

Abstract Submitted
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Testing the predictive power of nuclear-structure models against new experimental data PETER MOLLER, Theoretical Division, Los Alamos National Laboratory, Los Alamos, NM 87545 — Nuclear masses are of paramount importance in studies and modeling of nuclear reactions since the reaction Q values can be obtained from the masses involved. Reliable mass models are of paramount importance to provide masses to nuclear data bases for nuclei for which no experimental masses are available. A key question is: *Are the masses calculated for nuclei in unknown regions reliable?* We argue that when evaluating mass models one needs in addition to address 1) if the basis of the model is sound, 2) if it is general enough to provide additional nuclear structure quantities, not just nuclear masses, and 3) if the model is global so that it is possible to calculate these properties for any or almost any nucleus with proton number Z and neutron number N . Using the above starting points we comment on several different mass models that are currently in use, in particular we compare the model deviations from measured masses in the Audi 2003 evaluations and to α -decay energies from the heaviest elements and discuss the different physics of the models.

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