FEL SCIENCE SEMINAR

September 6th, 2010, 02.00 p.m. – DESY Bldg. 49, Room 108

Fernando Brizuela

NSF Engineering Research Center for Extreme Ultraviolet Science and Technology, and Colorado State University

Full-field microscopy with extreme ultraviolet laser illumination

The development of soft x-ray (SXR)/extreme ultraviolet (EUV) lasers at wavelengths in the 50 nm to 10 nm range at Colorado State University has opened many opportunities for the development of novel table-top metrology tools.

In this talk I will describe the imaging efforts carried out at Colorado State University, with emphasis in the development of a compact full-field microscope for the characterization of extreme ultraviolet lithography (EUVL) masks.

The masks' resonant-reflective multilayer coatings and wavelength-specific response call for at-wavelength inspection. This microscope combines the output of a 13.2 nm wavelength table-top Ni-like Cd laser with state-of-the-art Fresnel zone plates to acquire high quality images with exposure times of less than 90 seconds, capturing broad area images of periodic objects with a spatial resolution of 55 nm using the same numerical aperture and illumination angle of a 4× EUV stepper.

These results open the path for the realization of convenient stand-alone metrology systems for on-site evaluation of EUVL masks.

Host: Saša Bajt, FS-ML Group