ΠΑΝΕΠΙΣΤΗΜΙΟ ΚΡΗΤΗΣ

ΤΜΗΜΑ ΦΥΣΙΚΗΣ

ΓΕΝΙΚΟ ΣΕΜΙΝΑΡΙΟ ΤΜΗΜΑΤΟΣ ΦΥΣΙΚΗΣ

PHYSICS COLLOQUIUM

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17:00-18:00

3rd Floor Seminar Room

Electron Spectrometry of Highly Charged Ions: Exploring the collision dynamics of few-electron systems

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Abstract

Highly charged ions (HCIs) such as bare, H-like, He-like and Li-like ions provide a unique laboratory for investigating the atomic structure and collision dynamics of few-electron systems and their interactions. Using the in-beam technique of high resolution zero-degree Auger projectile electron spectrometry (ZAPS), the state-selective investigation of low-Z HCI collisions with simple targets has revealed interesting dynamic aspects shared in common by both ion-atom and ion-electron collision processes. Following a general introduction to HCIs and applications, recent results on quasi-free electron scattering off HCIs, production of triply-excited Li-like hollow ions and on-going work on single electron capture to metastable He-like ions will be presented. In the near future, with the advent of the proposed New Experimental Storage Ring (NESR), ZAPS shall be pursued over the entire periodic table including the investigation of electron and positron emission processes in the extremely strong electric fields of high-Z few-electron ions such as U^{89-92+} HCIs.

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