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Interaction of Highly Charged Ions with Surfaces - Two Decades of Research at the HZDR Ion Beam Center

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Investigations of the interaction of highly charged ions (HCI) with solid surfaces started back almost 20 years ago at the HZDR Ion Beam Center (IBC). In particular, first experiments focused on the determination of channels for potential energy dissipation in solids [1].

Successively, systematic studies on HCI induced modifications of surface topography on the nm scale were conducted [2,3]. Those were accompanied by determination of secondary electron emission mechanism during the HCI impact. More recently, studies were extended to the interaction of HCI with ultra-thin foils and 2D-Materials [4,5].

In this talk we will give a summary on the outcome of these activities, draw conclusions and discuss open issues. Furthermore, we will report on recent and ongoing activities. In particular, we will present (a) a new experimental setup for the investigation of the interaction of slow HCIs with gas targets as well as (b) a new low energy ion laboratory.

The latter one will contain two sources for highly charged ions in conjunction with state-of-the-art equipment for surface modifications and characterization, combined in a common ultra-high vacuum system. Planned HCI and other activities at this unique facility will be discussed.

- [1] D. Kost, S. Facsko, W. Möller, R. Hellhammer, N. Stolterfoht, PRL 98 (2007), S. 225503
- [2] A.S. EL-SAID, R. Heller, W. Meissl, et al. PRL 100 (2008), S. 237601
- [3] R. Heller, S. Facsko, R.A. Wilhelm, W. Möller, PRL 101 (2008), S. 096102
- [4] R. Ritter, R. A. Wilhelm, M. Stöger-Pollach, R. Heller, et al. APL 102 (2013), 63112
- [5] S. Creutzburg, J. Schwestka, A. Niggas, et al. Phys. Rev. B 102 (2020), 045408

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