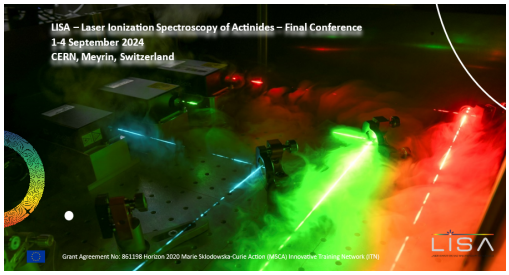

Contribution ID: **8** Type: **not specified**

Project title: Electron affinity measurements by collinear laser photodetachment spectroscopy on negative ions

Monday 2 September 2024 15:35 (30 minutes)

The project of Early Stage Researcher 6 (ESR06), originally set to measure the electron affinity of an actinide, had to be adapted due to unforeseen circumstances. During their secondment with the CRIS experiment at ISOLDE-CERN, 238U– was successfully produced via two consecutive electron capture reactions. These results led to the theoretical work of the ESR, where they computed electron capture cross-sections for bare ion collisions with hydrogen using the Crank-Nicolson
method. Having proven the method agrees with experiments and other theoretical models, they now plan on calculating actinide collisions. In Gothenburg, a high-precision method for measuring electron affinity values, applied to cesium and rubidium, showed applicability for francium and actinides. Stockholm studies using the DESIREE cryogenic storage ring demonstrated the manipulation of bound anionic states with lasers, also promising for actinide research. Overall, although photodetachment studies were delayed, the groundwork laid seems encouraging future work on actinide anions.

Presenter: NICHOLS, Miranda (Gothenburg University (SE))

Session Classification: Session 4