

EUV Microscope for Plasma Scattering and Absorption Investigations

An international team of researchers centered in Germany designed and built a new EUV microscope with sufficient magnification for imaging of scattering and absorption of plasmas created with sub picosecond EUV pulses created from cryogenic hydrogen jets. The EUV radiation is created in a free electron laser (FEL, FLASH in Hamburg Germany) built to provide short pulsed, high quality radiation at extremely short wavelengths.

Understanding the physics of plasmas has important applications in other fields. Higher resolution of plasma dynamics will improve understanding and modelling of processes in planetary science and fusion research. EUV light can penetrate deeply into plasmas (unlike visible light) so it is well suited to study inner workings of plasmas.

For their setup the team created proper objective, designed for right magnification (practical FOV size with highest resolution given 13.5 μm pixel pitch of CCD). A sensitive CCD detector allows for fast imaging of scattering from single radiation pulses.

Featured Paper/ Publication: [A sensitive EUV Schwarzschild microscope for plasma studies with sub-micrometer resolution](#), Review of Scientific Instruments, 2018

Reference Lab: Ulf Zastra, XFEL, DESY, Hamburg, Germany

Products used: [PIXIS-XO](#)