



1. Title:	EUV-microscopy for defect inspection
2. Full names of all authors:	Larissa Juschkin (1), Willi Neff (2), Klaus Bergmann (2), Rainer Lebert (3)

### 3. Abstract body:

Microscopy at 13.5 nm is an important method for defect inspection on a scale below 100 nm. Fraunhofer ILT has developed in corporation with Fraunhofer IWS and IOF and AIXUV a laboratory EUV microscope for testing the functionality of optical components. The system consists of a Schwarzschild objective (NA=0.2), a grazing incidence collector, probe handling and image detection based on a backilluminated CCD camera. For achieving the diffraction limited resolution below 100 nm with the Schwarzschild objective, which has a magnification of 21, the CCD camera with 13  $\mu\text{m}$  pixel size has to be replaced by a higher resolving detector. This is achieved using a second magnification stage consisting of a YAG:Ce scintillator for converting an EUV image into visible one and an optical microscope. The EUV microscope can also be used in a dark field mode in order to test the capability to quickly scan large areas for presence of small defects down to 30 nm. The setup and key features of the system and first results of accomplished experiments are presented and an outlook towards commercial tools will be discussed. One of the authors (L. Juschkin) gratefully acknowledges the financial support of the Ministry for Innovation, Science, Research and Technology of NRW, Germany within the framework of a "Lise Meitner Fellowship".