



2022 EIPBN MicroGraph Contest

(#1)

Micrograph Title Here:

The grass is always greener on the other side

Description:

Grassing due to plasma etching

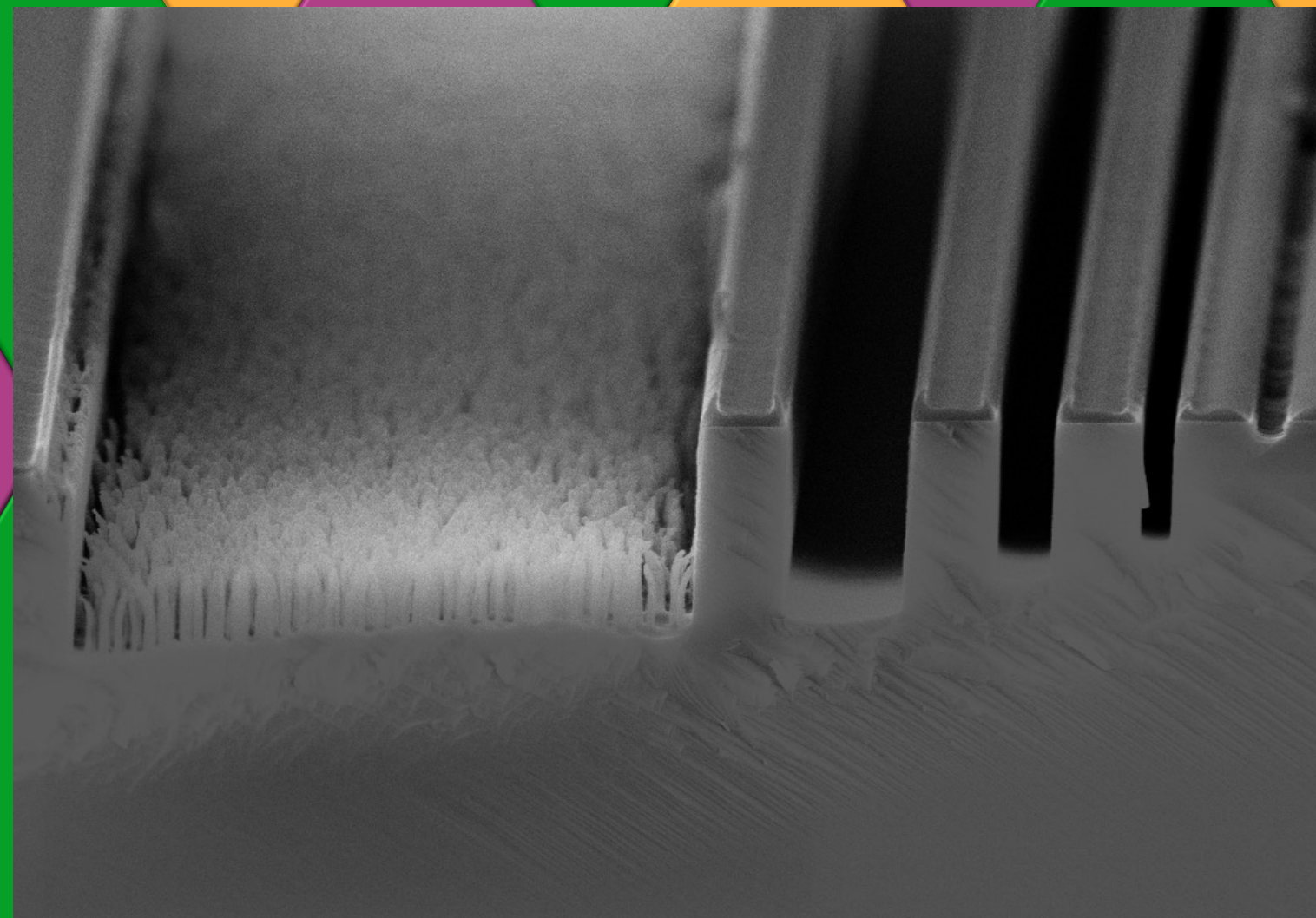
Image Details:

Orig. Mag (3"x 4" image): in 11.73kX

Instrument : Raith

Submitted by: Kaustubh Vyas

Affiliation: University of Ottawa



Sponsored by: **zyvex**
LABS

RAITH

Mag = 11.73 K X

1 μ m

EHT = 10.00 kV

WD = 4.7 mm

Signal A = SE2

Aperture Size = 30.00 μ m

Gun Vacuum = 7.56e-010 Torr

System Vacuum = 3.27e-006 Torr



2022 EIPBN MicroGraph Contest

(#2)

Micrograph Title Here:

Don't fall down on the bed of Thorns

Description:

InP plasma etching leading to Indium Oxide at the surface

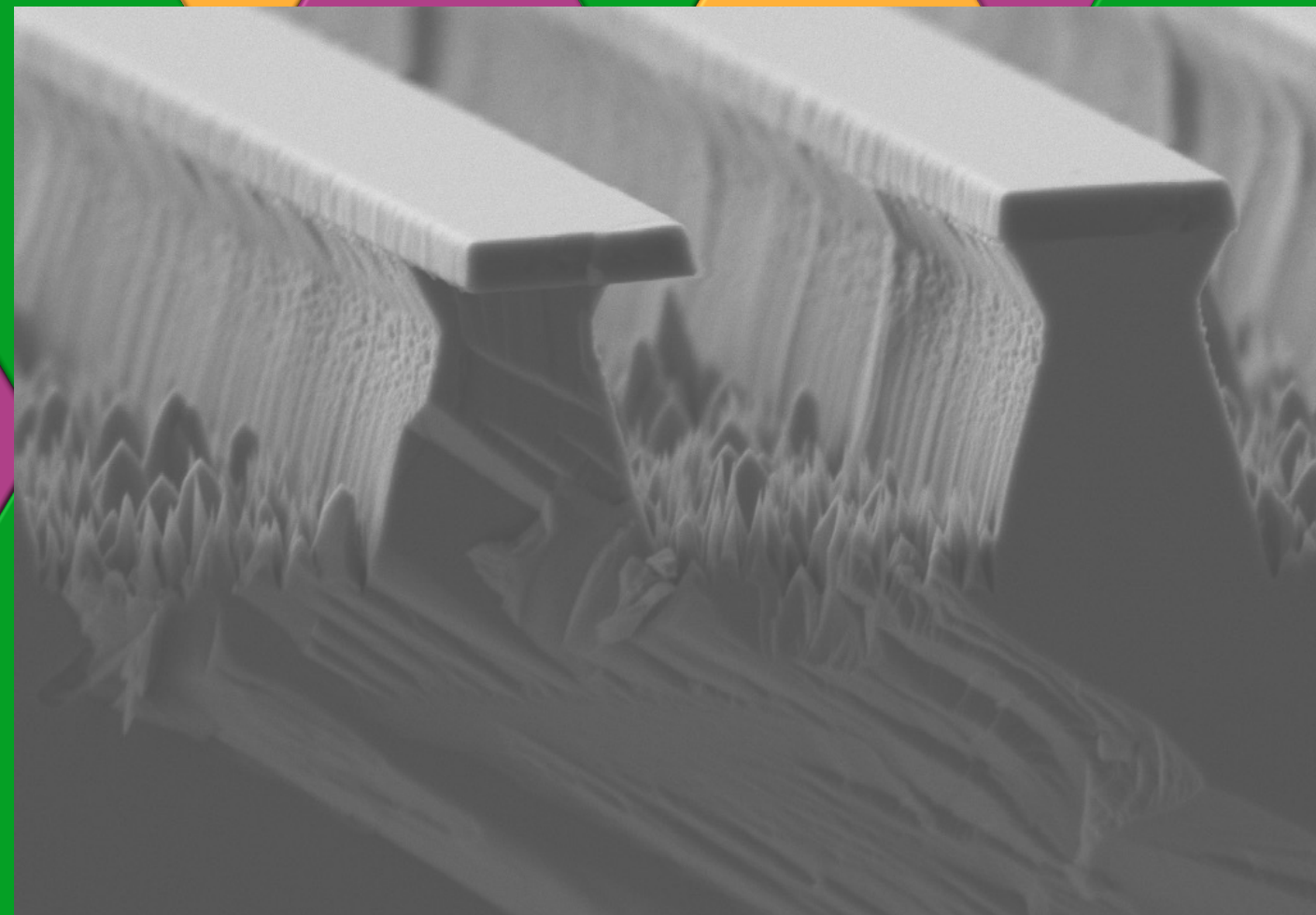
Image Details:

Orig. Mag (3"x 4" image): in 26kX

Instrument : Raith

Submitted by: Kaustubh Vyas

Affiliation: University of Ottawa



RAITH

Mag = 26.19 K X

200 nm

EHT = 2.00 kV

WD = 4.8 mm

Signal A = SE2

Aperture Size = 30.00 μ m

Gun Vacuum = 8.75e-010 mbar

System Vacuum = 4.77e-006 mbar



2022 EIPBN MicroGraph Contest

(#3)

Micrograph Title Here:

Foot Acupressure mat

Description:

Over etched photonic crystal holes

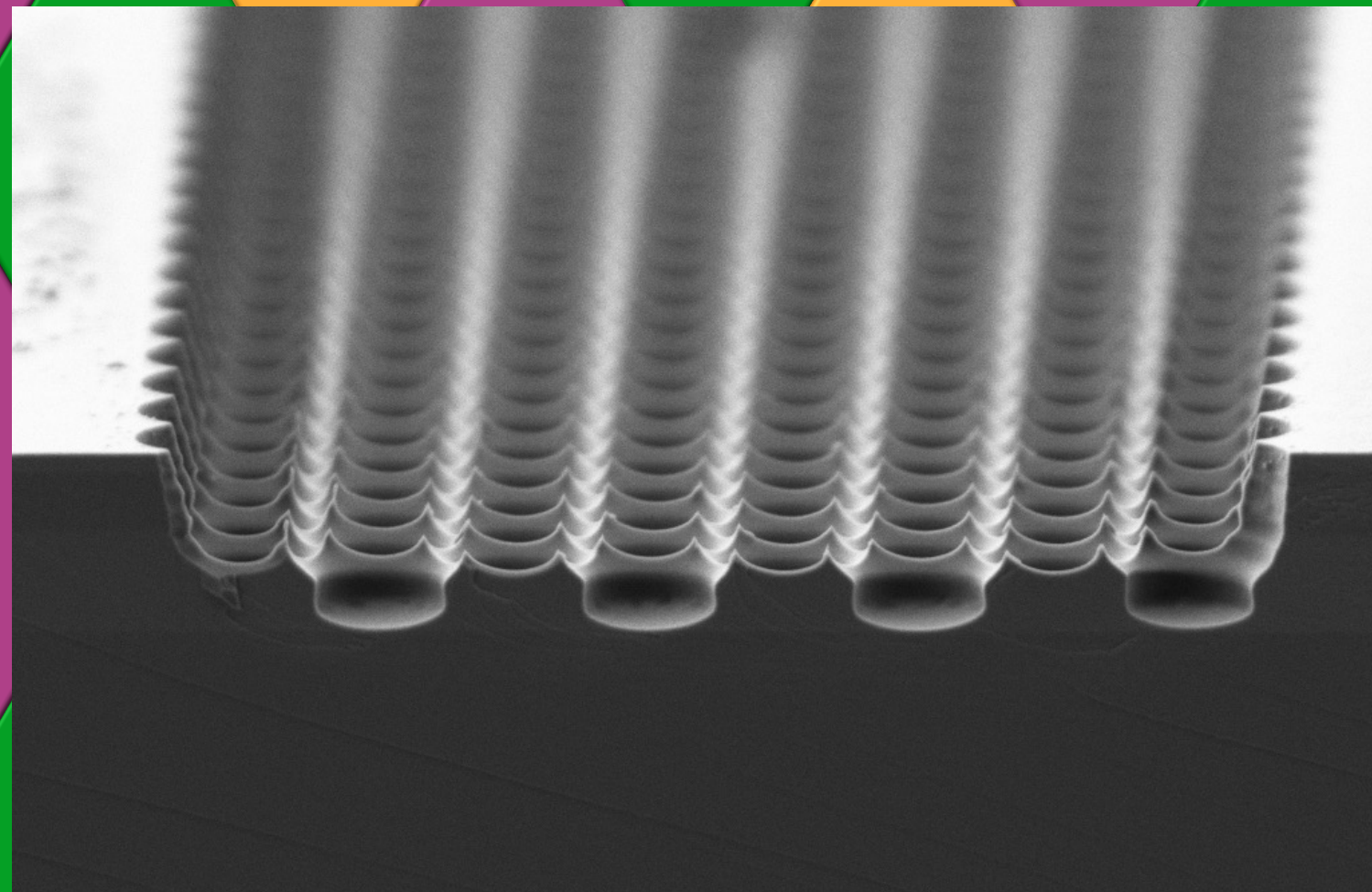
Image Details:

Orig. Mag (3"x 4" image): in 16kX

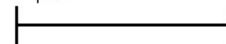
Instrument : Raith

Submitted by: Kaustubh Vyas

Affiliation: University of Ottawa



Sample ID =
1 μ m



EHT = 1.00 kV
WD = 4.6 mm
Mag = 16.46 KX

Gun Vacuum = 9.47e-10 mbar
System Vacuum = 2.04e-06 mbar
Date: 30 Mar 2021



uOttawa



2022 EIPBN MicroGraph Contest

(#4)

Micrograph Title Here:

Railway Tracks

Description:

