Structure and reaction of light exotic nuclei

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Yukawa Institute for Theoretical Physics, Kyoto University (YITP)

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Tentative program

The physics of neutron- and proton-rich nuclei has been extensively investigated in recent years. To understand the new physics of neutron- and proton-rich nuclei, it is extremely important to study them both from nuclear structure and reaction stand-point. The core participant, Professor Pierre Descouvemont (ULB) is internationally well known due to his many nuclear structure and nuclear astrophysics contributions to the understanding of neutron- and proton-rich light nuclei. In particular, he is the most knowledgeable person in nuclear cluster theory research in the world. He will stay at the Yukawa Institute as a visiting professor during January-March 2015. Another purpose of the workshop is to invite Professor Carlos Bertulani (Texas A&M-Commerce). He is also a well known theoretician due to his analyses of the nuclear reactions including nucleosynthesis. We expect one or two seminars on each weekday, and we have free discussion time in the afternoon.

Subjects to be discussed;
1) Exotic structure and reaction of neutron/proton excess nuclei
2) Towards an ab-initio theoretical description of nuclear reactions with light neutron-

and proton-rich nuclei.
3) Nuclear astrophysics (BBN, triple-alpha process, explosive nucleosynthesis
4) Many-body problem in nuclear open systems: a consistent description of bound and scattering states.
5) Unified description of nuclear structure and reaction frameworks
6) Recent experimental progresses for neutron/proton-rich nuclei
7) Related topics

Organizers

Carlos Bertulani (Texas A&M)
Pierre Descouvemont (ULB)
Wataru Horiuchi (Hokkaido)
Naoyuki Itagaki (YITP, contact person)
Takuma Matsumoto (Kyushu)
Kazuyuki Ogata (RCNP)