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QUASIPARTICLE VIBRATION COUPLING EFFECTS ON GAMOW-TELLER RESPONSE IN SUPERFLUID NUCLEI

Y.F. Niu*

Abstract

Gamow-Teller (GT) excitation is one of the most important spin-isospin modes in nuclei. The commonly used quasiparticle random phase approximation (QRPA) model cannot describe the width and detailed fragmentation of GT strength distribution. In order to overcome this limit, the quasiparticle vibration coupling (QPVC) is included on top of the QRPA model. The subtraction method is applied in the QPVC calculation to avoid double counting problem. The QPVC effects on GT excitation in ^{120}Sn are discussed. With the inclusion of QPVC, a width is developed and the experimental data of GT response in the giant resonance region is well reproduced.

keywords: Gamow-Teller excitation, Quasiparticle random phase approximation, Quasiparticle vibration coupling

*nyfster@gmail.com ELI-NP, Horia Hulubei National Institute for Physics and Nuclear Engineering, 30 Reactorului Street, RO-077125 Bucharest-Magurele, Romania