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Optical Beam Profiling @ BESSY II: Imaging, interferometry and more

Tuesday 7 June 2022 11:30 (30 minutes)

Optical beam diagnostics at BESSY II is and will further be upgraded for bunch selective measurements at three new beamlines on two bending magnets for visible light and THz radiation. This contribution focuses on the transverse beam-size resolution in addition to other (correlated) beam parameters.

Different methods such as

- double-slit interferometry vs.
- pi-polarization interferometry vs.
- direct imaging

are used for beam diagnostics at BESSY II and their specific advantages and disadvantages are discussed.

Beyond transverse spatial resolution, developments are focused on several directions

- pulse detection at good time resolution
- correlated 2D capabilities ("time" vs. "x" or "y" as well as "x" vs. "y")
- improved data acquisition time/exposure rate.

The current status and work in progress will be discussed, including lessons learned and open problems. During the BESSY II tour, most of our systems will be visited.

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