Large scale QRPA predictions of gamma ray strength functions based on the D1M Gogny interaction

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Within the framework of a global microscopic approach, all the nuclear input required for nuclear reaction predictions are being, step by step, derived from a sole nucleon-nucleon effective interaction, namely the D1M Gogny force [1]. Nuclear masses [1], deformations, radial densities and level densities [2] have already been obtained and have shown a rather good agreement with experimental data either directly or when used, for instance, to derive optical models [3]. We now focus on the radiative strength functions within the QRPA approach [4], and in particular, aim at producing tables of gamma-ray strength functions, first for E1, and then for M1 transitions. The current status of this project will be discussed and perpectives will be drawn.

[1] S. Goriely et al., *First Gogny-Hartree-Fock-Bogoliubov Nuclear Mass Model*, Phys. Rev. Lett **102**, (2009) 242501.

[2] S. Hilaire et al., *Temperature-dependent combinatorial level densities with the D1M Gogny force*, Phys. Rev. C **86**, (2012) 064317.

[3] S. Hilaire et al., *Nuclear reaction inputs based on effective interactions*, Eur. Phys. J. A **52** (2016) 336.

[4] S. Péru et al., *Giant resonances in ^{238}U within the quasiparticle random-phase approximation with the Gogny force*, Phys. Rev. C **83** (2011) 014314.