



独立行政法人理化学研究所 仁科加速器研究センター
第137回RIBF核物理セミナー

RIKEN Nishina Center for Accelerator Based Science
The 137th RIBF Nuclear Physics Seminar

The Magnet in the (Anti)proton - Quantum jump spectroscopy with antimatter

Dr. Stephan Ulmer

(Unit leader, Ulmer Initiative Research Unit, RIKEN *to be started from Apr. 1, 2012*)

Recently we observed spin-flips with a single proton for the first time, which is an important milestone towards a high-precision measurement of the particle's magnetic moment. The spin quantum-jumps were detected via the continuous Stern-Gerlach effect, which has been applied already to compare the magnetic moments of the electron and the positron. However, these experiments involved magnetic moments on the level of the Bohr-magneton, while the proton's magnetic moment is about 660 times smaller and spin-flips are much harder to detect. Since the developed techniques can be directly transferred to the antiproton, this experimental success is a crucial milestone towards a million-fold improved test of the matter/antimatter-symmetry with baryons. In my talk I will present the current status of the experiment and describe our activities towards a measurement of the magnetic moment of the antiproton, which will be set-up in the framework of a RIKEN Initiative Research Unit.

Apr. 3 (Tue), 2012 13:30~
RIBF Hall, RIKEN

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