Giant Monopole Energies from a Constrained Relativistic Mean-Field Approach WEI-CHIA CHEN, JORGE PIEKAREWICZ, Florida State University — Most nuclear energy density functionals (EDFs) are calibrated using exclusively data from nuclear experiments performed under normal nuclear densities and isospin asymmetries. Thus, when extrapolated to the extreme, the predictions differ significantly from model to model. In this work, we develop a constrained relativistic mean-field approach to compute giant monopole energies of nuclei with various isospin asymmetries. The results are compared against those obtained from a relativistic random phase approximation and excellent agreement is found. These results make viable the use of giant monopole energies into the calibration scheme of future nuclear EDFs.

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