UNIVERSITY OF ARIZONA

Department of Physics, PO Box 210081
Tucson, Arizona, 85721-0081

April 3, 2013

RE: FUSTIPEN visit to GANIL by Dr. Bruce R. Barrett, March 8-17, 2013

Dr. Robert Janssens
Co-Director: FUSTIPEN
Argonne National Laboratory

Dear Robert,

This is my report on my FUSTIPEN visit to GANIL from March 8-17, 2013. I left Tucson, AZ, on March 8 and arrived in Caen on March 10. On March 11-12 I took part in a two-day FUSTIPEN Topical Meeting at GANIL on *The Microscopic Description of Light Nuclei*. The Topical Meeting had 26 participants and 16 speakers. I was one of the speakers and also led the Group Discussion at the end of the Topical Meeting. In my opinion, the talks were all interesting and informative. I particularly thought that all of the experimental talks were excellent, presenting new and exciting results, which were of considerable interest to the theorists as well as the experimentalists. The participation in the Group Discussion was lively and enthusiastic and was enjoyed by all. It appeared that everyone found the Group Discussion to be worthwhile, leading to concrete conclusions on several important topics discussed at the Topical Meeting, such as how well do we really understand nucleon-nucleon and three-nucleon interactions determined from Effective Field Theory and Chiral Perturbation Theory. Marek Ploszajczak and I are very excited about the outcome of the Topical Meeting and have already discussed the possibility of holding a similar meeting at GANIL in 2014.

From March 13-15 I took part in discussions with Marek Ploszajczak, Jimmy Rotureau (Chalmers U. Technology, Gothenburg, Sweden) and George Papadimitriou (U. Arizona), regarding our collaboration on the No Core Gamow Shell Model (NCGSM), for including continuum effects into the No Core Shell Model approach. Besides discussing our expanded calculations for ^{5}He, so that we can complete this project and paper on the NCGSM formalism and application, we also discussed future plans and projects, such as investigating the low-lying excited states of ^{4}He within the NCGSM, followed by a study of the Hydrogen isotopes up to mass $A = 7$.

On Friday afternoon, I traveled back to Paris by train with Jimmy and George. I spent Saturday in Paris at my own expense and flew back to Tucson on Sunday morning, March 17.

I found my FUSTIPEN visit to GANIL to be highly productive with regard to our collaboration, as well as very informative, both from the FUSTIPEN Topical Meeting and individual discussions. Calculations started at GANIL are continuing at the University of Arizona and at Chalmers.

With best regards,

Bruce

Bruce R. Barrett