

Nuclear and astrophysics aspects for the rapid neutron capture process in the era of multimessenger observations



Contribution ID: 12

Type: **not specified**

New Approach for Determination of Stellar Nucleosynthesis Abundances

Tuesday, 2 July 2019 17:05 (25 minutes)

The recent observation of neutron stars merger by the LIGO collaboration and the measurements of the event's electromagnetic spectrum as a function of time for different wavelengths, have altered profoundly our understanding of the r-process site, as well as considerably energized nuclear astrophysics research efforts. R-process abundances are a key element in r-process simulations, as a successful calculation must account for these abundances in the final debris of a stellar cataclysmic event. In this presentation, mankind's complete knowledge of neutron cross sections obtained in the last 80 years, as encapsulated in the latest release of the Evaluated Nuclear Data File (ENDF/B) library, is used to obtain solar r-process abundances in a novel way. ENDF/B cross sections has been successfully used for decades in nuclear power and defense applications and are now used to obtain r-process abundances in a fully traceable, documented and unbiased way.

Primary author: Dr PRITYCHENKO, Boris (Brookhaven National Laboratory)

Presenter: Dr PRITYCHENKO, Boris (Brookhaven National Laboratory)

Session Classification: Session