Award Ceremony

for the Inaugural

Process Design Competition

Runner-up Winner

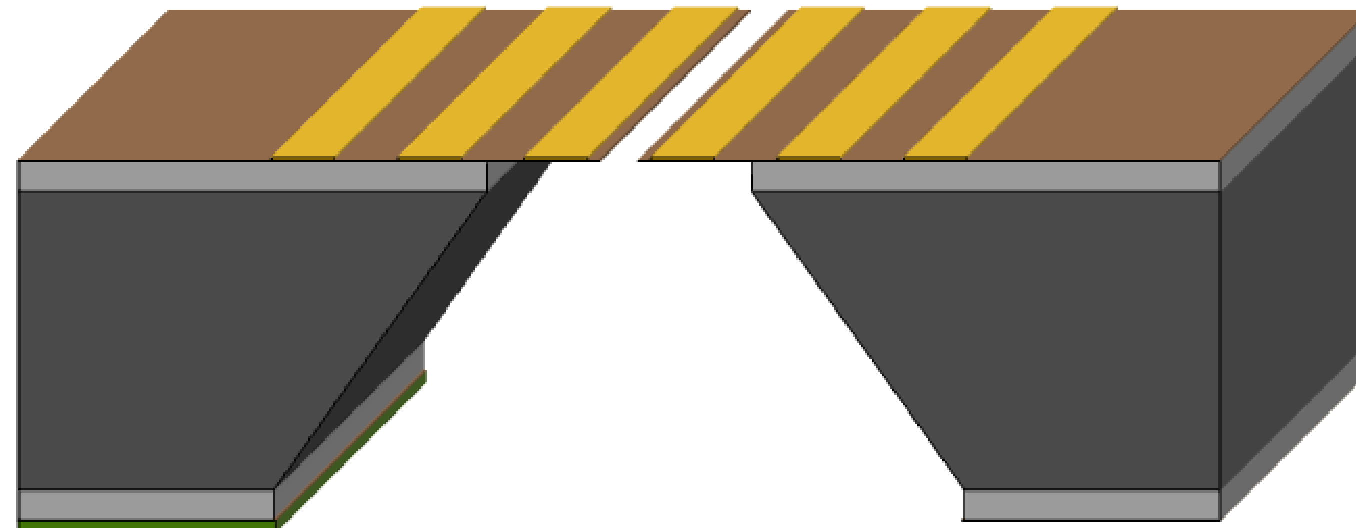
of the

Inaugural FabuBlox Process Design Competition

Bernadeta Srijanto (ORNL)

For their process flow describing fabrication of a

"SiNx plasmonics nanopore membrane"



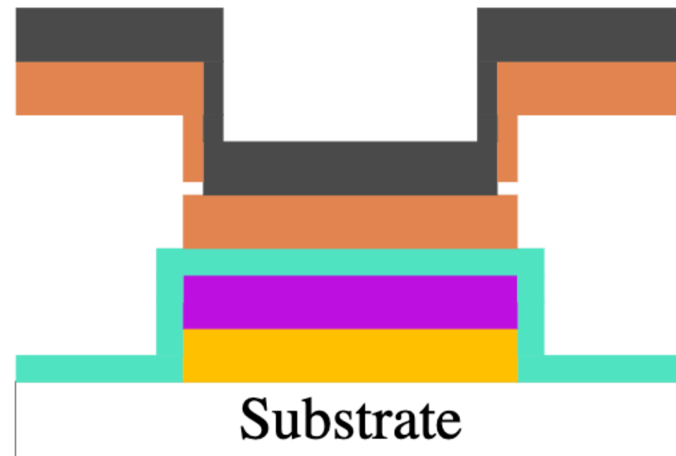
Honorary mention

For most complete documentation and reproducibility guidance

Nishat Tasnim Hiramony (USC)

