

# Update on the detection system for forward emitted XUV photons from relativistic ion beams

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Highly charged heavy ions provide a unique possibility to test atomic structure calculations. We would like to study effects of electron-electron correlations in Be-like krypton via a laser spectroscopy measurement of the fine-structure transition from the metastable  $3P_0$  state. For this purpose the ions are stored at  $\beta=0.69$  in the Experimental Storage Ring (ESR) where the transition to the  $3P_1$  state is excited by an anticollinear laser beam, followed by the almost immediate decay to the ground state by emission of  $\lambda=17$  nm XUV photons. To collect the forward emitted photons the Institut für Kernphysik in Münster developed a system for in-vacuum detection of XUV photons in the wavelength range from  $<10$  nm up to about 250 nm. Therefore a cathode plate with a slit for the ions is moved into the beam. XUV photons hitting the plate produce mostly low energetic secondary electrons. These electrons are guided electromagnetically onto an in-vacuum MCP detector. In a test beam time at the ESR with  $12C^{3+}$ , the  $2s_{1/2} \rightarrow 2p_{1/2}$  transition at  $\lambda \approx 155$  nm was investigated using the XUV detection system. First results and conclusions with regard to the upcoming experiment will be presented. This work is supported by BMBF under contract number 05P12PMFAE.

## Collaboration

SPARC

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