Exit Report
FUSTIPEN collaboration visit
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I spent three weeks in GANIL in a FUSTIPEN ongoing collaboration, hosted by Marek Płoszajczak. During this time we finalized the details of our paper: "Ab-initio No-Core Gamow Shell Model calculations with realistic interactions" and we also discussed future applications of the No-core Gamow Shell Model (NCGSM). The first two weeks, together with Jimmy Rotureau and Marek we focused on calculations for the ab-initio description of ^{4}He excited states (2^{nd} 0^{+}, 0^{-} and 2^{-}) within the NCGSM. With Jimmy we also worked on the technical aspects of the Density Matrix Renormalization Group (DMRG) code, in order to improve its performance. The discussions were joined by Marek's student, Kevin Fossez.
During the third week our efforts were joined by Bruce Barrett and Christian Forssén. Together we discussed the possibility of calculating observables other than energy, such us quadrupole moments, radii and spectroscopic factors and other operators, such us two-body correlation densities, within the NCGSM.

I had the opportunity to attend the topical meeting in GANIL, on "The microscopic description of light nuclei", were I delivered a presentation on our recent work.
The meeting was very successful and initiated a lot of discussions during and after the talks. The topics were very diverse, spanning most of the areas of low energy nuclear structure, from the efforts to construct the nuclear force based on chiral-Effective Field Theory to many-body methods, which use these potentials to make predictions.
The meeting was very well attended by experimentalists, who delivered high quality presentations on exciting physics problems, such as the narrow resonant state of ^{7}H, the spectroscopy of the exotic ^{6,8}He nuclei, the extraction of correlations in halo nuclei and, finally, the extraction of spectroscopic information from transfer reactions.

Overall, my stay in GANIL was very productive and useful for my future research.