Contribution ID: **49** Type: **not specified**

Rydberg atoms in electric fields

Significant amount of antimatter studies has been build on making a comparison between the (physical) properties of particle and antiparticle. As a natural candidate for testing this symetry is a hydrogen-antihydrogen system.Because of long studied and a well-known hydrogen atom, the antihydrogen is an ideal candidate for experimental studying of antimatter. To perform the same precision measurement at antihydrogen is necessary to have antiatoms in isolated an at calm state. These conditions help to minimize disturbation to the system and allow the length of measurements needed for precision results. The process of forming antihydrogen atoms is called resonant charged exchange reaction $Ps^* + \bar{p} \longrightarrow \bar{H}^* + e^-$. In this exchange is Ps^* excited to high Rydberg state. Rydberg atoms, atoms in with the valence electro in a state of high principal quantum number *n*. The newly produced antihydrogen kept the principal quantum number *n* of Positronium. For further using of antihydrogen in the experiment is needed to explore the behaviour of Rydberg atoms in the external electric field. Specially focused on the trapping of Rydberg atom and manipulation using electric fields.

Primary author: HRUBEŠOVÁ, Hana (CTU FNSPE)

Presenter: HRUBEŠOVÁ, Hana (CTU FNSPE)