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New Observational Perspectives on r-process Nucleosynthesis

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Elements heavier than the iron group can be found in nearly every star whose abundances have been studied in detail. More than 60 percent of the naturally-occurring elements between zinc and uranium have been detected in r-process enriched stars. Models of the r-process rely heavily on matching astronomical observations, so this is good news for studies of r-process nucleosynthesis. I will highlight some of what we've learned from three decades of studying r-process material in other stars, describe current efforts that use the Hubble Space Telescope to expand the chemical inventory in r-process environments beyond the Solar system, and note opportunities for complementary studies by the physics community.