

Abstract Submitted
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Non-empirical pairing functional from low-momentum two- and three-body interactions THOMAS LESINSKI, University of Tennessee; Oak Ridge National Laboratory; Universite Claude Bernard Lyon 1, CNRS-IN2P3, IPNL, THOMAS DUGUET, CEA-Saclay, IRFU, SPhN; Michigan State University; NSCL, KAI HEBELER, ACHIM SCHWENK, TRIUMF — We present systematic calculations of pairing gaps in semi-magic nuclei across the nuclear chart using the Energy Density Functional method. A non-empirical pairing functional is derived at lowest order in the low-momentum, vacuum two-nucleon interaction, including the Coulomb force, and chiral three-nucleon interaction. The particle-hole part of the functional is built to reproduce the Hartree-Fock level density obtained with the same interaction. Energies of odd nuclei are calculated self-consistently in the equal-filling approximation, which allows a direct comparison to odd-even mass difference data. We assess the relative contributions of two-body and three-body direct terms, blocking, and missing higher-order terms of the perturbative expansion to pairing in finite nuclei.

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