

Abstract Submitted  
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**An improved nuclear mass model: FRDM (2012)<sup>1</sup>** PETER MOLLER, Los Alamos National Laboratory — We have developed an improved nuclear mass model which we plan to finalize in 2012, so we designate it FRDM(2012). Relative to our previous mass table in 1995 [1] we do a full four-dimensional variation of the shape coordinates EPS2, EPS3, EPS4, and EPS6, we consider axial asymmetric shape degrees of freedom and we vary the density symmetry parameter L. Other additional features are also implemented. With respect to the Audi 2003 data base we now have an accuracy of 0.57 MeV. We have carefully tested the extrapolation properties of the new mass table by adjusting model parameters to limited data sets and testing on extended data sets and find it is highly reliable in new regions of nuclei. We discuss what the remaining differences between model calculations and experiment tell us about the limitations of the currently used effective single-particle potential and possible extensions.

[1] ADNDT 59 (1995) 185

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