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Seminar über Laser Physics and Ultrafast Photonics

Referent: Dr. Jan Rothhardt, Helmholtz Institute Jena & Institute of Applied Physics, Fraunhofer Institute for Applied Optics and Precision Engineering IOF

Titel: Nanoscale mapping of the elemental composition mapping and Angström-scale surface metrology enabled by EUV microscopy

Microscopy in the extreme-ultraviolet (EUV) spectral region offers powerful new capabilities for ultra-precise surface metrology and nanoscale elemental mapping. By combining compact, coherent, laser-driven EUV sources with ptychography—an advanced computational imaging method—it is now possible to probe materials with unprecedented sensitivity and resolution.
In this talk, I will present our recent advances in this field. Using EUV imaging in a transmission geometry, we demonstrate chemical-composition mapping of battery electrodes with a performance surpassing established analytical techniques. Moreover, by leveraging the short EUV wavelength and the intrinsic phase sensitivity of ptychography, we achieve surface-height metrology with angström-level precision in a reflection geometry.
These results illustrate that EUV microscopy has matured into a versatile and high-performance modality, capable of bridging the long-standing gap between visible-light and electron microscopy.

Zeit: Thursday, April 23, 2026, 11.15 Uhr

Ort: **Room B116**, ExWi, Sidlerstrasse 5, Bern, Schweiz