**Objectives**

- Use the state-of-the-art nuclear density functional theory, coupled with state-of-the-art computational tools, to estimate the borders of the nuclear landscape and elucidate its properties
- Quantify statistical and systematic uncertainties of theoretical predictions
- Estimate the number of nuclei that can exist in nature

**Impact**

- Enable rigorous data-driven predictive modeling in complex physical systems, supported by:
  - inference and calibration from experimental data
  - model selection and learning of model structure
  - validation and verification of model-based extrapolations
- Guidance for the radioactive beam facilities worldwide
- Provide benchmark for planned experiments and future model developments

**Accomplishments**

1. By using several models, theorists were able for the first time to quantify uncertainties of predicted borders of the nuclear existence.
2. Model extrapolations turned out to be unexpectedly consistent between the current effective interactions, leading the team to estimate that the number of bound nuclei with $Z$ between 2 and 120 is around 7,000.


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