Subwavelength waveguide tethers

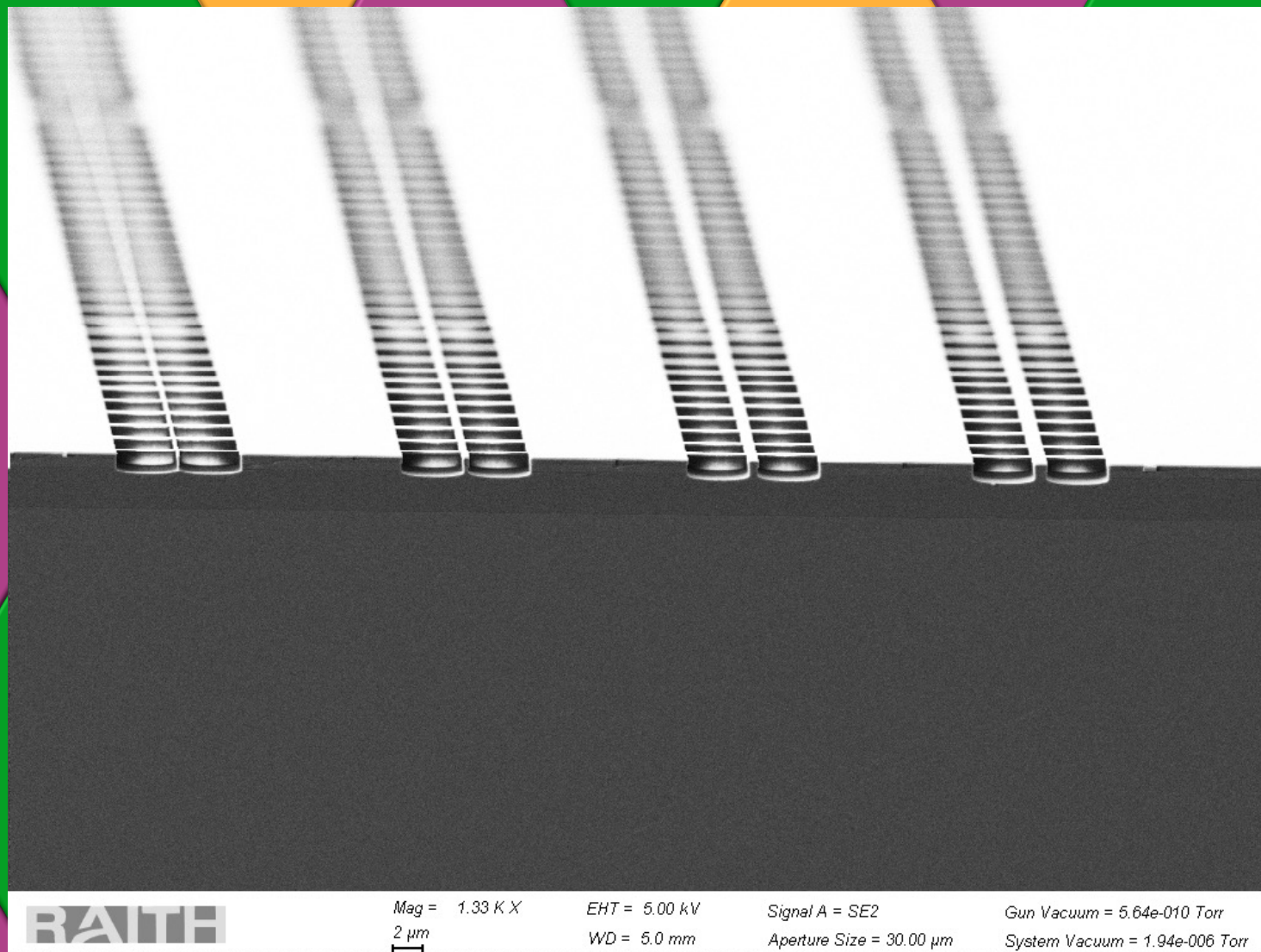
Image Details:

Orig. Mag (3" x 4" image): in 1.33kX

Instrument : Raith

Submitted by: Kaustubh Vyas

Affiliation: University of Ottawa



Sponsored by: **zyvex**
LABS

Mag = 1.33 K X

2 μ m

EHT = 5.00 kV

WD = 5.0 mm

Signal A = SE2

Aperture Size = 30.00 μ m

Gun Vacuum = 5.64e-010 Torr

System Vacuum = 1.94e-006 Torr



2022 EIPBN MicroGraph Contest

(#5)

Micrograph Title Here:

No social distancing for digging mines

Description:

Highly vertical plasma etching of photonic crystal holes

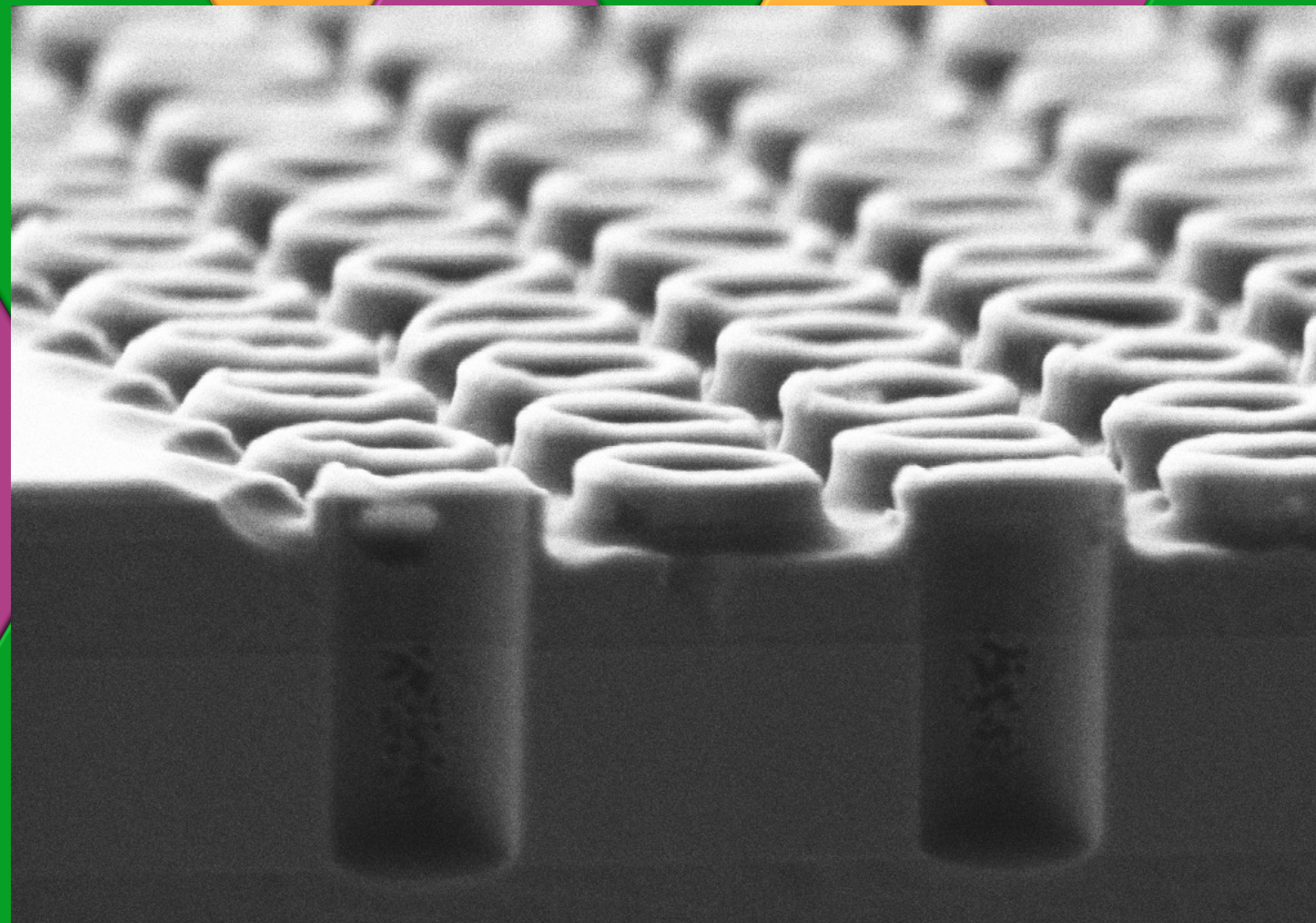
Image Details:

Orig. Mag (3"x 4" image): in 38.5kX

Instrument : Raith

Submitted by: Kaustubh Vyas

Affiliation: University of Ottawa



RAITH

Mag = 38.54 K X
200 nm

EHT = 2.00 kV
WD = 4.6 mm

Signal A = SE2

Gun Vacuum = 7.07e-010 mbar

System Vacuum = 1.73e-006 mbar



2022 EIPBN MicroGraph Contest

(#6)

Micrograph Title Here:

A weird animal guarding a territory

Description:

A random particle of dust on a semiconductor sample

Image Details:

Orig. Mag (3"x 4" image): in 464X

Instrument : Raith

Submitted by: Kaustubh Vyas

Affiliation: University of Ottawa



RAITH

Mag = 464 X
10 μ m

EHT = 10.00 kV
WD = 4.6 mm

Signal A = SE2
Aperture Size = 30.00 μ m

Gun Vacuum = 1.47e-009 Torr
System Vacuum = 9.84e-006 Torr



2022 EIPBN MicroGraph Contest

(#7)

Micrograph Title : PBMA

Nanopillars

Pick something that the judges will change

Description:

Imprinted nanopillars on PBMA with Ti mask.

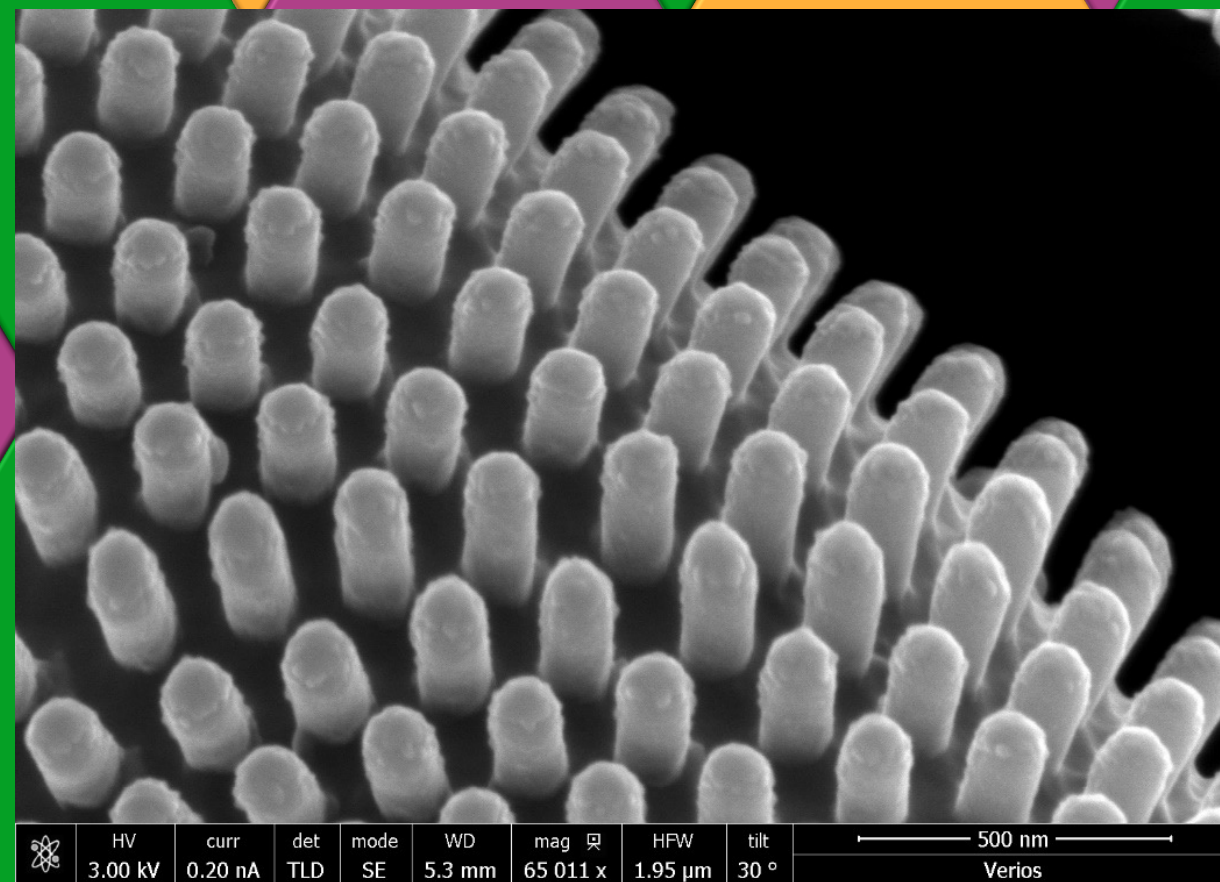
Image Details:

Orig. Mag (3"x 4" image): in 65011X

Instrument : Verios XHR 460L SEM

Submitted by: Sivan Tzadka

Affiliation: Ben Gurion university, Israel



	HV	curr	det	mode	WD	mag	HF	tilt	500 nm	
	3.00 kV	0.20 nA	TLD	SE	5.3 mm	65 011 x	1.95 μ m	30 °	Verios	

2022 EIPBN MicroGraph Contest

(#8)



**Micrograph Title : Uncompleted
triangular**

Description:

