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Masses and Structure in Exotic Nuclei

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The measurement of nuclear masses takes on enhanced importance in exotic nuclei far from stability where spectroscopic data will often be sparse. Masses and binding energies are integral quantities reflecting all nucleonic interactions. However, various differences and double differences of binding energies can isolate particular physics or specific interactions. There has been enormous progress in mass measurements in recent years, in particular with Penning traps and storage rings. This has spawned significant advances in understanding the relationship between masses and structure and, thereby, using measured masses to study structural evolution in nuclei, underlying shell structure, the development of collectivity, quantum phase transitions, and the microscopic interactions that drive this evolution. This talk will focus on a few of these recent developments, in particular using two nucleon separation energies and proton-neutron interaction strengths deduced from nuclear masses. Work supported by U.S. DOE Grant No. DE-FG02-91ER-40609.

Are you a student, postdoc or an attendee from an “emerging” country and would like to apply for financial support?

No

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