



GANIL Topical Meeting

«Nuclear Structure and Reaction Theories: Building Together for the Future»

October 9-13, 2017, GANIL, Caen, France

First circular

Progress in microscopic approaches for solving the nuclear many-body problem for nuclear structure and reaction has been rapid in the last years with advances in computer software and hardware for solving huge dimensional systems to new theoretical approaches for solving many-body problems. In keeping with the spirit of a series of workshops, mainly on theoretical nuclear physics, organized at GANIL over the past several years, we are organizing a new workshop to be held at GANIL, October 9 to 13, 2017, to assess the latest developments in nuclear structure and reaction physics and to discuss and plan for the future advances in these two fields of research in the near and longer terms. Some of the problems that we are interested in exploring are:

- (i) the Nucleon-Nucleon interaction: More phenomenological interactions vs more microscopical interactions generated using EFT, which are less successful in many-body calculations,
 - (ii) how to use the successes of microscopic nuclear structure methods, such as the No Core Shell Model, the Gamow Shell Model, the Coupled Cluster approach, the In-Medium SRG technique, etc., to develop new methods or extend existing techniques to heavier mass nuclei,
 - (iii) how best to include the continuum in nuclear structure calculations,
 - (iv) how to merge nuclear structure and reaction approaches into a unified theory, so as to understand loosely bound and exotic nuclei far from the line of stability,
 - (v) new approaches for developing the Nuclear Optical Potential,
 - (vi) beyond the Skyrme interaction for Nuclear Density Functional Theory,
- etc.

This is only a partial list of interesting problems, which also includes numerous applications, such as, investigating the nature of double beta decay and of shape coexistence, the possible existence of a tetra-neutron-like structure, etc. These and similar topics will be probed during this workshop, which will encourage a wider experimental

participation, so as to provide news of the latest experimental results and stimulate a theory-experiment element into the discussion sessions.

Besides a series of relatively-short daily talks centered on a theme, there will be adequate Q&A time after talks and during a daily "wrap-up" discussion session. We would like to keep the format of the meeting informal and invite those participants who believe they can contribute to the discussion to contact Marek Ploszajczak at ploszajczak@ganil.fr or Bruce R. Barrett at bbarrett@physics.arizona.edu.

At present the list of speakers include:

G. Bertsch* (INT Seattle), P. Capel (ULB Bruxelles), J. Carbonell (IPN Orsay),
Q. Delahaye (LPC Caen), Th. Duguet (SPhN Saclay), W. Dickhoff (Washington Univ.),
Ch. Forssen (Chalmers Univ.), M. Grasso (IPN Orsay), B. Hu (Univ. of Beijin),
N. Kalantar (KVI-CART), S. Koenig (TU Darmstadt), K. Launey (Louisiana State Univ.),
D. Lee (North Carolina State Univ.), P. Navratil (TRIUMF), N. Orr (LPC Caen),
T. Otsuka (Univ. of Tokyo), S. Shimoura (Univ. of Tokyo), I. Stetcu (LANL),
P. Van Isacker (GANIL), U. van Kolck (IPN Orsay/Univ. of Arizona), J. Vary (Iowa State Univ.),
J. Yang (IPN Orsay)

*) to be confirmed

The list of speakers is open and will be given in the second circular. The program of the meeting will be announced in the Second Circular, issued around September 15.

To register for the meeting, please fill in the registration form. We are asking even those holding a GANIL badge to register so that an accurate count can be obtained for the coffee breaks.

There is no registration fee. Lodging support will be provided by GANIL for the speakers at the Topical Meeting. The information to reach GANIL can be obtained at the address:

http://fustipen.ganil.fr/practical/Practical_info.pdf

If you have any question concerning your arrival and stay in Caen, or your participation in the meeting, please do not hesitate to contact Marek Ploszajczak at ploszajczak@ganil.fr

Bruce R. Barrett (University of Arizona)

Marek Ploszajczak (GANIL)