

## Measurement of the resolution of an in-vacuum microscope

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The electron beam in SwissFEL planned to be used for the accelerator on chip experiments is extremely small ( $<1\mu\text{m}$ ) in order to pass through the dielectric structure. Therefore an adequate diagnostic setup to measure its transverse size needs to be developed and characterized.

The setup to perform such measurements consists of a combination of a in-finitely corrected microscope lens and an objective to image the sample on a camera. It will be used to image the transverse beam profile on a scintillator screen.

The aim of the study I took part was to compare the performance of different cameras, objectives and microscope objectives for the final setup. In my presentation I will discuss the approach I followed for performing the measurements and the results obtained in the different cases. The figure of merit I used is the modulation transfer function (MTF) of the detection system.

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