

**Report on Fustipen Visit to GANIL and CEA/DAM Bruyeres-le-Chatel
January 4, 2012 - January 12, 2012
Nicolas Schunck**

Between January 4, 2012 and January 7, 2012, I co-organized with Witek Nazarewicz (UTK/ORNL), Heloise Goutte (GANIL) and Noel Dubray (CEA/DAM) a topical meeting on the theory of fission at GANIL in Caen. The majority of US-based and France-based experts in the field were present. Most of the topics discussed in this meeting were of direct interest to the research I carry out at LLNL.

In particular, with Heloise Goutte, Noel Dubray, and Walid Younes (LLNL), we had very fruitful discussions on the dynamics of nuclear fission. We agreed to work on a joint paper describing the impact of additional shape collective degrees of freedom in the so-called time-dependent generator coordinate method. This is important in view of identifying the most relevant degrees of freedom to describe fission fragment properties. During the few meetings that we had at GANIL, we determined the outline of our paper and assigned responsibilities for each task. We anticipate the submission of a Fustipen-sponsored article within 6-12 months.

Fustipen perfectly fulfilled its role by giving me the opportunity to discuss the possibility of a new collaboration with C. Schmitt (GANIL) on the treatment of dissipation in the theory of fission. Here, the idea is to combine a semi-classical theory based on the Langevin equations with a microscopic input from the HFB theory (in particular the collective inertia and potential energy landscape). Following my visit at GANIL, we have started to exchange regular emails to explore the short-term feasibility of this project. An additional visit to Ganil later in 2012 may be required if we go ahead with our idea.

Between January 7, 2012 and January 12, 2012 I was also visiting the CEA/DAM at Bruyères-le-Château, near Paris, to continue my work with Noël Dubray on the application of the TDGCM in the description of the fission process, and meet with the members of the nuclear theory group of Bruyères. I presented some of the results of the UNEDF collaboration, and there was a vivid interest in strengthening the existing collaborations between the CEA/DAM and LLNL. Fustipen offers an ideal platform for such a goal, as it can considerably facilitate the travel of US-based scientists to France.

Nicolas Schunck
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