

# MAEBL

MEETING FOR ADVANCED E-BEAM LITHOGRAPHY


Click to register: [Registration is now open!](#)

3-5 PM EDT, Thursday, July 23, 2020  
3-5 PM EDT, Thursday, August 27, 2020  
3-5 PM EDT, Thursday, September 24, 2020  
3-5 PM EDT, Thursday, October 22, 2020  
3-5 PM EST, Thursday, November 19, 2020  
3-5 PM EST, Thursday, December 17, 2020

## MAEBL 2020 Meeting Series


MAEBL's vision is simple: To be the professional networking platform and an educational provision of the electron beam lithography community. We accomplish our vision through: workshops/ meetings, information dissemination, and the support from our sponsors.

### Meeting 1 of 6: Thursday, July 23, 2020

 Topic	Facilitator
14:30 Early Log-in, Casual Introductions, Networking	
15:00 Welcome, Opening Remarks and Introductions	Aimee Price, Gerald Lopez, Kevin Lister The Ohio State University, University of Pennsylvania, HRL Laboratories
15:20 <b>PATTERNING IN A PANDEMIC</b> EBL Process and Operational Challenges	Aimee Price The Ohio State University
16:00 <b>PART I: COMMON CHALLENGES IN EBL</b> An Open Forum Discussion of Common Issues	Kevin Lister HRL Laboratories
16:40 <b>MAEBL Slack Channel</b> A Platform to Continue the Discussion	Gerald Lopez University of Pennsylvania
16:50 Closing Remarks & Upcoming Topics	MAEBL Team
17:00 - End Meeting	

Program is subject to change without notice.

### Meeting 2 of 6: Thursday, August 27, 2020

 Topic	Facilitator
14:30 Early Log-in, Casual Introductions, Networking	
15:00 Welcome, Opening Remarks and Introductions	Aimee Price, Gerald Lopez, Kevin Lister The Ohio State University, University of Pennsylvania, HRL Laboratories
15:10 <b>NEGATIVE RESIST DISCUSSION</b> The HSQ Initiative, and a New Metal-Organic Resist	Andy Thompson, Mike Rooks, Scott Lewis, Guy DeRose DisChem, Yale Univ., Univ. of Manchester, Caltech
16:50 Closing Remarks	MAEBL Team
17:00 - End Meeting	

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## ~~Meeting 3 of 6: Thursday, September 24, 2020~~

 Topic	Facilitator
14:00 Early Log-in, Casual Introductions, Networking	
15:00 Welcome, Opening Remarks and Introductions	Aimee Price, Gerald Lopez, Kevin Lister The Ohio State University, University of Pennsylvania, HRL Laboratories
15:10 <b>CULTIVATING A NEW EBL USER GROUP:</b> Transitioning from an SEM-based EBL Tool	Mason Risley Carnegie Mellon University
15:40 <b>SPECIFICATIONS AND WHAT THEY MEAN</b> An Introduction to Tool Specs across Platforms	Justin C. Wirth Purdue University
16:25 <b>PART II: COMMON CHALLENGES IN EBL</b> An Open Forum Discussion of Common Issues	Kevin Lister HRL Laboratories
16:55 After-Party at Gather.Town	Everyone
17:00 - End Meeting	


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## ~~Nano Day Meetup: Friday, October 9, 2020~~

Time and Place: 2 PM - 4 PM EDT at <https://gather.town/app/Obh0IJNS5ptTxbuL/maebl2020>

Topic: Discussion on EBL Process Characterization (or whatever is of interest)

Description: We'll be hosting a social in our Gather.Town Meeting Space. Gerald will be leading a discussion on EBL process characterization for those interested. Remember that other groups can be formed dynamically to discuss any topic of interest.

 Topic	Facilitator
14:00 Log-in and Casual Introductions	
14:15 <b>Networking and Active Discussion</b> (and drinks!)	Gerald Lopez University of Pennsylvania
16:00 Adjourn	

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## Meeting 4 of 6: Thursday, October 22, 2020

 Topic	Facilitator
14:00	Early Log-in, Casual Introductions, Networking
15:00	Welcome, Opening Remarks and Introductions Aimee Price, Gerald Lopez, Kevin Lister The Ohio State University, University of Pennsylvania, HRL Laboratories
15:10	<b>MEASURING THE NANOMETER SCALE WITH AN OPTICAL MICROSCOPE</b> Kevin Lister HRL Laboratories
15:40	<b>PART III: COMMON CHALLENGES IN EBL</b> An Open Forum Discussion of Common Issues Aimee Price The Ohio State University
16:50	Closing Remarks The MAEBL Team
17:00 - End Meeting	

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## Meeting 5 of 6: Thursday, November 19, 2020

 Topic	Facilitator
14:30	Early Log-in, Casual Introductions, Networking
15:00	Welcome, Opening Remarks and Introductions Aimee Price, Gerald Lopez, Kevin Lister The Ohio State University, University of Pennsylvania, HRL Laboratories
15:10	<b>PROCESS BLUR AND WHAT IT MEANS?</b> The basics on understanding Process & PEC Gerald Lopez University of Pennsylvania
15:40	<b>SIMULATION + PEC</b> Contrast Enhancement Through Simulation Kashif Awan University of British Columbia
16:10	<b>PART IV: COMMON CHALLENGES IN EBL</b> An Open Forum Discussion of Common Issues Kevin Lister HRL Laboratories
16:50	Closing Remarks The MAEBL Team
17:00 - End Meeting	

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## Meeting 6 of 6: Thursday, December 17, 2020

 Topic	Facilitator
14:30 Early Log-in, Casual Introductions, Networking	
15:00 Welcome, Opening Remarks and Introductions	Aimee Price, Gerald Lopez, Kevin Lister The Ohio State University, University of Pennsylvania, HRL Laboratories
15:20 <b>TBD</b>	TBD
16:00 <b>EBL TOOL ANATOMY</b> Tool vendors, the tools and their terminology	Mark Mondol Massachusetts Institute of Technology
16:50 Closing Remarks	The MAEBL Team
17:00 - End Meeting	

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## Common Challenges Potential Topics

The topics listed below are suggestions and won't necessarily be addressed unless you request them. If there's a topic below or one that is not mentioned that you'd like to have discussed at MAEBL:

- "Top Ten Stupid Ebeam Mistakes". Including:
  - Using tiny substrates
  - Using resist as glue
  - Destroying alignment marks and then trying to re-use them
  - Not grounding the SOI substrate (or GaN, whatever)
  - Grid snapping errors
  - Ignoring shape overhead
- Lift off resists and profiles
- Proximity Effect Correction - when do you do a new simulation for a point spread function? When does it really matter?
- RIE Etch Recipes for high resolution
- Pixel filling: What metric is used to properly fill an arbitrary shape so that the beam spots sufficiently overlap?
- How do you determine which writing conditions to use?
- What's the most annoying repetitive conversation you have in the cleanroom?
- For tool owners: how do you manage *high-maintenance* users?
- What's the dumbest/dangerous thing you've seen in the cleanroom?
- Where do all the tweezers go?
- Sample downsizing (a.k.a. cleaving)? Is this an issue? Particulates?
- Do we really need the finest beam spot (or beam step size) to write large waveguides?
- What's the strangest thing you've exposed and why?
- How do you deal with adhesion issues? What tricks are used if the resist doesn't stick to the substrate after development?
- Anti-charging techniques
- Having issues with stitching or shape positional accuracy?
- Buying a new tool? What to look out for?
- Low keV versus high keV: what difference does it make?
- Low current versus high current: when to use either?

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