



独立行政法人理化学研究所 仁科加速器研究センター  
第165回 RIBF核物理セミナー

RIKEN Nishina Center for Accelerator Based Science  
The 165<sup>th</sup> RIBF Nuclear Physics Seminar

Spin-oriented RI beams at RIBF and their applications.

Dr. Hideki Ueno  
(Nuclear Spectroscopy Lab., RIKEN Nishina Center)

The method producing heavy-ion induced spin-orientated radioactive-isotope beams (RIBs) has progressed since it was first introduced at RIKEN 40 years ago. Spin-polarized RI beams, produced efficiently with RIPS, were utilized to determine electromagnetic nuclear moments of unstable nuclei. The method has been further developed taking advantage of the two-step fragmentation reaction and momentum dispersion-matching technique. Owing to this development, spin-aligned RIBs have become available with BigRIPS which provides RIBs at the world's highest intensities. As another application, the  $\beta$ -decay scheme of  $^{17}\text{B}$  was investigated through the measurement of  $\beta$ -delayed neutrons and  $\gamma$  rays, where  $\beta$ -ray detected NMR technique was combined to the  $\beta$ -delayed particle spectroscopy. This new scheme allows us to determine the spin parity of  $\beta$ -decay feeding excited states based on the difference in the discrete beta-decay asymmetry parameters, provided the states are connected through the Gamow-Teller transition. Details of this measurement will be presented after the method of spin-oriented RIBs and recent nuclear-moment measurements are mentioned.

June 11 (Tue.), 2013 13:30~  
RIBF Hall, RIBF bldg. 2F, RIKEN

Contact: Nuclear Physics Seminar Organizing Committee  
[npsoc@ribf.riken.jp](mailto:npsoc@ribf.riken.jp)  
<http://ribf.riken.jp/~seminar/>