独立行政法人理化学研究所　仁科加速器研究センター
第105回RIBF核物理セミナー
RIKEN Nishina Center for Accelerator Based Science
The 105th RIBF Nuclear Physics Seminar

Some Aspects of the Structure of Exotic Nuclei

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The structure of exotic nuclei is a central theme of study in current nuclear physics research. Key to this unique program has been the worldwide development of radioactive beam facilities and novel detector systems with increased sensitivity and resolving power, which provide the tools needed to produce and study nuclei far from the stability line.
Some of the more interesting aspects we are addressing are the evolution of shell structure with isospin, the characterization of the elementary modes of excitation in neutron rich nuclei, the role of isoscalar neutron-proton pairing along the N=Z line, and the structure of the very heavy elements. In this talk I will present some recent results from our group that shed light on the questions above. They include: i) Experiments carried out at NSCL/MSU to measure the lifetime of the 2+ states in neutron rich carbon isotopes. The B(E2)'s can provide important information on the neutron effective charges and the possible decoupling from the core, ii) The two proton knock-out reaction from 32Mg into 30Ne relevant to the understanding of intruder configurations in the island of inversion and the effects of weak binding, iii) A study of the 44Ti(3He,p) at the ATLAS facility at ANL to address the question of np pairing, and iv) Isomer spectroscopy of transfermiun nuclei using the BGS at the 88-Inch Cyclotron.
LBNL has been leading the US effort in the development of the gamma-ray tracking technique. I will end this presentation with a short review of the current status of GRETINA and of the exiting physics opportunities that will be possible with this instrument.

The seminar will be given in English.

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＊This is the part of seminars organized by CNS and RIBF.

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