Etched silicon pillars with microspheres on top

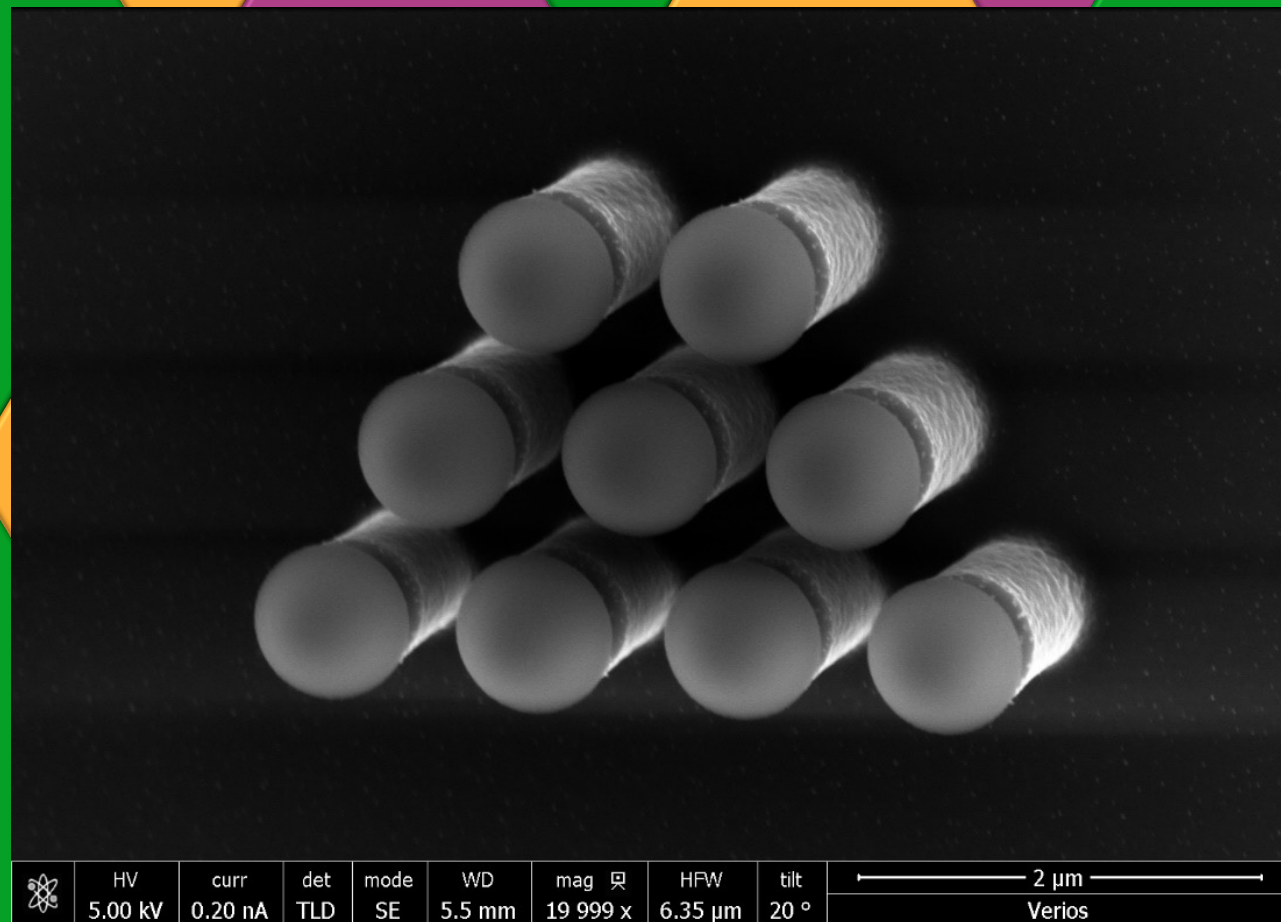
Image Details:

Orig. Mag (3"x 4" image): in 19999X

Instrument : Verios XHR 460L SEM

Submitted by: Sivan Tzadka

Affiliation: Ben Gurion university, Israel



2022 EIPBN MicroGraph Contest

(#9)



Micrograph Title : Nano (He)art

Description:

Etched silicon pillars with microspheres on top

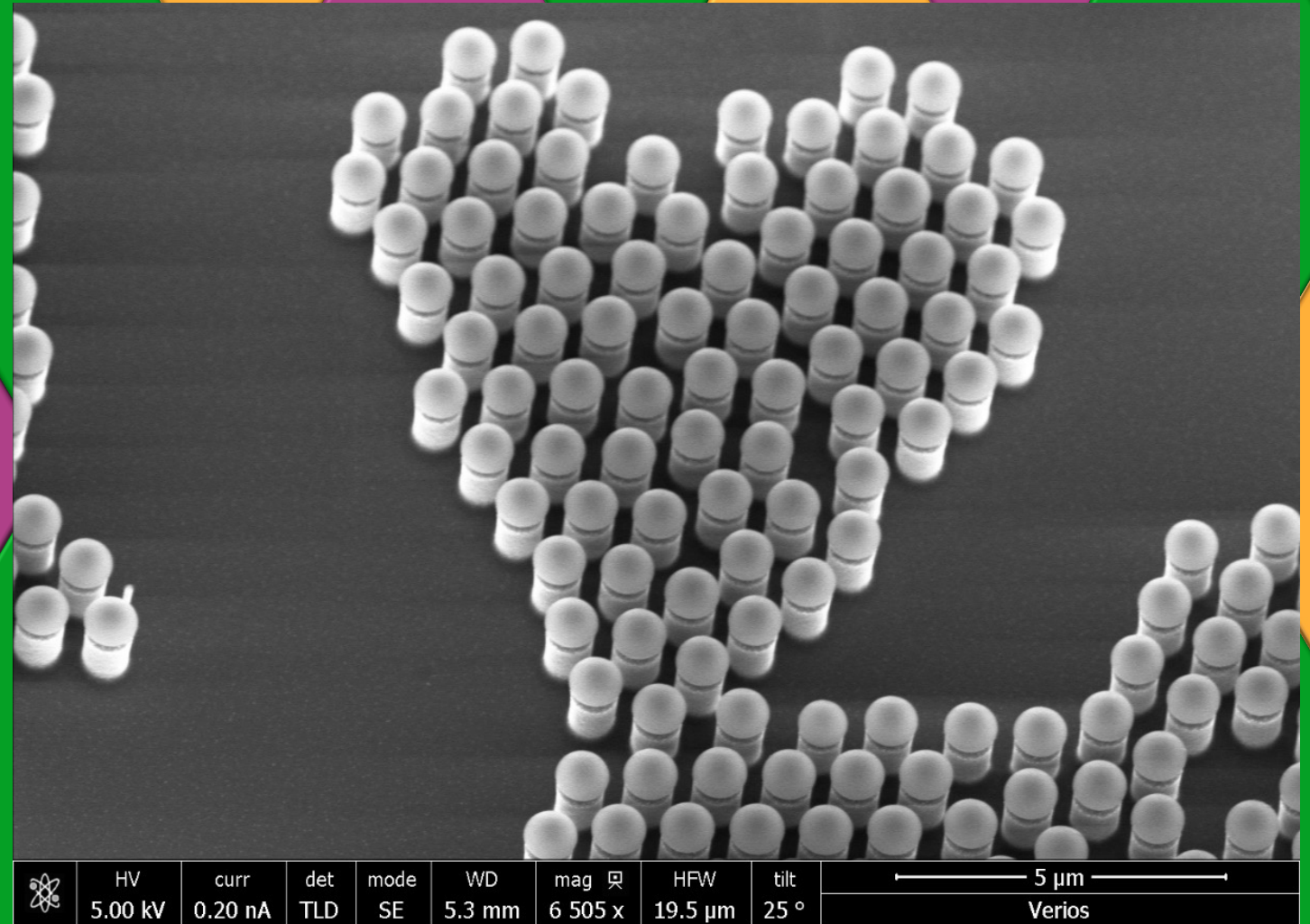
Image Details:

Orig. Mag (3"x 4" image): in 6505X

Instrument : Verios XHR 460L SEM

Submitted by: Sivan Tzadka

Affiliation: Ben Gurion university, Israel



2022 EIPBN MicroGraph Contest

(#10)



Micrograph Title : Flower

Description:

Etched silicon pillars with microspheres on top

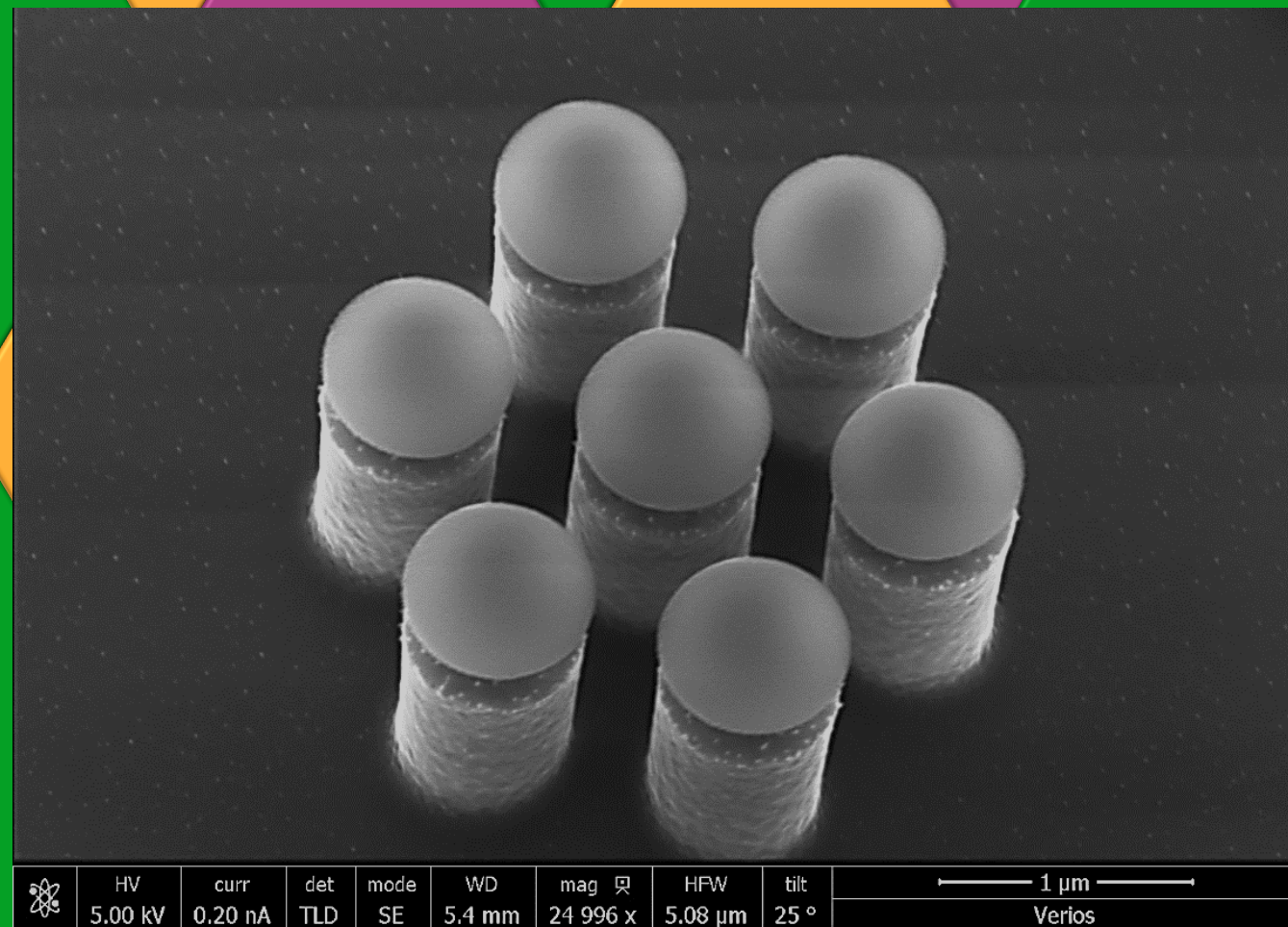
Image Details:

Orig. Mag (3"x 4" image): in 24996X

Instrument : Verios XHR 460L SEM

Submitted by: Sivan Tzadka

Affiliation: Ben Gurion university, Israel



2022 EIPBN MicroGraph Contest

(#11)



Micrograph Title : Ordered and straight silicon micropillars

Description:

