Contribution ID: **191** Type: **Poster**

Development of a double-cusp trap for ground-state hyperfine spectroscopy of antihydrogen atoms

Tuesday 18 October 2016 17:50 (1 minute)

The ASACUSA collaboration has developed a scheme for a high precision spectroscopy of the ground-state hyperfine splitting of antihydrogen atoms to test CPT symmetry.
A Rabi-type spectroscopic technique is planned to be utilized with a key apparatus, a cusp trap.
After a successful production of a flow of antihydrogen atoms from the prototype cusp trap, a new novel double-cusp trap has been developed, which is a combination of two anti-Helmholtz magnetic field configuration and an electrostatic nested well configuration by multiple ring electrodes.
The double-cusp trap is expected to improve the polarization and focusing of antihydrogen beams.
To efficiently synthesize antihydrogen atoms, an ultraslow antiproton beam from the MUSASHI antiproton trap is adiabatically transported and injected to positron plasma confined in the double-cusp trap.
Ongoing experiments of antihydrogen synthesis and the expected characterization of antihydrogen beams will be discussed.

Author: Dr KURODA, Naofumi (University of Tokyo)

Co-authors: Dr RADICS, Balint (ETH Zürich); Prof. LODI RIZZINI, Evandro (Università di Brescia); Dr HIGAKI, Hiroyuki (Hiroshima University); Dr BREUKER, Horst (CERN); Prof. VENTURELLI, Luca (Università di Brescia); Dr LEALI, Marco (Università di Brescia); Ms TAJIMA, Minori (University of Tokyo); Dr DUPRÉ, Pierre (RIKEN); Dr ULMER, Stefan (RIKEN); Mr MATSUDATE, Takuya (University of Tokyo); Mr KOBAYASHI, Tatsuhito (University of Tokyo); Dr MASCAGNA, Valerio (Università di Brescia); Dr MÄCKEL, Volkhard (SMI); Prof. YAMAZAKI, Yasunori (RIKEN); Dr KANAI, Yasuyuki (RIKEN); Dr MATSUDA, Yasuyuki (University of Tokyo); Dr NAGATA, Yugo (Tokyo University of Agriculture and Technology)

Presenter: Dr KURODA, Naofumi (University of Tokyo)

Session Classification: Poster Session