

Structure and Dynamics of Highly-charged Ions: Physics at Extreme Fields

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Experiment on precision X-ray spectroscopy of highly-charged mid-Z ions produced in SIMPA (Source d'Ions Multichargés de Paris) ECR ion source at LKB (Laboratoire Kastler Brossel) will be presented. Here the goal is a precise test of state of the art atomic structure calculations in strong electromagnetic fields. In addition, investigations of relativistic atomic collision dynamics in strong perturbative regime at the ESR storage ring at GSI Darmstadt will be addressed. Namely, excitation studies for one- and two-electron uranium ions in relativistic collisions with various targets will be presented. Preliminary results from the recent experiment will be shown as well.