



独立行政法人理化学研究所 仁科加速器研究センター
第108回 RIBF核物理セミナー
RIKEN Nishina Center for Accelerator Based Science
The 108th RIBF Nuclear Physics Seminar

Atom trap experiments with RIBs: from fundamental studies to applications

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Neutral atom traps, where atoms are captured and confined with laser light, can be applied as extremely sensitive and selective tools to study rare isotopes. They allow to prepare cold ($< 1\text{mK}$) and isotopically pure samples of specific isotope suspended as neutral atom clouds in vacuum. While confined in the trap, the atoms resonantly scatter laser light with high probability and appear as a bright dot in the middle of the vacuum chamber. Even single atoms can be detected with high signal to noise ratio. In my talk, I will present some of the experiments carried out in our group at Argonne that utilize the unique properties of these laser traps. These experiments span fundamental symmetries studies, nuclear structure investigations and ultra-trace isotope analysis. In particular, I will report on our progress towards searching for a permanent electric dipole moment of ^{225}Ra and on the nuclear charge radius measurement of the short-lived halo isotopes ^6He and ^8He .

Dec. 6 (Mon), 2010 13:00-
RIBF Hall, RIKEN

The seminar will be given in English.

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