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## Analyzing the Impact of Nuclear Data on R-Process Models

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Current astrophysical models of the r-process suffer from uncertainties in nuclear data for rare neutron rich isotopes. As these properties are found experimentally, the models will become better constrained. The goal of our project is to test the impact of new experimental data in r-process models. Our project will utilize SkyNet, a nuclear reaction network developed by Lippuner and Roberts [1]. We will focus in nuclear masses and beta-decay properties, which are the expected outcome of experiments that our research team at Central Michigan University is involved in: decay measurements of the BRIKEN collaboration at the Radioactive Ion Beam Factory at RIKEN, and time-of-flight mass measurements at the National Superconducting Cyclotron Laboratory. We will evaluate the outcome of these simulations with different nuclear inputs by comparing it to the natural abundance of r-process elements throughout the universe.

Reference:

[1]: The Astrophysical Journal Supplement Series, Volume 233, Issue 2, article id. 18, 31 pp. (2017)

**Primary author:** Mr CHAPMAN, Thomas (Central Michigan University)

**Co-authors:** NEPAL, Neerajan (Central Michigan University); ESTRADE, alfredo (CMU)

**Presenter:** Mr CHAPMAN, Thomas (Central Michigan University)

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