the average ejecta amount, mergers involving neutron stars could explain the bulk of the r-process elements in the Galaxy. However, metal poor stars and galactic chemical evolution seem to require other sites in addition to compact binary mergers, especially due to the presence of heavy elements at very low metallicity. In this talk, I will review the astrophysical sites where r-process nucleosynthesis can occur, with a special emphasis on compact binaries and special classes of supernovae, focusing on their possible diversity.

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