

## STRUCTURE OF NEUTRON-RICH NUCLEI

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The uncharted regions of the  $(N, Z)$  plane contain information that can answer many questions of fundamental importance for science: How many protons and neutrons can be clustered together by the strong interaction to form a bound nucleus? What are the proton and neutron magic numbers of the exotic nuclei? What are the properties of very short-lived exotic nuclei with extreme neutron-to-proton ratios? What is the effective nucleon-nucleon interaction in a nucleus that has a very large neutron excess?

Nuclear life far from stability is different from that around the stability line; the promised access to completely new combinations of proton and neutron numbers offers prospects for new structural phenomena. The main objective of this talk is to discuss some of the challenges and opportunities of research with exotic nuclei. The covered topics will include:

- Theoretical challenges
- Skins and halos in heavy nuclei
- Shape coexistence in exotic nuclei
- Beta-decays of neutron-rich nuclei

This research was supported by the U.S. Department of Energy under Contract Nos. DE-FG02-96ER40963 (University of Tennessee) and DE-AC05-96OR22464 with Lockheed Martin Energy Research Corp. (Oak Ridge National Laboratory)



HU0000939