



独立行政法人理化学研究所 仁科加速器研究センター  
第49回RIBF核物理セミナー  
RIKEN Nishina Center for Accelerator Based Science  
The 49th RIBF Nuclear Physics Seminar

## Nature of transitional nuclei scrutinized with isomer spectroscopy

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Isomeric states in atomic nuclei are unique probes which reveal various aspects of the microscopic structure of the nucleus and the nature of nuclear interactions. This seminar will focus on characteristic isomers in the transitional nuclei with  $Z \geq 50$ ,  $N < 82$ , where the coexistence of collective and quasiparticle features can be seen in the excitation spectra. The nuclei of interest were investigated by means of time-correlated gamma-ray spectroscopy with the GAMMASPHERE array, in combination with deep-inelastic reactions with  $^{136}\text{Xe}$  beams incident on thick targets. New results achieved in the present work include the identification of the  $19/2^-$  and  $23/2^+$  isomers in  $^{131,133}\text{I}$  and odd- $A$  Sb isotopes with the mass range  $A = 121 - 127$ . For the stable nucleus  $^{121}\text{Sb}$ , complementary experiments were carried out using  $^7\text{Li}$  beams at ANU. This presentation of isomer spectroscopy studies concerning the transitional character of the nucleus will be emphasized with such topics as (1) the effect of residual p-n interactions on the isomerism, (2) the competition between core polarization and pairing correlation in the isomeric E2 transitions, and (3) how the change of the shell structure can affect the isomerism.

Oct. 4 (Thu), 2007 13:30-  
RIBF Conf. Hall, RIKEN

*The seminar will be given in English.*  
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