



2021 EUV Workshop – Blog on Agenda Highlights, IMEC Program Showcase and New Short Courses in Advanced Nanoscale Imaging and EUVL

Vivek Bakshi, EUV Litho, Inc. May 26, 2021

The 2021 EUVL Workshop is days away. (June 5-10, 2021) This year's workshop, co-organized online with IMEC, brings together the community to learn the latest in EUVL development and is not to be missed! This workshop, like our debut virtual event last year, brings live interaction, time for questions and answers, and meaningful discussion—unlike any other online EUVL offering. We hope to see you there.

Below are some agenda highlights: from the keynote and invited talks, new short course and IMEC Program showcase.

Keynote Talks

This year we look into present and near-term challenges for EUVL as well as talk about the next big thing after EUVL with luminaries of the industry

- John Gillaspay of NSF, in his talk *Is quantum computing the "next big thing" in microelectronics?*, walks through the latest in the area of quantum computers and tells us how to get involved in this rapidly developing technology.
- After logic, EUVL is now being used in memory products. Chang-Moon Lim of Hynix and Stephen Snyder of Micron will detail the plans for their companies for use of EUVL in DRAM.
- Next, EUVL scanner technology on the horizon, after current 0.33 NA scanners, is High NA. Jan van Schoot of ASML will outline the progress in getting these gigantic tools ready for HVM.
- Steve Carson of Intel will give the status of EUV in high volume manufacturing for his company and their plans and challenges for 0.33NA extension and High NA insertion will be discussed.

Invited Talks

We welcome widespread industry colleagues speaking on an array of topics.

- An overview of mask technology status will be given by Vicky Philipsen of IMEC. Katrina Rook of Veeco will give an update on development of new technologies for EUV mask blank production.
- Resist is the focus for extension of EUVL and there are quite a few papers on new EUV resists to support EUVL extension this year- Synthesis of Organic-Inorganic Hybrid EUV Resists by Atomic Layer Deposition (BNL); Investigations of EUVL Photoresists (LBL); EUV Resist Development Program at NewSUBARU (Hyogo), plus many more papers from ASML, CXRO, IIT, IM, IMEC, PSI and UT. I am looking forward to the latest progress on *Dry deposit and dry develop resists* by LAM and *An Overview of EUV Resist Technology* by Anna Lio of Intel.
- In the EUV source area, this year's focus is on the next potential technologies beyond current Sn LPP – LPP driven by solid state lasers (ARCNL) and FEL (Lycnean and SMB). Lots more on this topic will be covered in the *Source Workshop*, to be held online this fall.
- There are several papers on High NA EUVL covering topics such as system (ASML and CXRO), optics (Zeiss) and resists (ASML and Inpria).



IMEC Showcase

This year's workshop is being co-organized with IMEC and we are happy to bring attendees the IMEC Program Showcase. Not to miss highlights:

- Learn how IMEC's advanced silicon pilot line offers technical expertise and IP to allow the development of advanced MEMS and microdevices and provide guidance all the way to prototyping and manufacturing. (Denis Marcon)
- Tour of IMEC's AttoLab, which is the first industrial laboratory capable of watching the ultrafast dynamics of photoresists following 13.5 nm, EUV exposure. Experiments use HHG laser from K&M lab and emulate High NA exposure on 300-mm wafers using two-beam EUV interference. (John Petersen)
- Introduction to IMEC's history and Program Overview (Kurt Ronse)
- Developments of nanomaterials to improve the energy and power density of batteries (J. Poortmans)
- Learn how semiconductor technologies can transform life science and smart health applications in a revolutionary way with orders of magnitudes to gain in throughput, sample to answer-time and cost. (Liesbet Lagae)
- Nanoelectronics and Digital Technology for Food and Health (Chris van Hoof)
- Disruptive Pixel Technologies Enabling Affordable, High Quality Infrared Imaging (Pawel Malinowski)

New Short Courses – Learn to apply the latest leading-edge technologies

Join us for our pre-conference short course, *Advanced Photon Sources and Applications in Nanoscale Imaging*, taught by Prof. David Attwood of UC Berkeley. In this full day short course, he will discuss EUV and x-ray sources, optics, and applications. In the source section, he will describe the physics of undulator radiation, the extension to EUV and x-ray free electron lasers (FELs), and the physics of laser high harmonic generation (HHG). Next, in an applications section, he will describe the applications of these sources to materials science, the life sciences, cultural heritage, solar and astrophysics, CT scans on spatial scales of 10s nm to microns, EUV lithography, semiconductor diagnostics, and chemical dynamical studies at femtosecond and attosecond temporal resolution.

This course will be in addition to *EUVL Short Course* in which Jinho Ahn, Patrick Naulleau, and Vivek Bakshi will discuss the latest developments and fundamentals of EUVL. These short courses, offered online, present a unique opportunity for students and professionals to get familiar with the latest technical advances that are driving the new industrial revolution in the SEMI industry and beyond.

I look forward to convening LIVE online for six days of deep focus, productive workshop, and short courses, all in REAL TIME. The agenda, abstracts, and registration information is on our website at www.euvlitho.com. Please reach out to us at info@euvlitho.com if you have any questions. See you on Zoom! Soon!