

1st (Annual) NNCI Photolithography Working Group Meeting

July 12, 2018

Participants

- 9 NNCI Sites Represented
 - Harvard - Guixiong Zhong
 - Washington – Duane Irish
 - Stanford – Mary Tang, Rich Tiberio, Shivakumar Bhaskaran, and Swaroop Komerra
 - Penn - David Jones, Gyuseok “Q” Kim, Pat Watson
 - Minnesota - Mark Fisher, Laura Parmeter
 - Nebraska - Jiong Hua
 - UC San Diego - John Tamelier
 - Montana - Phil Himmer
 - Cornell - Garry Bordonaro
- Special Guests from UCB Marvel Lab
 - Allison Dove, Emily Beeman

Meeting Goals

- Working Groups – help us provide a service to nano-researchers that is greater than the sum of our sites
- Share expertise
 - Materials and supplies
 - Unique processing capabilities
 - Simulation data prep software
- Document what we have and what we know to share with the network
- Share resources
- First technical working group meeting of this scope
 - Etch – AVS? Stanford, Cornell Workshops
 - Maintenance and Training – AVS?
 - Non-technical SEI and Education
 - NNCI annual meetings

Agenda

- Overview of participating site's capabilities
 - Scope of working group – dw, nanoimprint?
 - tools
 - Interesting litho problem
 - Q&A
- Tour Stanford cleanroom with best practices discussion
- Discuss materials and supplies
- Discuss software for lithography
- Discuss gathering data and publishing them

Mechanics

- Reimbursement
 - This is an experiment
 - \$1000 per participant
 - \$5k from coordinating office – through GA Tech
 - \$5k from vendors – through Stanford
- Format
 - Informal!
 - Recording secretary needed!
 - Breakfast, lunch, and dinner provided!
 - Plus 2 breaks
 - Cleanroom tour – to encourage discussion about the "little things"
 - Tooling
 - Hygiene
 - Supplies
- Special thanks to Mary Tang for organizing this for us!
- Thanks to the Direct-write symposium equipment vendors for travel funds and dinner!
- Thanks to the NNCI coordinating office and Prof. David Gottfried for providing travel funds as well

Program

Start Time	Duration	End Time	Topic	Room	Comments
8:00 AM	1h 0m	9:00 AM	Coffee and Pastries		Courtesy of Stanford!
9:00 AM	0h 15m	9:15 AM	Introduction		Pat or Mary, around room intros,
9:15 AM	0h 15m	9:30 AM	Presentations - Equipment and Special Capabilities- Cornell		5 min equipment, then
9:30 AM	0h 15m	9:45 AM	Harvard		5 min some unique problem or process
9:45 AM	0h 15m	10:00 AM	Minnesota		5 min questions
10:00 AM	0h 15m	10:15 AM	Montana		rough alphabetical order
10:15 AM	0h 15m	10:30 AM	Break		
10:30 AM	0h 15m	10:45 AM	Nebraska		
10:45 AM	0h 15m	11:00 AM	Penn		
11:00 AM	0h 15m	11:15 AM	Stanford		
11:15 AM	0h 15m	11:30 AM	UCSD		
11:30 AM	0h 45m	12:15 PM	Presentation and discussion - Materials for lithography		Review sources, Penn vendor deals, who leads this? - include nano imprint materials and nanoscribe?
12:15 PM	1h 15m	1:30 PM	Lunch		Select from Lunch Menu

Program

Start Time	Duration	End Time	Topic	Room	Comments
1:30 PM	1h 0m	2:30 PM	Tour Stanford Cleanroom		
2:30 PM	1h 0m	3:30 PM	Presentation and Discussion - Database development		
3:30 PM	0h 15m	3:45 PM	Break		
3:45 PM	0h 30m	4:15 PM	Presentation and Discussion - Data Prep and simulation		Penn - Heidelberg prep, Cornell - Prolith? Stanford - sim software?
4:15 PM	0h 30m	4:45 PM	Presentation and Discussion - Sharing capabilities		Cornell/Stanford - stepper use? fast turnaround for members? Nano imprint mold coating
4:45 PM	0h 15m	5:00 PM	Wrap up, Action Items, and Assignments		Define roles, future teleconf schedule, database obligations
5:00 PM	2h 0m	7:00 PM	Adjourn, - Happy Hour and Dinner organized by Vendors		

Things to Do

- Compile discussion points from today
- Update NNCI website
 - Presentations
 - Members
- Plan for future teleconferences
- Select organizing committee for next meeting if we think this is valuable
- Organize and publish database (?)