Contribution ID: **22** Type: **Poster**

# Commissioning of a high-power electron gun for electron-ion crossed-beams experiments

*Monday, 24 April 2017 19:10 (2 hours)*

In an electron-ion crossed-beams experiment, the experimental sensitivity is mainly determined by the densities of both beams in the interaction region. Aiming at the extension of the available range of accessible electron energies and densities, a new high-power electron gun has been developed and built. It delivers a ribbon-shaped beam with high currents at all energies variable between 10 and 3500 eV. The expected high currents and good beam transmission have already been shown.
Here, we report on the current status of commissioning of this electron gun. The electron gun is integrated into the experimental electron-ion crossed-beams setup in Giessen. Employing the animated crossed-beams technique, first cross sections for electron-impact ionization of xenon and helium ions were measured. The measurement of more cross sections is intended for the near future. Further investigations concerning, e.g., space-charge effects in the high-density electron beam are currently performed.

**Primary author:** Mr EBINGER, Benjamin (Justus-Liebig-Universität Gießen)

**Co-authors:** Dr BOROVIK, Alexander (Justus-Liebig Universität Gießen); Prof. MÜLLER, Alfred (JLU Giessen); Mr DÖHRING, Michel (Justus-Liebig-Universität, FB07, AG für Atom- und Molekülphysik); SCHIPPERS, Stefan (JLU Giessen); Mr MOLKENTIN, Tobias (Justus-Liebig-Universität Giessen)

**Presenter:** Mr EBINGER, Benjamin (Justus-Liebig-Universität Gießen)

**Session Classification:** Posters

**Track Classification:** Instrumentation