



国立研究開発法人理化学研究所 仁科加速器科学研究センター  
第279回 RIBF核物理セミナー  
RIKEN Nishina Center for Accelerator Based Science  
The 279th RIBF Nuclear Physics Seminar

Towards an improved electron and positron magnetic moment  
measurement as a test of the Standard Model and CPT symmetry

Mr. Xing Fan

(Department of Physics, Graduate School of Arts and Sciences, Harvard University)

The measurement of the electron magnetic moment is the most precise test of the Standard Model, with precision of 0.28 ppt. A new Penning trap apparatus has been constructed and is being tested with an aspiration of improving the electron magnetic moment measurement precision by a factor of 10.

Positrons will now be loaded into the trap to allow for a more precise measurement of the positron magnetic moment which we aspire to improve by a factor of 150. A direct comparison of these two measurements allows for the most precise test of CPT symmetry for the light leptons. In addition, these measurements, combined with the standard model, result in a precise determination of the fine structure constant. Recently, the apparatus has been moved to the new Center for Fundamental Physics at Northwestern University where setup is complete. Further developments and progress on the experiment will be presented.

Jul.8th (Mon.) 2019 13:30~  
RIBF Hall, RIBF bldg., RIKEN

\* The talk will be given in English language.

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