Etched silicon with microspheres on top

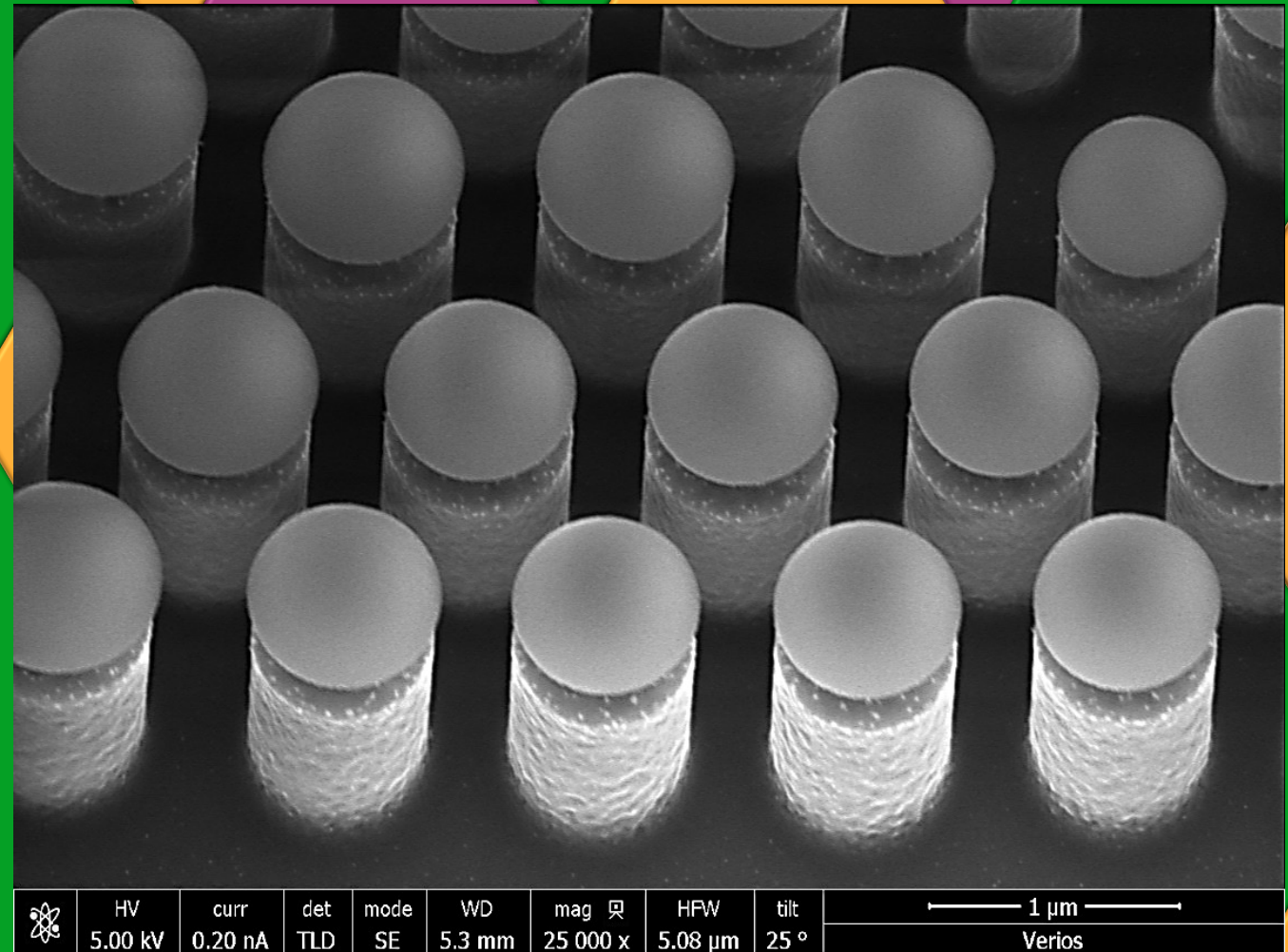
Image Details:

Orig. Mag (3"x 4" image): in 25000X

Instrument : Verios XHR 460L SEM

Submitted by: Sivan Tzadka

Affiliation: Ben Gurion university, Israel



	HV	curr	det	mode	WD	mag	HFV	tilt	1 μ m	
	5.00 kV	0.20 nA	TLD	SE	5.3 mm	25 000 x	5.08 μ m	25 °	Verios	

2022 EIPBN MicroGraph Contest

(#12)



Micrograph Title : Hexagonal order of nanoholes

Description:

Pattern transfer from nanospheres to a Ni mask.

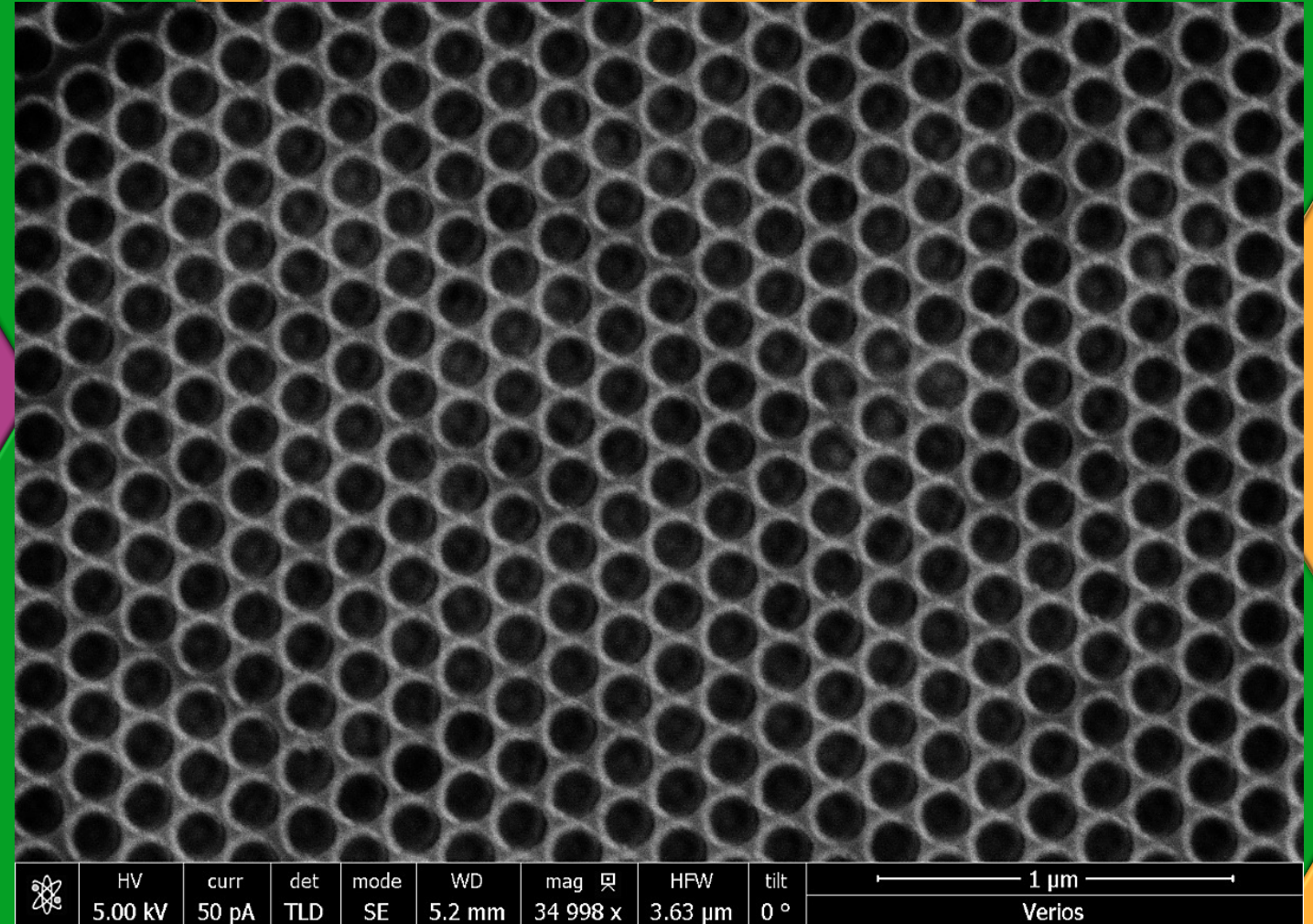
Image Details:

Orig. Mag (3"x 4" image): in 34998X

Instrument : Verios XHR 460L SEM

Submitted by: Sivan Tzadka

Affiliation: Ben Gurion university, Israel





2022 EIPBN MicroGraph Contest

(#13)

Micrograph Title : Symmetry

Description:

Connection between Etched silicon pillars

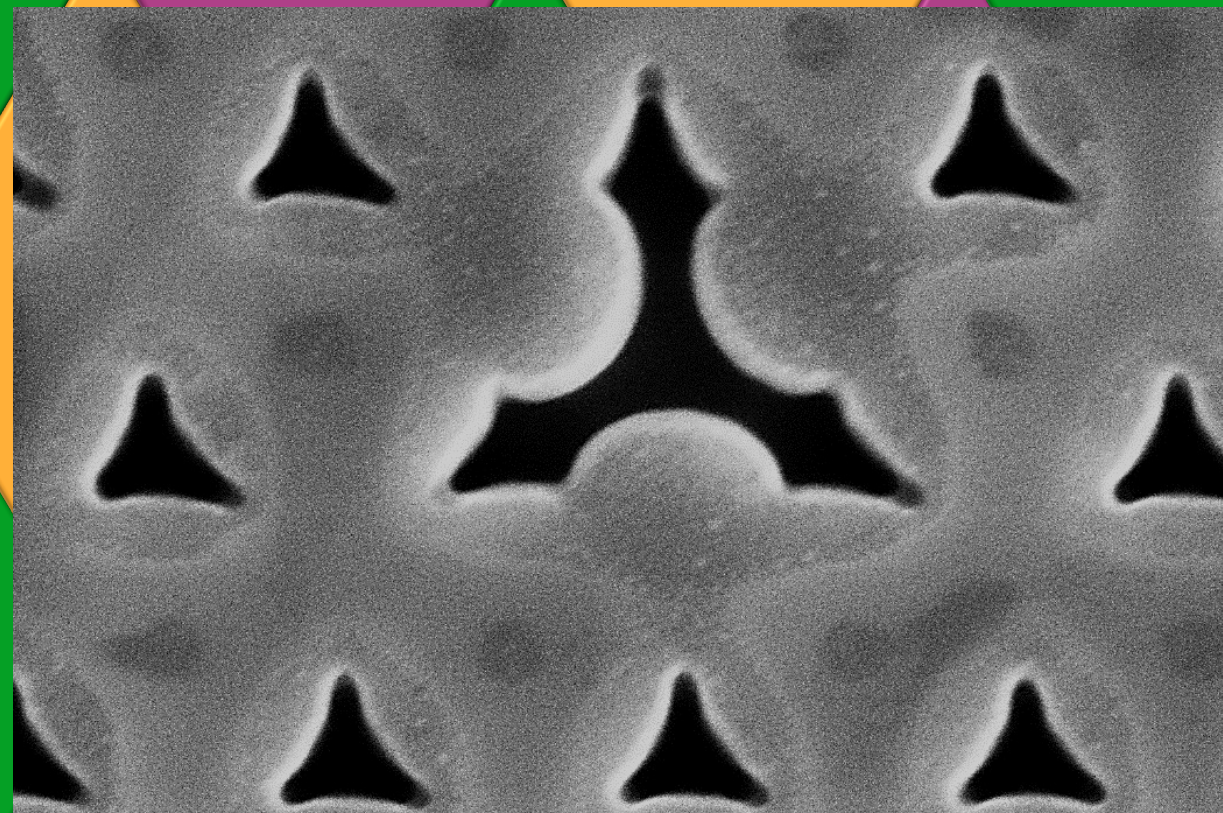
Image Details:

Orig. Mag (3"x 4" image): in 34999X

Instrument : Verios XHR 460L SEM

Submitted by: Sivan Tzadka

Affiliation: Ben Gurion university, Israel



	HV	curr	det	mode	WD	mag	HFV	tilt	1 μ m
	5.00 kV	0.10 nA	ETD	SE	8.2 mm	34 999 x	3.63 μ m	0 °	Verios



2022 EIPBN MicroGraph Contest

(#14)

**Micrograph Title : NANOPARTICLES
& MICROHOLES**

**Description: Self assembly of
nanoparticles inside imprinted
micro holes.**

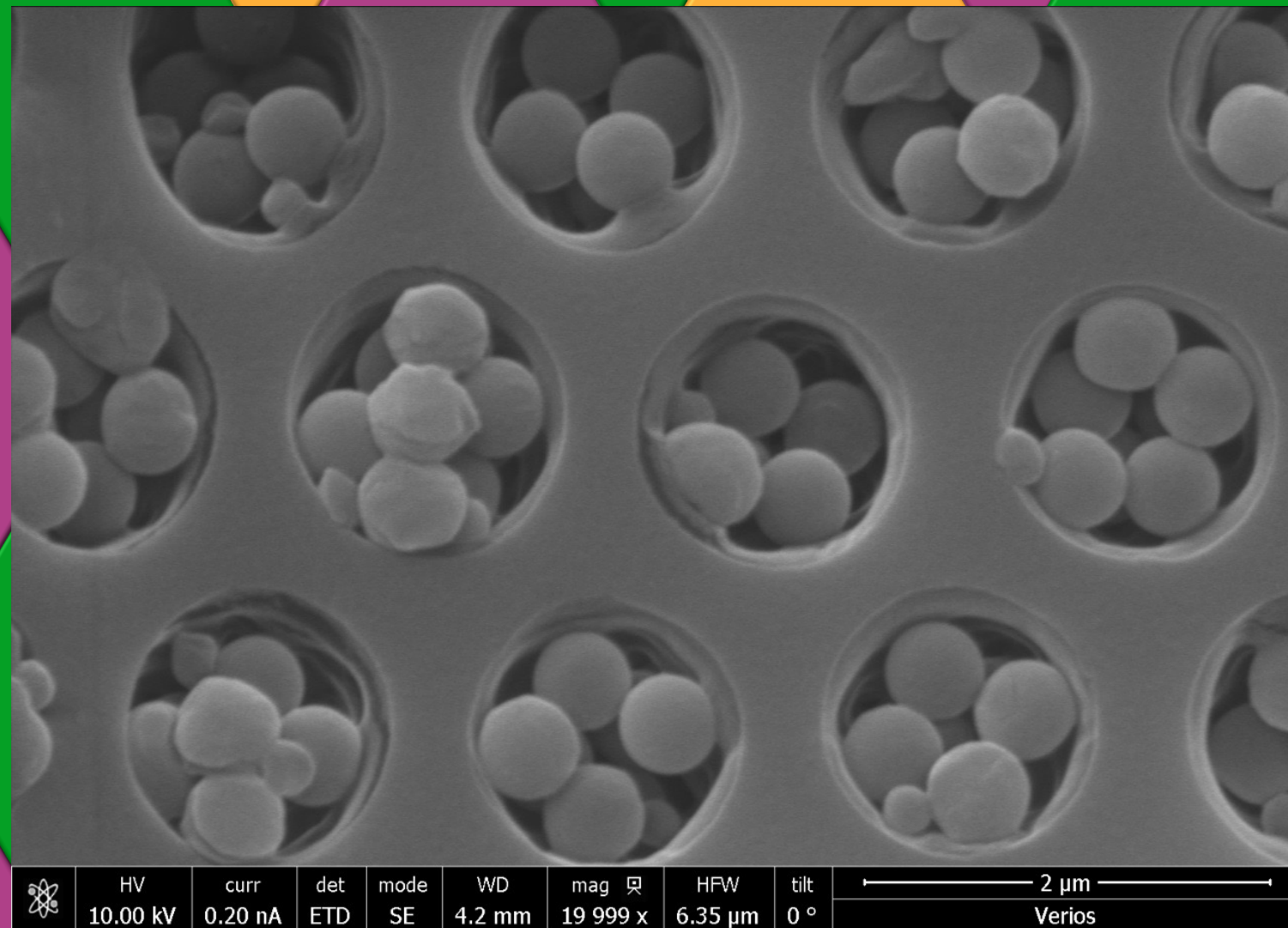
Image Details:

Orig. Mag (3"x 4" image): in 19999X

Instrument : Verios XHR 460L SEM

Submitted by: Sivan Tzadka

Affiliation: Ben Gurion university, Israel





2022 EIPBN MicroGraph Contest

(#15)

Micrograph Title: Nano-tooth brush

Description:

Silicon Nanowires' nano-toothbrush grown by wet chemical etching.

