## 6th International Conference on Collective Motion in Nuclei under Extreme Conditions (COMEX6)



Contribution ID: 15

Type: Poster

## QRPA predictions of the E1 and M1 gamma-ray strength functions using the D1M Gogny interaction

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 for both E1 and M1 transitions. The current status of this project will be discussed with a particular emphasis on the consequences on capture cross section modelling.

[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 238U within the quasiparticle random-phase approximation with the Gogny force, Phys. Rev. C 83 (2011) 014314.

**Primary authors:** Dr HILAIRE, Stephane (CEA,DAM,DIF); Dr PERU, Sophie (CEA); Dr GORIELY, Stephane (ULB); Dr DELONCLE, Isabelle (CSNSM,CNRS); Dr MARTINI, Marco (CEA, ESNT); Dr ROIG, Olivier (CEA,DAM,DIF); Dr SIEJA, Kamila (CNRS)

Presenter: Dr HILAIRE, Stephane (CEA, DAM, DIF)

Track Classification: Track B