



FUSTIPEN Topical Meeting

«Understanding Nuclear Structure and Reactions Microscopically, including the Continuum»

March 17-21, 2014, GANIL, Caen, France

Second circular

The aim of the FUSTIPEN topical meeting on “Understanding Nuclear Structure and Reactions Microscopically, including the Continuum” is to bring together a diversity of researchers, both theorists and experimentalists, who are working on different aspects of this problem, from those doing Effective Field Theory and constructing nucleon-nucleon (NN) and three-nucleon interactions to those developing new microscopic many-body approaches for calculating nuclear structure and reactions.

The goal of the meeting is to stimulate discussions and to start new collaborations among these researchers on how to advance from the present state of the art for these fields to new ideas for improved NN and many-N interactions; to the extension of successful microscopic techniques for light nuclei to heavier nuclei; and to entirely new approaches for handling medium-to-heavy mass nuclei, including the continuum.

We will discuss these issues keeping the format informal. Those participants who would like to contribute to the discussion are invited to contact us at fustipen@ganil.fr.

The meeting is scheduled to start at 9:00 on Monday, March 17 and to finish around 15:30 on Friday, March 21. The session will take place in room 105 of the GANIL main building.

Upon arrival at GANIL, you are requested first to contact the guardian at the entrance of GANIL and then proceed to the GANIL main building, room 105, for the registration. Personal laptops will be able to connect to the wireless network.

All the information to reach GANIL can be found 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 us at fustipen@ganil.fr.

Program of the Topical Meeting
«Understanding Nuclear Structure and Reactions Microscopically,
including the Continuum»

Monday, March 17, 2014

- 9:00 Registration
- 9:15 Welcome
- 9:30 – 10:00 *Chairman: Marek Ploszajczak (GANIL)*
Manuel Caamaño-Fresco (University of Santiago de Compostela)
The hydrogen shore: a dive into shallow waters
- 10:15 – 10:45 Coffee break
- 10:45 – 11:15 Bruce R. Barrett (University of Arizona)
Ab initio shell model with a core
- 11:30 – 12:00 Jonathan Engel (University of North Carolina)
Ab initio coupled-cluster effective interactions for the shell model
- 12:15 – 13:30 Lunch
- 13:30 – 14:00 *Chairman: Carlo Barbieri (University of Surrey)*
Petr Navratil (TRIUMF)
Ab initio many-body calculations of nuclear scattering and reactions
- 14:15 – 14:45 Guillaume Hupin (LLNL)
Ab initio description of nucleon and deuteron scattering for systems
with up to $A = 6$ nucleons
- 15:00 – 15:30 Nicolas Michel (GANIL)
Nuclear reaction theories including continuum coupling within core
and *ab initio* frameworks
- 15:45 – 16:15 Coffee break
- 16:15 Discussion session:
Conveners: E. Epelbaum, Ruhr University
P. Navratil, TRIUMF

Tuesday, March 18, 2014

- 9:30 – 10:00 *Chairman: Piotr Magierski (Warsaw University of Technology)*
Willem H. Dickhoff (Washington University St. Louis)
Forging the link between nuclear reactions and nuclear structure
- 10:15 – 10:45 Coffee break
- 10:45 – 11:15 Carlo Barbieri (University of Surrey)
Ab initio calculations in the O and Ca regions: reaching open shells
and optical potentials
- 11:30 – 12:00 Vittorio Soma (SPhN Saclay)
Green's functions in mid-mass nuclei with chiral interactions
- 12:15 – 13:30 Lunch
- 13:30 – 14:00 *Chairman: Nicolas Michel (GANIL)*
Sonia Bacca (TRIUMF)
Towards *ab initio* calculations of electromagnetic reactions in
medium mass nuclei
- 14:15 – 14:45 Jimmy Rotureau (Chalmers University of Technology Gothenburg)
Ab initio description of light nuclei in the Berggren basis
- 15:00 – 15:30 George Papadimitriou (Iowa State University)
Many body methods for the description of bound and unbound
nuclear states
- 15:45 – 16:15 Coffee break
- 16:15 Discussion session
Conveners: W. Dickhoff, Washington University St. Louis
Th. Neff, GSI

