

ACCELERATOR SEMINAR

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GSI

Thursday, 25. February 2021 at 4 pm

Online-Seminar via Zoom
(ID: 963 7553 3642/ PW: 423249)

Challenges of handling low-energy highly charged ions

Experiments aiming for high precision tests of fundamental theories can often unfold their full potential only by using highly charged ions (HCI) at very low energies. Although in light of the envisaged energies at FAIR, work with ions at a few keV or even eV may sound like backpedaling, these two techniques are complementary, since the production of heavy HCI is virtually impossible without prior acceleration and electron stripping. However, subsequent preparation, transport, storage and detection of low-energy HCI often presents the users with fully new, surprising sets of problems and limitations. The presentation will give a non-exhaustive overview of various challenges that were presented when handling HCI at low energies, mostly within the scope of the CRYRING@ESR and HITRAP facilities. These energies range from several MeV/u in ion storage rings, over the keV/u scale in ion beamlines or linear decelerators, down to the sub-eV scale in ion traps. I will also present how ions are prepared for experiments at their corresponding energies and what the most important parameters are for each range. The presentation will conclude with some selected experimental achievements and will also give an outlook of the planned applications of low-energy ions at the FAIR facility.



Coordinator: Anja Seibel, Janet Schmidt
Secretary: Larissa Birli

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