For their process flow describing a

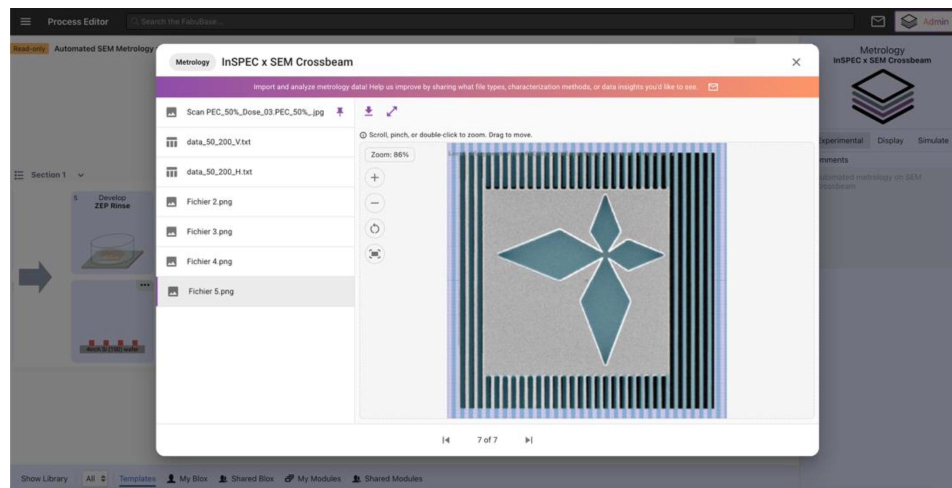
“Memristor Fabrication Process”



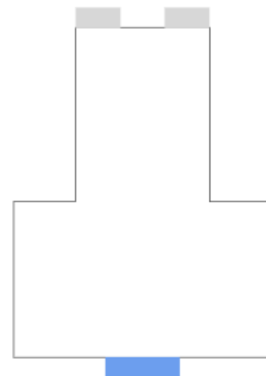
Step	Name	Parameters	Comments
			again for 5 s and repeat until you get the pattern. Dry the wafer using N2 spray.
22	Top Electrode Deposition	Material: Ta Sputter Gas Composition: Ar Film thickness: 8 nm Deposition Rate: 0.67 Å/s Deposition Time: 120 secs Sputter Type: DC Sputtering RF or DC Power: 80 Watts Chamber Pressure: 4e-3 Torr	Always check whether the plasma is ignited and stable during the ignition step. If not, try increasing the pressure or opening the gun shutter for few seconds.
23	Top Electrode Deposition	Material: TiN Sputter Gas Composition: Ar, 17.5% N2 Film thickness: 85 nm Deposition Rate: 0.24 Å/s Deposition Time: 3600 secs Sputter Type: RF Sputtering RF or DC Power: 80 Watts Chamber Pressure: 1e-3 Torr	Always check whether the plasma is ignited and stable during the ignition step. If not, then try increasing the pressure or opening the gun shutter for few seconds. This step uses Ti target with N2 gas to create TiN film. Gold film color reflects desired conductivity.
24	Lift-Off	Lift-Off Chemical(s): Acetone, REMOVER PG or MICROPOSIT REMOVER 1165 Lift-Off Time: 40 mins Lift-Off Temperature: 20 °C	Soak the sample in acetone for ~20 min+ (until you can see the metal flakes are coming out of the wafer). Then do ultrasonic treatment for 5 min in acetone. This will remove the positive PR. Then do ultrasonic treatment in REMOVER PG or in MICROPOSIT REMOVER 1165 for 5 min. This will remove the LOR2A. DO NOT DRY the sample until you can observe proper pattern under microscope. In case of stubborn metal residues, acetone bath at 50C can be used for 5 min+ until desired pattern achieved. DO NOT DRY the sample until you can observe proper pattern under microscope. In case of stubborn metal residues, acetone bath at 50C can be used for 5 min+ until desired pattern achieved.

Thank you for participating!

Makhlad Chahid
SEM automation with InSPEC



Daniel Getega
Electrodes for Perturbation of Protein Dynamics



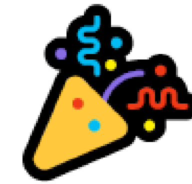
Tina Hayward
Suspended torsional oscillator

Devin Brown
Lift-off for Au alignment markers

1 Spin-Coat — Material: PMMA A6; Material Type: Positive; Dopant Type: N/A
2 Bake — Bake Temperature: 180 °C; Bake Time: 90 secs
3 Electron-Beam Lithography — Exposure Dose: 330 µC/cm²; Accel. Voltage / B...: 100 kV; Beam Current: 1 nA
4 Develop — Developer: 3:1 IPA:H2O; Develop Time: 2 mins
5 E-beam Evaporation — Deposited Material: Ti; Film Thickness: 5 nm
6 E-beam Evaporation — Deposited Material: Au; Film Thickness: 100 nm

... and to everyone else who submitted!

