

Extraction of spurious modes: recent progress

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Abstract. A recent progress in development of methods for extraction of spurious admixtures (SA) from nuclear intrinsic spectra is reported. Two main prescriptions are inspected: extraction of SA after [1] and before [2] solution of QRPA equations. The prescriptions are general and can be applied to various cases of SA (violation of translational and rotational symmetries, pairing-induced non-conservation of particle number, etc). The prescription [1] allows to get, on the same theoretical footing, the familiar corrections [3, 4] obtained earlier by different methods. The accuracy of both prescriptions is demonstrated by QRPA calculations for E1, E0 E20 and E21 strength functions in ¹⁵⁴Sm.

[1] A. Repko, J. Kvasil, and V.O. Nesterenko, *Phys. Rev. C* **99**, 044307 (2019).

[2] A. Repko, J. Kvasil, and V.O. Nesterenko, under preparation for publication.

[3] P. Ring and P. Schuck, *The Nuclear Many-Body Problem*, (Springer-Verlag N.Y.-Heidelberg-Berlin, 1980).

[4] M.N. Harakeh and A. van der Woude, *Giant Resonances* (Oxford University Press, 2001).