

QRPA study of Giant Monopole Resonances

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ABSTRACT

The quasiparticle random phase approximation (QRPA) is a successful approach to study giant monopole resonances (GMR) in superfluid nuclei. Recent experimental findings, however, challenged the so far most accurate theoretical models. In order to diminish these discrepancies it is desirable to use a code with the lesser possible number of approximations. We developed a technique called finite amplitude method (FAM) which allowed us to obtain a fully self consistent QRPA on top of Hartree-Fock-Bogoliubov (HFB) code. In this framework we found that certain kinds of pairing interactions are more efficient in softening the nuclei, but a single parametrization able to reproduce all the experimental data is still missing.