

Pushing Frontiers of EUV Source Technology - *2016 Source Workshop (November 7-9, 2016)*

Vivek Bakshi, EUV Litho, Inc.
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EUV Sources remain the key component for ensuring EUV Lithography's entry into fabs for high-volume manufacturing. Two big factors that have enabled dramatic progress in source readiness are related to improvements in source power and source lifetime. Now the question is how far we can push source power and lifetime, and what is needed to enable continued progress.

For answers, we need to look into the fundamentals of plasma based EUV sources, as well new engineering designs. The present conversion efficiency (CE) of sources is a couple of percent, while the theoretical maximum approaches 8%. If we are at 2.5% CE today, it means we can get ~ 3 times more EUV photons from the same level of energy input, if sources could be operated closer to 8% CE. The lifetime (optics and fuel delivery system) also needs to be such that 90% uptime goals of tools can be met.

During the upcoming 2016 Source Workshop, we will have papers taking a closer look at these topics. There are several papers on how to increase the CE of sources to allow us to get more source power. There will be another session on plasma dynamics of EUV source to further our understanding and enable newer designs of sources that will help bring about better CE and longer source lifetimes.

Another important topic is EUV sources for metrology. Low power but brighter EUV sources than those available today are needed for actinic inspection of masks. We will have new potential designs from five suppliers for actinic EUV sources, as well as papers on high harmonic generation (HHG) and free electron laser (FEL) based sources for EUVL. In addition, we will have sessions on XUV sources and their application in patterning and other industrial application like water window microscopy.

I look forward to these new ideas and updates in the EUV and XUV source technology area. The Source Workshop this year is in Amsterdam, The Netherlands, held in conjunction with ARCNL. Dates are November 7-9, 2016 and additional information is available at www.euvlitho.com.

