

Abstract Submitted
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New effective nucleon-nucleon interaction for mean-field approximation AU VUONG, SHALOM SHLOMO, Cyclotron Institute, Texas A&M University, College Station, TX 77840, USA — The effective Skyrme interaction has been used in mean-field models for several decades and many different parameterizations of the interaction have been realized to better reproduce nuclear masses, radii, and various other data. Today, there are more experimental data of nuclei far from stability line. It is time to improve the parameters of Skyrme-type effective nucleon-nucleon interactions. In this presentation, we present the procedure of the fitting of the mean-field results to an extensive set of experimental data with some constraints on the Skyrme parameters and some approximations in the mean-fields to obtain the parameters of the Skyrme type effective interactions, namely, KDE0 and KDE. We present results of fully self-consistent Hartree-Fock based Random-Phase-Approximation (HF+RPA) calculations for the centroid energies of the breathing modes in the four nuclei, namely, ^{90}Zr , ^{116}Sn , ^{144}Sm , and ^{208}Pb and compare with available experimental data.

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