

ASTROPHYSICS SEMINAR SERIES



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Tuesday, November 19 12:30 pm - Rm 184 NSH

Sandblasting the R-process from a NSNS event

Neutron star mergers are r-process nucleosynthesis sites, which eject materials at high velocity ranging from $0.1c$ to as high as $0.6c$. Therefore the r-process nuclei ejected from a neutron star merger event are sufficiently energetic to initiate spallation reactions with the interstellar medium particles. The spallation reactions tend to shift the abundance pattern to lower masses and smooth the abundance shape, thus “sandblasting” the r-process abundance pattern towards solar data. The spallation effects depend on both the initial r-process nuclei conditions, which is determined by the astrophysical trajectories and nuclear data adopted for the nucleosynthesis calculations, and the propagation process with various initial ejecta velocities and spallation cross-section values.



PHYSICS