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

S. Hilaire¹, S. Péru¹, S. Goriely², M. Martini³ and I. Deloncle⁴

¹ CEA, DAM, DIF, F-91297 Arpajon, France
² Institut d’Astronomie et d’Astrophysique, Université Libre de Bruxelles, CP-226, 1050 Brussels, Belgium
³ ESNT, CEA, IRFU, Service de Physique Nucléaire, Université de Paris-Saclay, F-91191 Gif-sur-Yvette, France
⁴ CSNSM, CNRS et Université Paris-Sud, F-91405 Orsay Campus, France

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 perspectives will be drawn.