Wednesday, March 19, 2014

- 9:30 – 10:00 *Chairman: Denis Lacroix (IPN Orsay)*
Michael Bender (CEN Bordeaux Gradignan)
Symmetry-restored GCM with EDFs: old problems, new developments,
future prospects
- 10:15 – 10:45 Coffee break
- 10:45 – 11:15 Karim Bennaceur (IPN Lyon/University of Jyväskylä)
Density-independent interaction for nuclear structure calculations
- 11:30 – 12:00 Bertrand Giraud (CEA Saclay)
Two results about the nuclear density functional
- 12:15 – 13:30 Lunch
- 13:30 – 14:00 *Chairman: Jonathan Engel (University of North Carolina)*
Piet Van Isacker (GANIL)
Spectroscopy of heavy $N=Z$ nuclei
- 14:15 – 14:45 Piotr Magierski (Warsaw University of Technology)
Nuclear dynamics within time-dependent superfluid local density
approximation
- 15:00 – 15:30 Guillaume Blanchon (CEA/DAM/DIF)
Nucleon elastic scattering off doubly closed shell nuclei within
HF+RPA with Gogny force
- 15:45 – 16:15 Coffee break
- 16:15 Discussion session
Conveners: M. Bender, CEN Bordeaux Gradignan
D. Lacroix, IPN Orsay

Thursday, March 20, 2014

- 9:30 – 10:00 *Chairman: Takaharu Otsuka (University of Tokyo)*
Evgeny Epelbaum (Ruhr University Bochum)
Chiral nuclear forces: new directions
- 10:15 – 10:45 Coffee break
- 10:45 – 11:15 Bira van Kolck (IPN Orsay/University of Arizona)
Effective field theory for lattice nuclei
- 11:30 – 12:00 Manuel Pavon Valderrama (IPN Orsay)
The two-nucleon system in effective field theory
- 12:15 – 13:30 Lunch
- 13:30 – 14:00 *Chairman: Sonia Bacca (TRIUMF)*
Rimantas Lazauskas (IRES Strasbourg)
Two bound-states like techniques to solve the scattering problem in configuration space
- 14:15 – 14:45 Giuseppina Orlandini (University of Trento)
Common aspects of few- and many-body systems: Do light systems exhibit "collective" features?
- 15:00 – 15:30 Nigel Orr (LPC Caen)
Spectroscopy of unbound light neutron-rich nuclei via transfer and knockout
- 15:45 – 16:15 Coffee break
- 16:15 Discussion session
Convener: Ch. Forssen, Chalmers University of Technology
U. van Kolck, IPN Orsay/University of Arizona
- 20:00 Conference dinner

Friday, March 21, 2014

- 9:30 – 10:00 *Chairman: Piet Van Isacker (GANIL)*
Christian Forssen (Chalmers University of Technology Gothenburg)
Ab initio calculations of light nuclei using optimized chiral
Hamiltonians
- 10:15 – 10:45 Coffee break
- 10:45 – 11:15 Thomas Neff (GSI Darmstadt)
The Hoyle state and the ^{12}C continuum
- 11:30 – 12:00 Takaharu Otsuka (University of Tokyo)
Type I and II shell evolutions in exotic nuclei
- 12:15 – 13:30 Lunch
- 13:30 – 14:00 *Chairman: Olivier Sorlin (GANIL)*
Haik Simon (GSI)
Breakup into the continuum: challenges and prospects
- 14:15 – 15:15 Discussion session
Convener: B.R. Barrett, University of Arizona
- 15:30 End of the Meeting

To register for the meeting, please fill in the registration form which can be found at the address:

<http://fustipen.ganil.fr/conferences/2014/registration-form-1>

We are asking even those holding a GANIL badge to register so that an accurate count can be obtained for the coffee breaks.

We hope to see you soon at GANIL at the occasion of this topical meeting.

Bruce R. Barrett (University of Arizona)

Marek Ploszajczak (GANIL)

E-mail: fustipen@ganil.fr

