

Sensitivity studies on the excited states of the r-process nuclei in neutron star mergers

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R-process is responsible for nearly half of the production of heavy elements in the universe. The nuclear input in the r-process is important in simulating formation of elements in the Universe. One of the properties is the excited states of nuclei in beta decays. There was study on the topic but using semi-gross theory and the single particle states were calculated by theory as well as the situation was in supernovae. In our project, we use the single particle states that are measured from experiments and happen in neutron merging stars. It was found that couple of nuclei affect the the first peak of the abundance of the production of heavy elements as well as the rare-earth region.

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