Beitrag ID: **9** Typ: **Talk Early Career**

R-Process Calculations Using Ab Initio Masses From VS-IMSRG

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The rapid neutron capture (r-) process is responsible for producing half of the elements heavier than iron in the Universe. Most of the exotic neutron-rich nuclei along the r-process path are currently not experimentally accessible, making theoretical predictions essential, e.g., for nuclear masses, reaction rates, and fission properties. Here we employ ab initio masses for nuclei around the N=82 shell closure that were calculated with the Valence Space In-Medium Similarity Renormalization Group (VS-IMSRG) method. We show how these state-of-the-art mass calculations can be used to refine r-process predictions compared to purely phenomenological mass models.

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