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**UNIVERSITÄT
BERN**

Seminar über Biomedizinische Photonik

Referent/in / speaker: Dr. Federica Marone, Swiss Light Source,
Paul Scherrer Institute

Titel / title: Latest developments in X-ray imaging at TOMCAT

Synchrotron based X-ray tomographic microscopy provides, in a non-destructive manner, 3D morphological and to some extent chemical insights at the micrometer level on bulky non-transparent macroscopic samples under real world conditions in a few minutes.

At the refurbished S-TOMCAT and the new I-TOMCAT beamlines at the recently upgraded Swiss Light Source, we exploit the high flux and coherence of the synchrotron beam to push the frontiers of X-ray imaging beyond traditional absorption-based techniques.

In this contribution, I will discuss our efforts towards dynamical, high-throughput multidimensional and multimodal imaging capabilities, with a broad range of spatial resolutions (from 100 nm up to 10 μ m) and energies (from 8 up to 50-80 keV). I will present some new optical concepts to efficiently exploit the entire beam for full field X-ray microscopy, to perform X-ray scattering tensor tomography as well as full-field X-ray fluorescence tomography. I will also illustrate, focusing on a few biomedical examples, dedicated protocols for achieving high spatial resolution on large samples (mosaic tomography) and for studying periodic dynamic processes in 3D (gated tomography).

Zeit / time: Wednesday 19.11.2025, 10:15 Uhr

Ort / place: Room A97, ExWi, Sidlerstrasse 5, 3012 Bern