

Plenary Talk

PV IV Tue 9:45 Audimax

Superheavy Element Research at GSI — ●MICHAEL BLOCK —
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The investigation of superheavy elements (SHE) was one of the motivations for the foundation of the GSI Helmholtzzentrum in Darmstadt about fifty years ago. Around that time, shell-stabilized SHE were predicted to exist in the region $Z = 114$, $N = 184$ and to form a region of long-lived nuclei, the famous island of stability. In the following decades SHE up to element 118 were synthesized with the help of accelerators, among them six elements were discovered at GSI. Despite this

progress several open questions remain, for example what the heaviest element that can exist will be. At the GSI in Darmstadt, we perform a comprehensive research program addressing all aspects of this multifaceted science field. Within the FAIR phase-0 program we performed several experiments investigating atomic, nuclear and chemical properties of SHE. Recent highlights comprise nuclear spectroscopy of Fl isotopes, laser spectroscopy of Fm and No isotopes, and high-precision mass measurements up to Db shedding light on the nuclear structure evolution of these exotic nuclei. In this contribution, I will present select results from the recent FAIR phase-0 campaigns and discuss future perspectives.