

# GOGNY-HFB CALCULATION FOR R-PROCESS NUCLEOSYNTHESIS: TOWARDS A FULLY-CONVERGED MICROSCOPIC MASS TABLE

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Any realistic model of r-process nucleosynthesis requires accurate predictions of nuclear masses for isotopes beyond the reach of currently available experimental facilities, thus one has to rely on theoretical nuclear masses [1,2,3]. In recent years there has been a lot of progress in developing microscopic mass models based on energy density functional techniques [4,5]. We have performed a large-scale calculation of nuclear masses based on Hartree-Fock-Bogolyubov (HFB) approach with Gogny-type functionals [6]. We analyze in detail the convergence properties of the computed masses, which are related to the finite size of the working basis used in the self-consistent HFB calculations. We find a lack of convergence in the previously published results [7,8], and perform a systematic study of recently proposed extrapolation techniques to an infinite working basis size [9,10]. We also discuss its applicability to global calculations of nuclear masses.

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