Image Details:

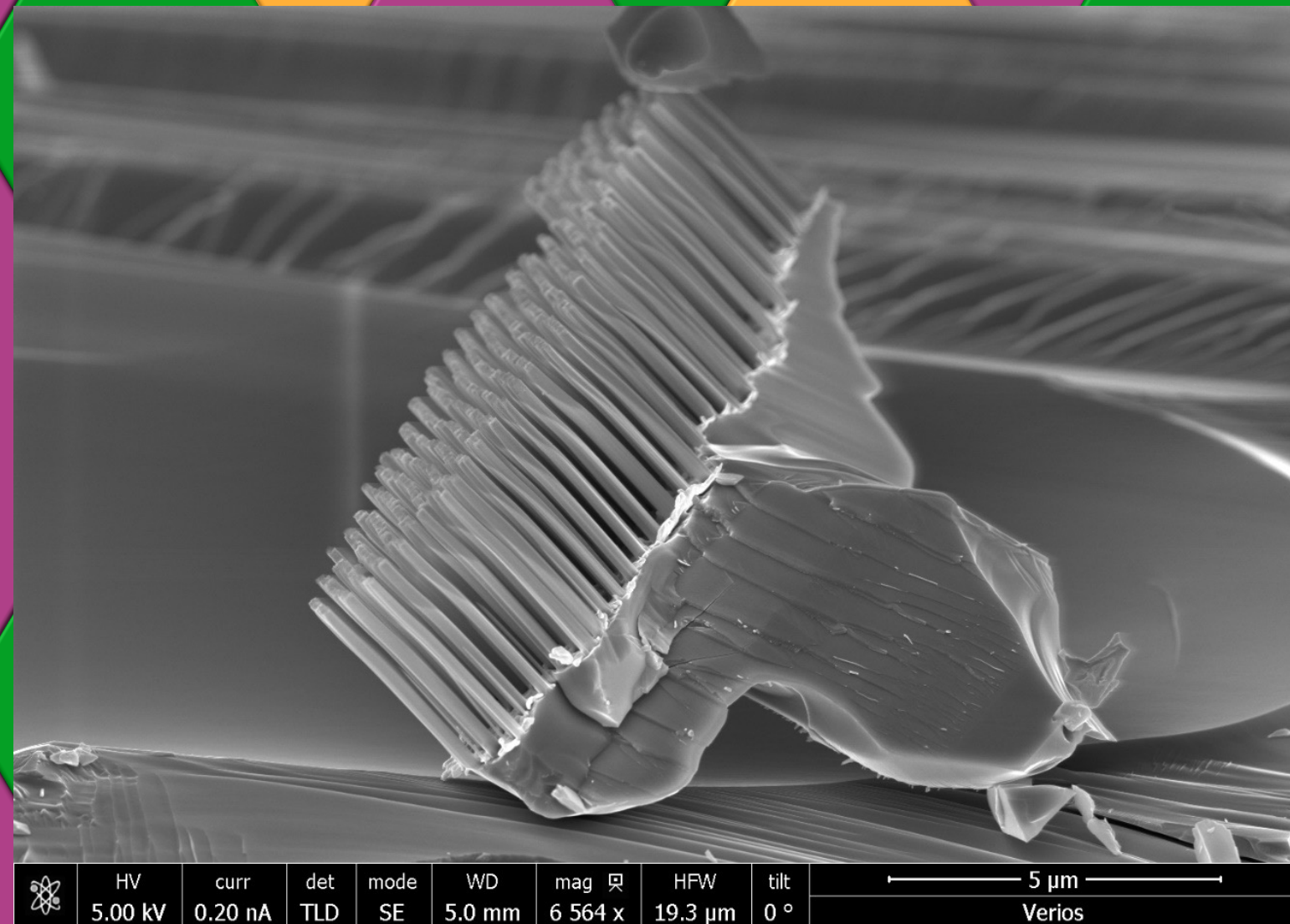
Orig. Mag (3"x 4" image): 6.564kX

Instrument : Electron microscope, VERIOS XHR 460L

Submitted by: Ashish Pandey

Affiliation: Ben Gurion University of the Negev

Sponsored by: **zyvex**
LABS



	HV	curr	det	mode	WD	mag	HFV	tilt	5 μm	
	5.00 kV	0.20 nA	TLD	SE	5.0 mm	6 564 x	19.3 μm	0 °	Verios	



2022 EIPBN MicroGraph Contest

(#16)

Micrograph Title: Wired Silicon fences

Description:

Silicon Nano-pillars fabricated using Bosch process.

Image Details:

Orig. Mag (3"x 4" image): 8.023kX

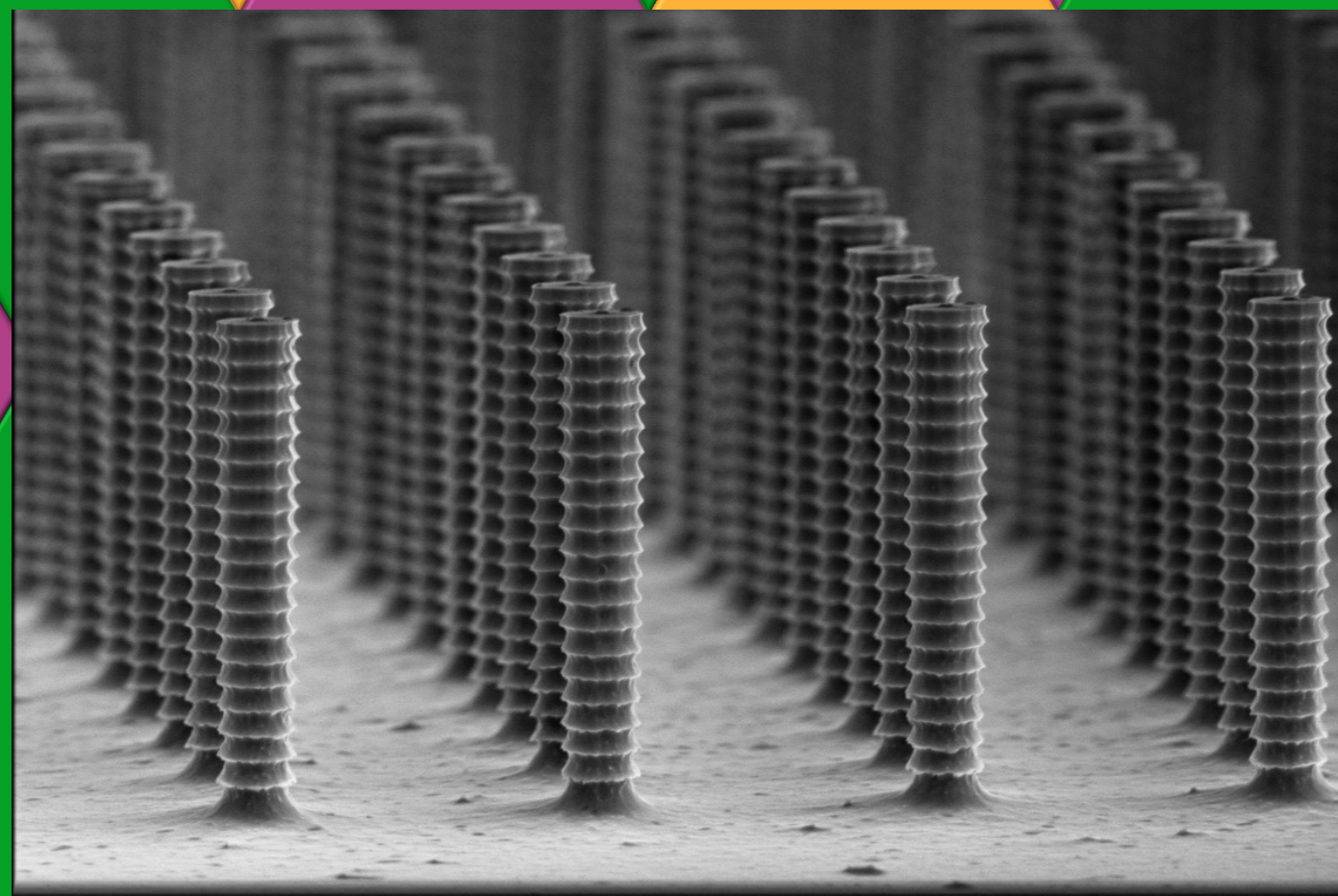
Instrument : Electron microscope, VERIOS XHR 460L

Submitted by: Ashish Pandey

Affiliation: Ben Gurion University of the

Negev

Sponsored by: **zyvex**
LABS



	HV	curr	det	mode	WD	mag	HFW	tilt	5 µm	
	5.00 kV	0.20 nA	TLD	SE	6.3 mm	8 023 x	15.8 µm	5 °	Verios	



2022 EIPBN MicroGraph Contest

(#17)

Micrograph Title: Nano-hammer

Description:

Artifacts in Silicon Nanowires' grown by wet chemical etching.

Image Details:

Orig. Mag (3"x 4" image): 8.032kX

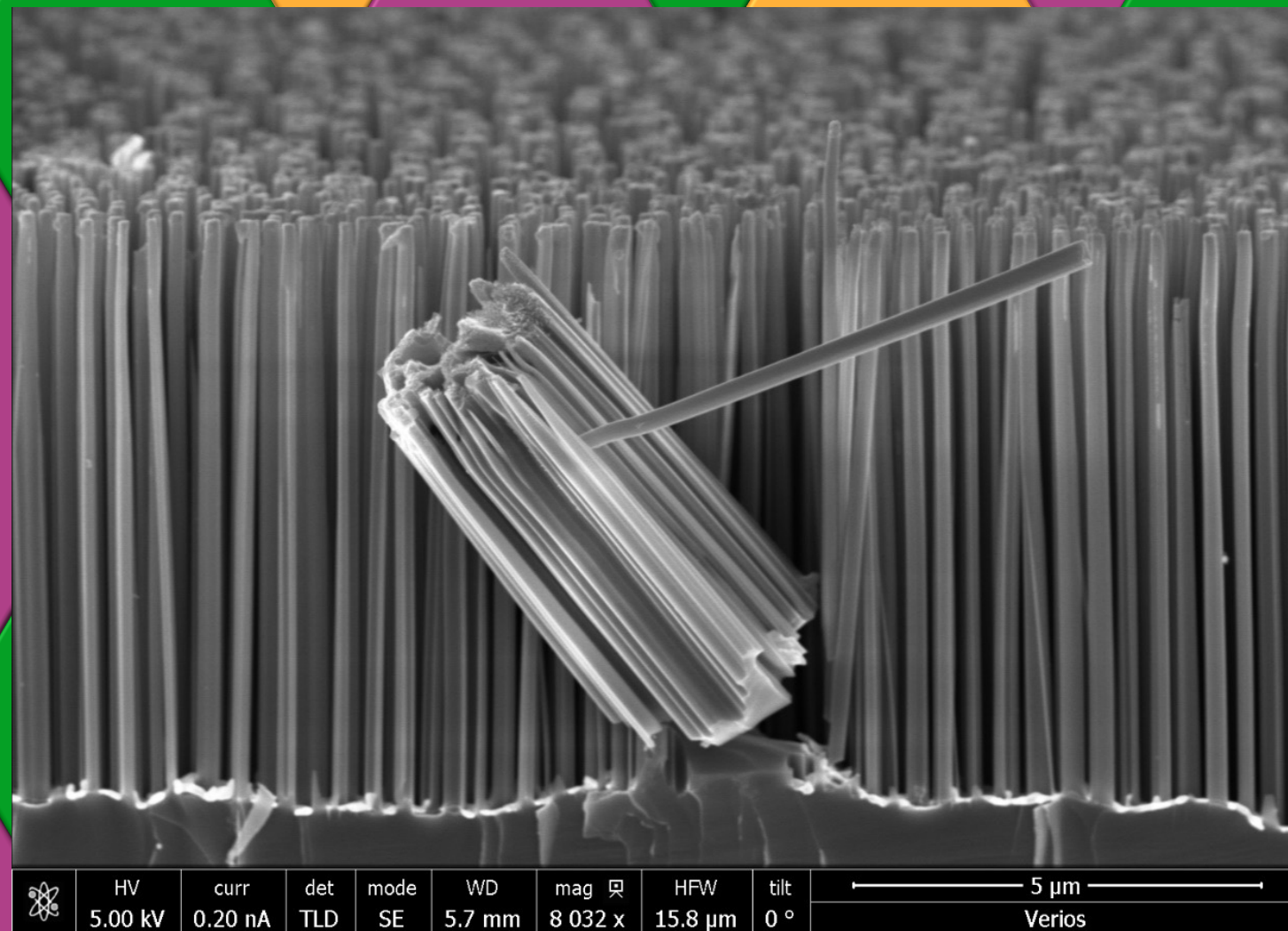
Instrument : Electron microscope, VERIOS XHR 460L

