

ABSTRACT

Theoretical gamma strength functions within the QRPA framework

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In our standard approach [1], transition probabilities for the decay of the excited states toward the ground state are obtained as the last stage of QRPA calculations. Some computational effort has been made to produce a large-scale data set of electric and magnetic dipole strengths leading to a theoretical database for photon strength functions with the least possible phenomenological ingredients [2]. After discussion on success and limits of these systematic studies, I will also present some unusual applications of the QRPA method for the interpretation of isomeric half-lives in the $N=100$ isotonic chain [3]. Formal and numerical development needed in the aforementioned study have opened the way for new improvements of the theoretical description of the gamma strength functions. In particular, preliminary QRPA results on the microscopic description of the "upbend" observed in Oslo data will be shown.

[1] S. Péru and M. Martini, *Eur. Phys. J. A* (2014) 50: 88;

[2] S. Goriely et al, *Eur. Phys. J. A* (2019) 55: 172;

[3] L. Gaudefroy, S. Péru et al, *Phys.Rev. C* 97, 064317 (2018)