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# NEUTRON STAR MERGER SIMULATIONS

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Matter which is getting unbound during a neutron-star merger, provides favorable conditions for the rapid neutron-capture process that produces about half of all heavy nuclei. Performing hydrodynamical simulations of merging neutron stars is the key to understand the detailed conditions in the ejecta and the nucleosynthesis outcome of these events. We present recent relativistic hydrodynamics simulations of neutron-star mergers and describe the role of mergers in forming r-process elements. In particular, we investigate the impact of the high-density matter equation of state on the formation of heavy elements. Moreover, we discuss the consequences of electromagnetic counterparts which are powered by the radioactive decays of the merger ejecta.

## REFERENCES

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