Submitted by: Ashish Pandey

Affiliation: Ben Gurion University of the

Negev

Sponsored by: **zyvex**
LABS



	HV	curr	det	mode	WD	mag	HFV	tilt	5 μ m	
	5.00 kV	0.20 nA	TLD	SE	5.7 mm	8 032 x	15.8 μ m	0 $^{\circ}$	Verios	



2022 EIPBN MicroGraph Contest

(#18)

Micrograph Title: Graduation ceremony

Description:

Over etched Silicon posts with resists as its cap

Image Details:

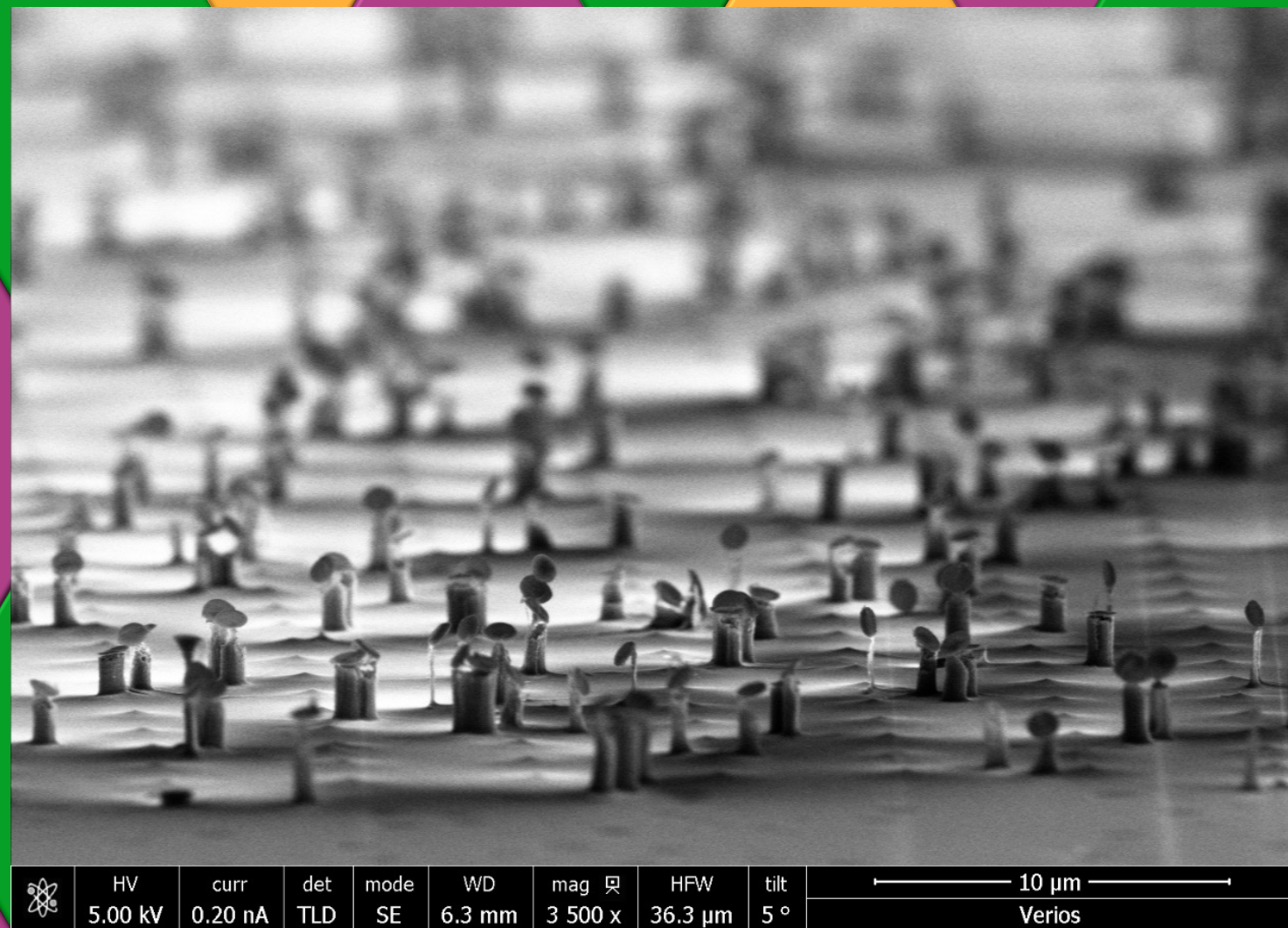
Orig. Mag (3"x 4" image): 3.500kX

Instrument : Electron microscope, VERIOS XHR 460L

Submitted by: Ashish Pandey

Affiliation: Ben Gurion University of the Negev

Sponsored by: **zyvex**
LABS



	HV	curr	det	mode	WD	mag	HFV	tilt	10 μm	
	5.00 kV	0.20 nA	TLD	SE	6.3 mm	3 500 x	36.3 μm	5 °	Verios	



2022 EIPBN MicroGraph Contest

(#19)

**Micrograph Title: Silicon-grass
hopper on Silicon grass**

Description:

Artifact created while growth of Silicon Nanowires by wet chemical etching.

Image Details:

Orig. Mag (3"x 4" image): 3.500kX

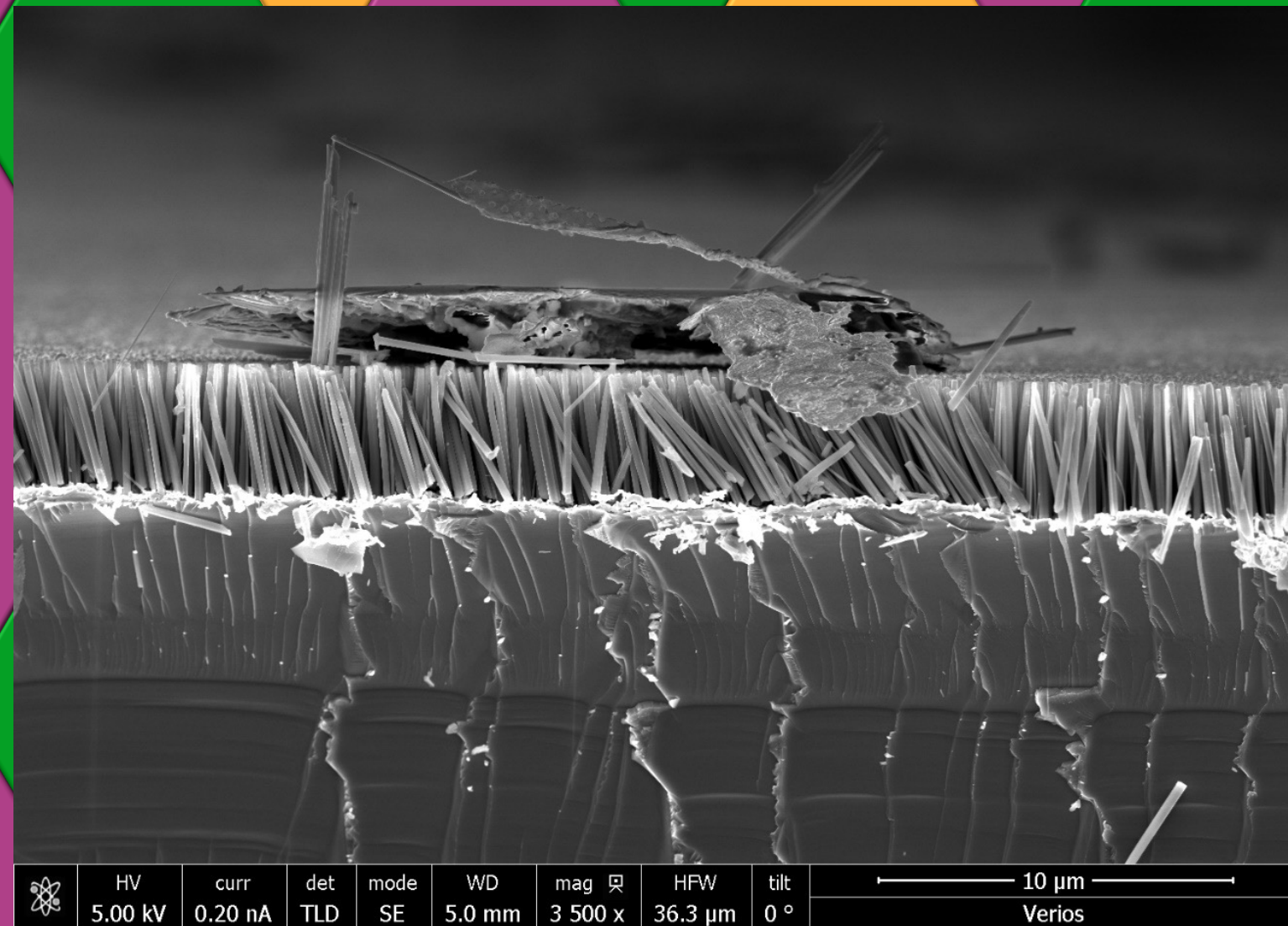
Instrument : Electron microscope, VERIOS
XHR 460L

Submitted by: Ashish Pandey

Affiliation: Ben Gurion University of the

Negev

Sponsored by: **zyvex**
LABS





2022 EIPBN MicroGraph Contest

(#20)

Micrograph Title: Silicon fences

Description:

Silicon Nano-pillars fabricated using mixed gas dry etch.

Image Details:

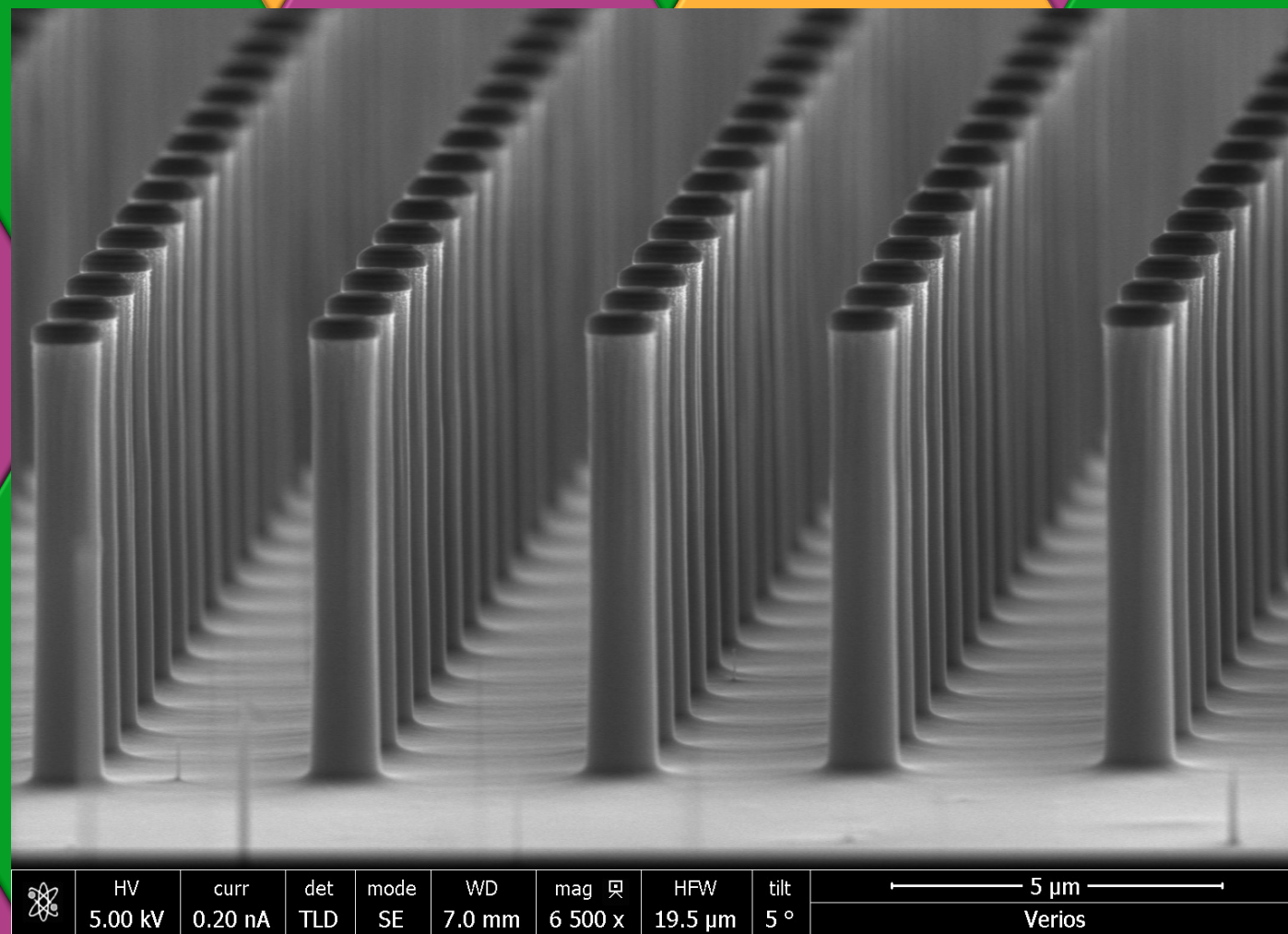
Orig. Mag (3"x 4" image):6.500kX

Instrument : Electron microscope, VERIOS XHR 460L

Submitted by: Ashish Pandey

Affiliation: Ben Gurion University of the Negev

Sponsored by: **zyvex**
LABS



	HV 5.00 kV	curr 0.20 nA	det TLD	mode SE	WD 7.0 mm	mag 𠄎 6 500 x	HFW 19.5 μm	tilt 5 °	5 μm Verios
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2022 EIPBN MicroGraph Contest