Winner



of the

Inaugural FabuBlox Process Design Competition

Nayoung Kim (UTexas)

For their process flow describing fabrication of a

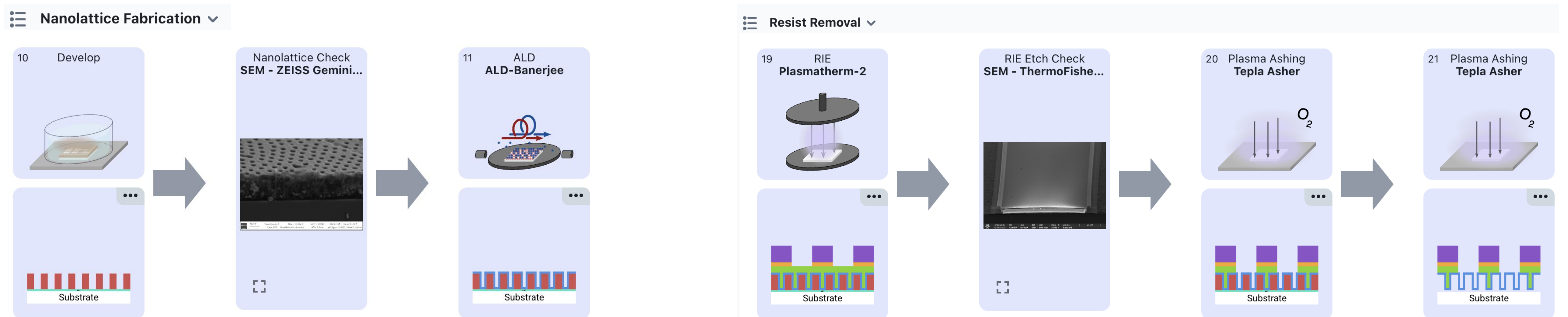
"Waveguide on Nanolattice"

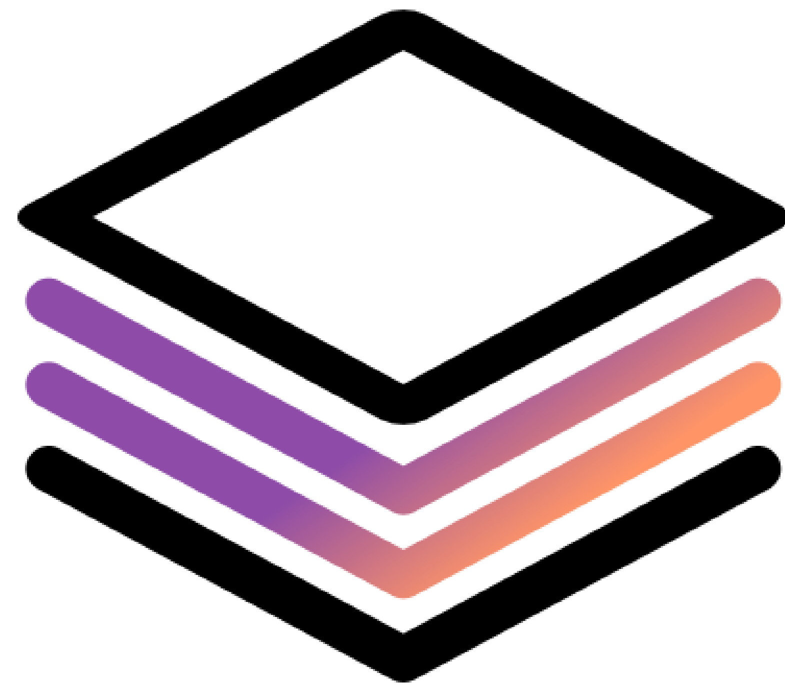
$250

Nayoung Kim: Waveguide on nanolattice fabrication

⇒ Fabrication of SU-8/SiO_2 optical waveguides integrated on porous Al_2O_3 nanolattice films to create a mechanically supported low-index photonic platform.

- 🤔 **Challenging fabrication process**
- 💡 **Creative solutions to multiple challenges in the process**
- ✅ **Complete documentation with parameters, metrology images, and detailed instructions**





FabuBlox

Connecting the Nanofabrication World