The Generation of EUV Light with a Compact ECR Source*

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Extreme ultraviolet (EUV) lithography is considered to be the most favored technique for 50 nm patterning. In the Plasma and Ion Source Technology Group in the Lawrence Berkeley National Laboratory (LBNL) a new approach for EUV generation has been developed. This approach uses Xenon plasma discharge as a source for EUV light. In particular, Xenon ions with charge state 10^+ are found to be responsible for the production of the 13.5 nm line in electromagnetic spectrum. To obtain reasonable concentration of Xe^{10+} ions in the plasma, Electron Cyclotron Resonance (ECR) based plasma generator is used. The photon flux from the plasma-source can be measured with open microchannel plate detectors or photo diodes, with scintillator converters. The EUV producing plasma source concept is being introduced in this presentation as well as the methods of measuring the EUV light.

* This work is supported by Department of Energy under contract No. DE-AC03-76SF00098