(#21)

Micrograph Title: Golden Butterflies

Description: Anisotropic growth of gold atoms on carbon nanotube matrix

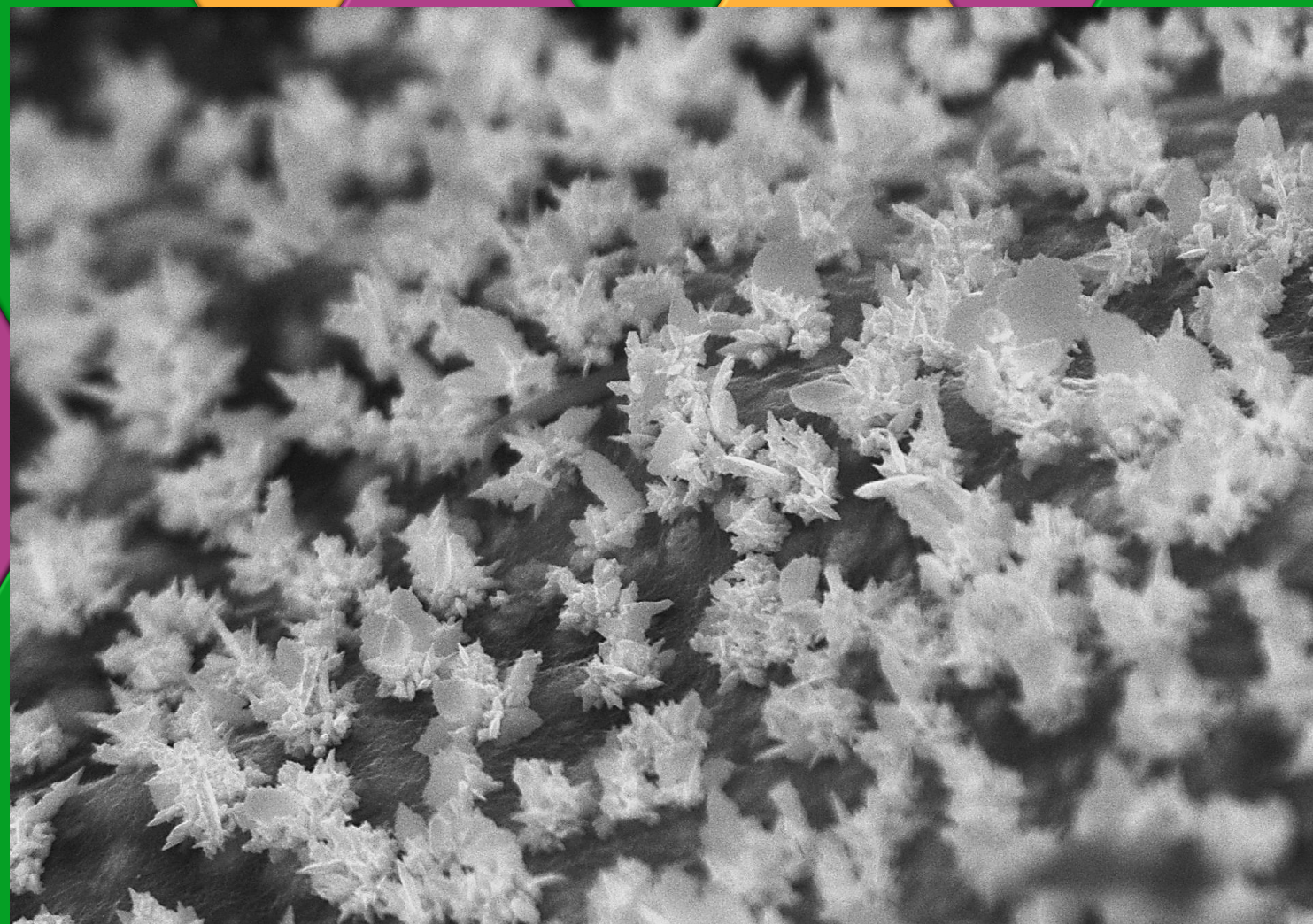
Image Details:

Orig. Mag (3" x 4" image): in 5.0kX

Instrument : SEC, SNE-4500M Plus

Submitted by: Rong Yang

Affiliation: Nanjing Tech University



sec 30 kV SE High x5.0K 0 10 um
2022.03.25 11:48 WD 0mm



2022 EIPBN MicroGraph Contest

(#22)

Micrograph Title: Golden Hydrangeas

Description: Anisotropic growth of gold atoms on carbon nanotube matrix

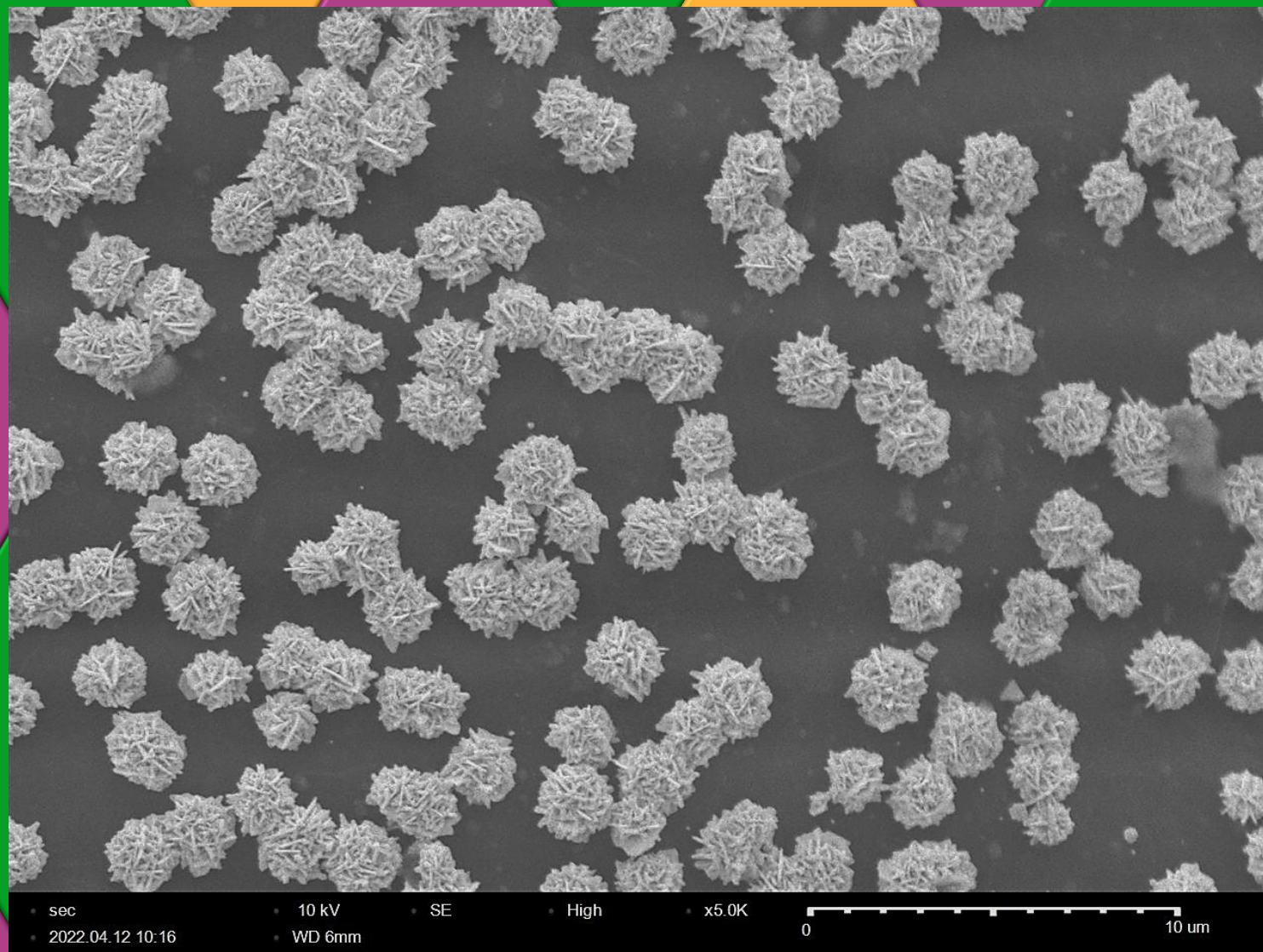
Image Details:

Orig. Mag (3"x 4" image): in 5.0kX

Instrument : SEC, SNE-4500M Plus

Submitted by: Rong Yang

Affiliation: Nanjing Tech University





2022 EIPBN MicroGraph Contest

(#23)

Micrograph Title: Golden Ice Crystals

Description: Anisotropic growth of gold atoms on carbon nanotube matrix

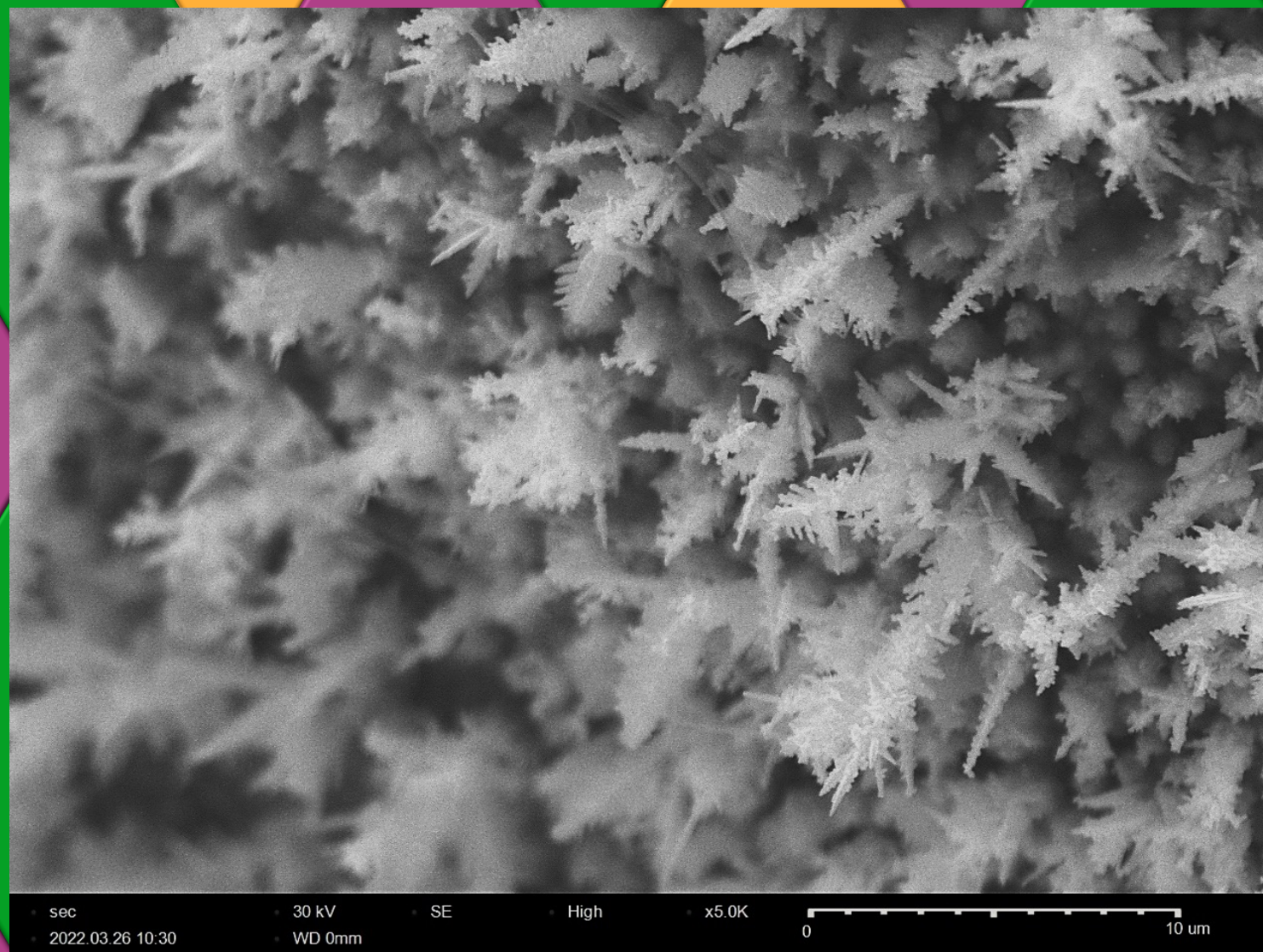
Image Details:

Orig. Mag (3" x 4" image): in 5.0kX

Instrument : SEC, SNE-4500M Plus

Submitted by: Rong Yang

Affiliation: Nanjing Tech University



Sponsored by: **zyvex**
LABS



2022 EIPBN MicroGraph Contest

(#24)

Micrograph Title: PMMA nano well

Description: Artifact created by discharge during high dose e-beam exposure of PMMA.

