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EUV Scintillator for Localization and Detection of Laser Beam

NILS MONSERUD, Colorado State University, LUKASZ URABANSKI, ERIC MALM, CHRISTOPHER BROWN, MARIO MARCONI — We set out to find a means of detecting and locating an EUV laser beam at the wavelength of 46.9 nm in real time. This will facilitate the alignment of our experiments in nano-patterning, nano-fabrication, and holography, consequently allowing multiple experiments to be aligned simultaneously. Methods of detection are either CCD cameras or prints made with Poly(methyl methacrylate) (PMMA) on a coated wafer, neither of which are efficient to operate. We describe the implementation of an alternative imaging method which combines a phosphor scintillator and a web-cam. Using a phosphor scintillator screen provided by Applied Scintillations Technologies Limited the detection and localization of the EUV laser beam at 46.9 nm was seen consistently through reflection providing a distinct image of the beam in the initial tests. We were able to capture an image of the beam using the webcam through the use of a user interface developed in labview which allowed a snap shot to be taken at the exact moment the beam past through the screen.

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