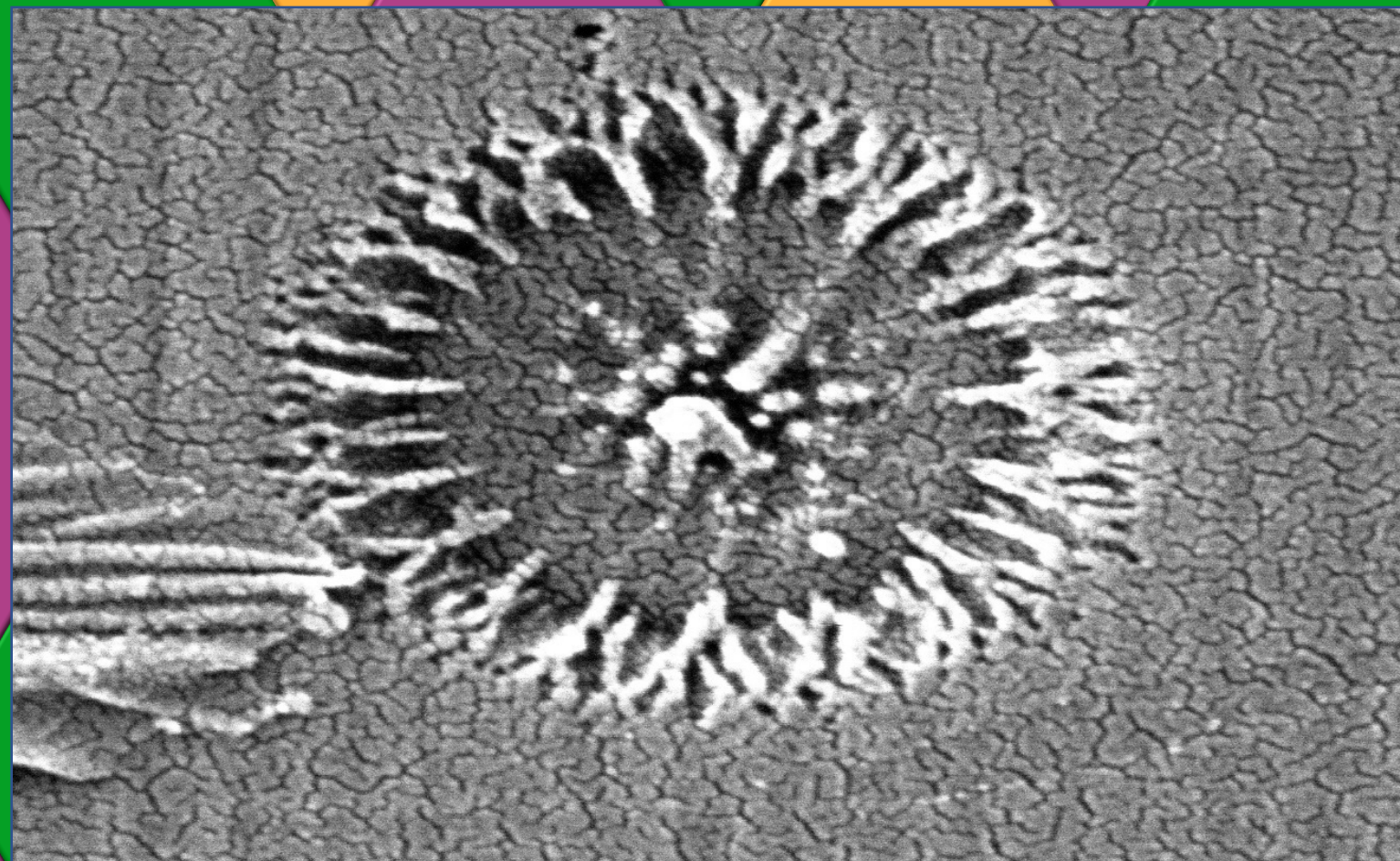
Image Details:

Orig. Mag (3"x 4" image): 118kX

Instrument FEI Quanta 250

Submitted by: Deepak Kumar

Affiliation: University of Kentucky



HV	mode	mag	temp	WD	pressure	400 nm
30.00 kV	SE	117 902 x	---	10.0 mm	2.09e-6 mbar	University of Kentucky

Sponsored by: **zyvex**
LABS



2022 EIPBN MicroGraph Contest

(#25)

Micrograph Title:

Googly Eyes

Description:

Two double-Cones deposited by EBID for a gas ionization ion-source (NAIS)

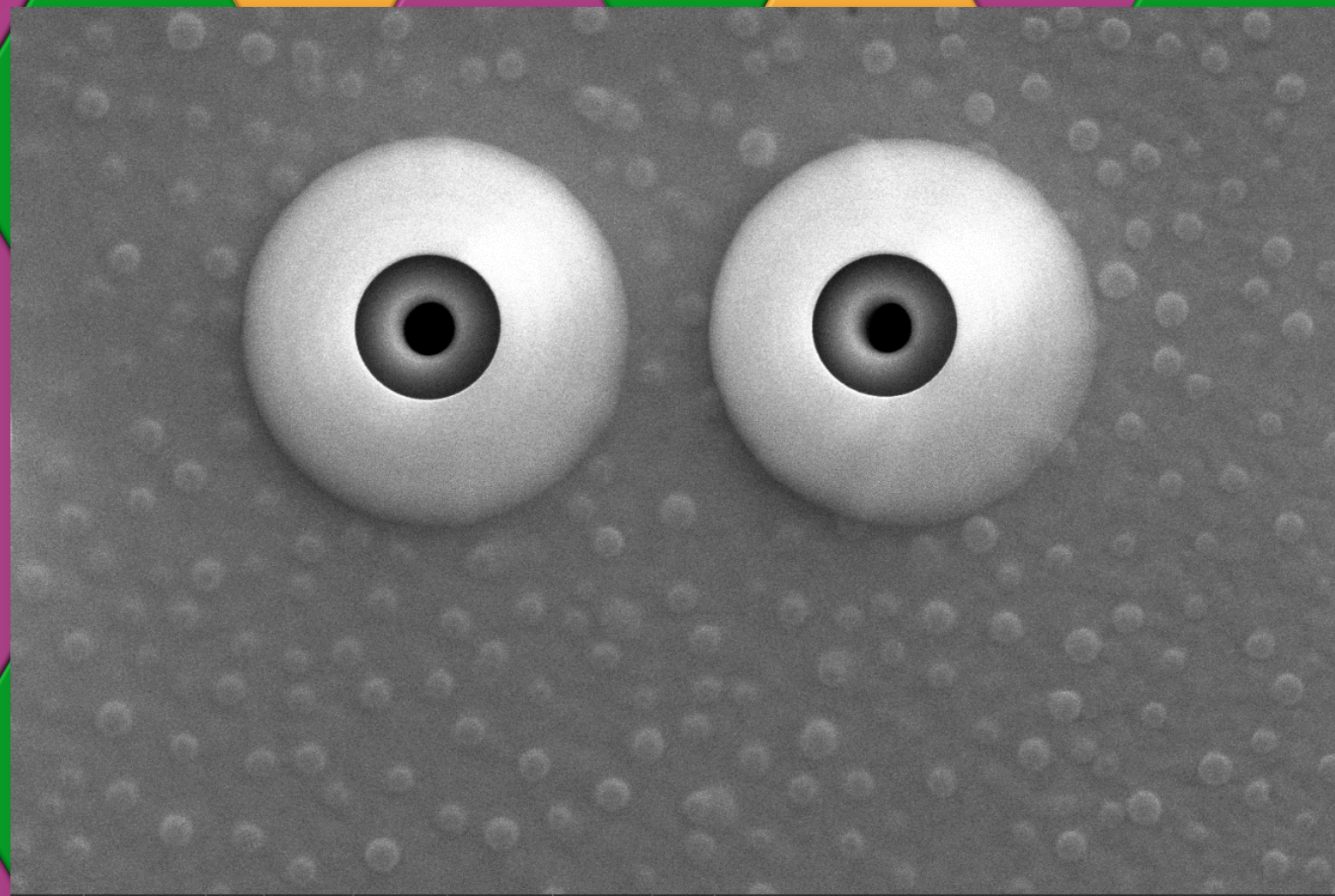
Image Details:


Orig. Mag (3"x 4" image): 12 kX

Instrument : FEI Helios NanoLab 650

Submitted by: Mike Simons

Affiliation: TU Delft



	3/28/2022 1:27:19 PM	det ETD	dwell 5.00 μ s	WD 4.4 mm	HV 10.00 kV	HFW 10.4 μ m	tilt 0.0 $^{\circ}$
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4 μ m



2022 EIPBN MicroGraph Contest

(#26)

Micrograph Title: Under the Sea

Description: SEM Image of ice formed on sample at -150C in SEM.

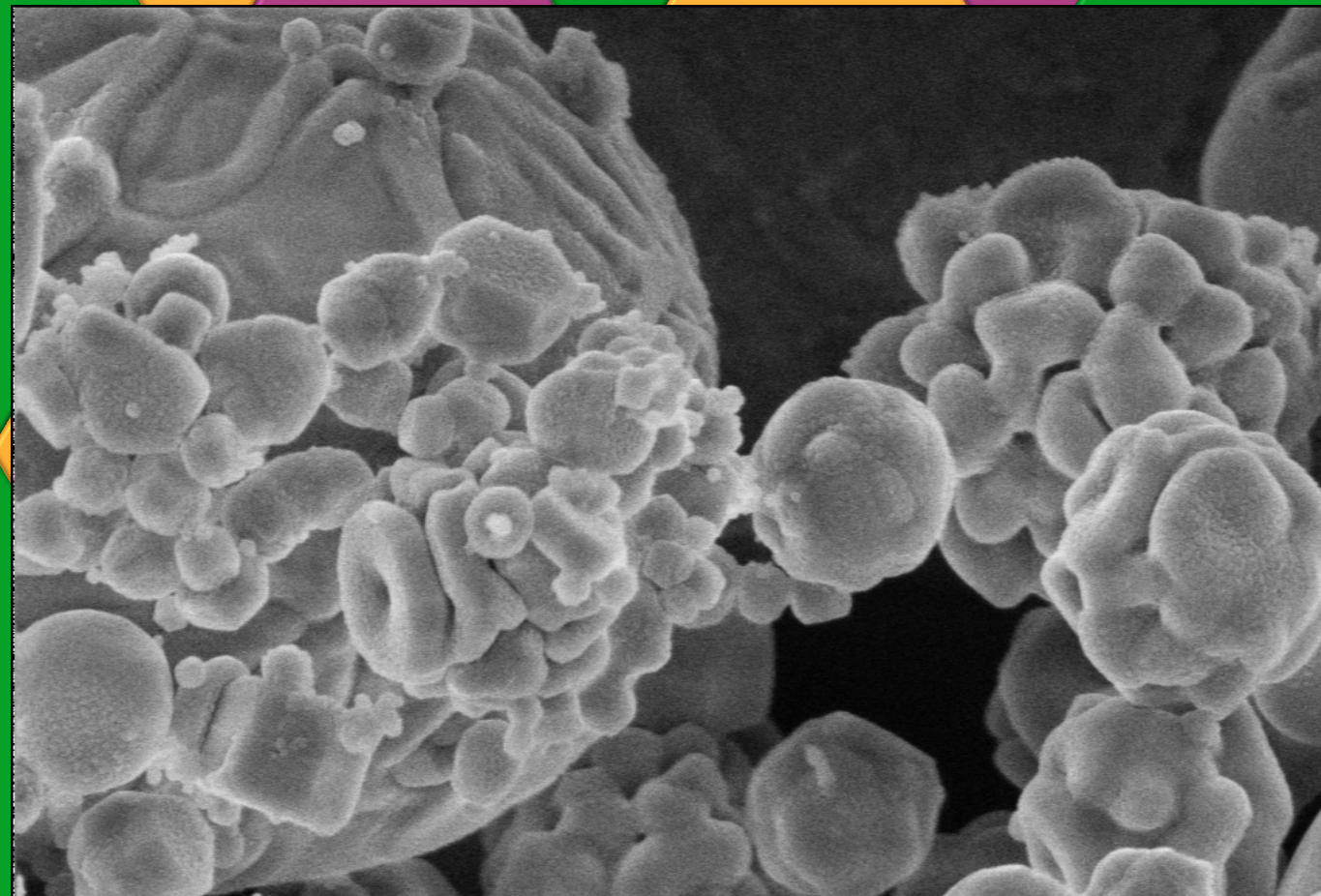
Image Details:

Orig. Mag (See dimension bar.)

Instrument : Zeiss 550 Dual Beam with Leica Cryostage. **Sustrate** Carbon membrane on Cu TEM grid. **Desired sample:** SARS CoV-2

Submitted by: Elizabeth Dobisz

Affiliation: SLAC



400 nm



EHT = 2.00 kV

WD = 5.0 mm

Signal A = InLens

Mag = 21.08 K X

I Probe = 6 pA

Stage at T = -0.1 °

Date: 6 May 2021

Time: 15:55:06



2022 EIPBN MicroGraph Contest

(#27)

Micrograph Title: The Birds and the Bees

Description: SEM Image of ice formed on sample at -150C in SEM.

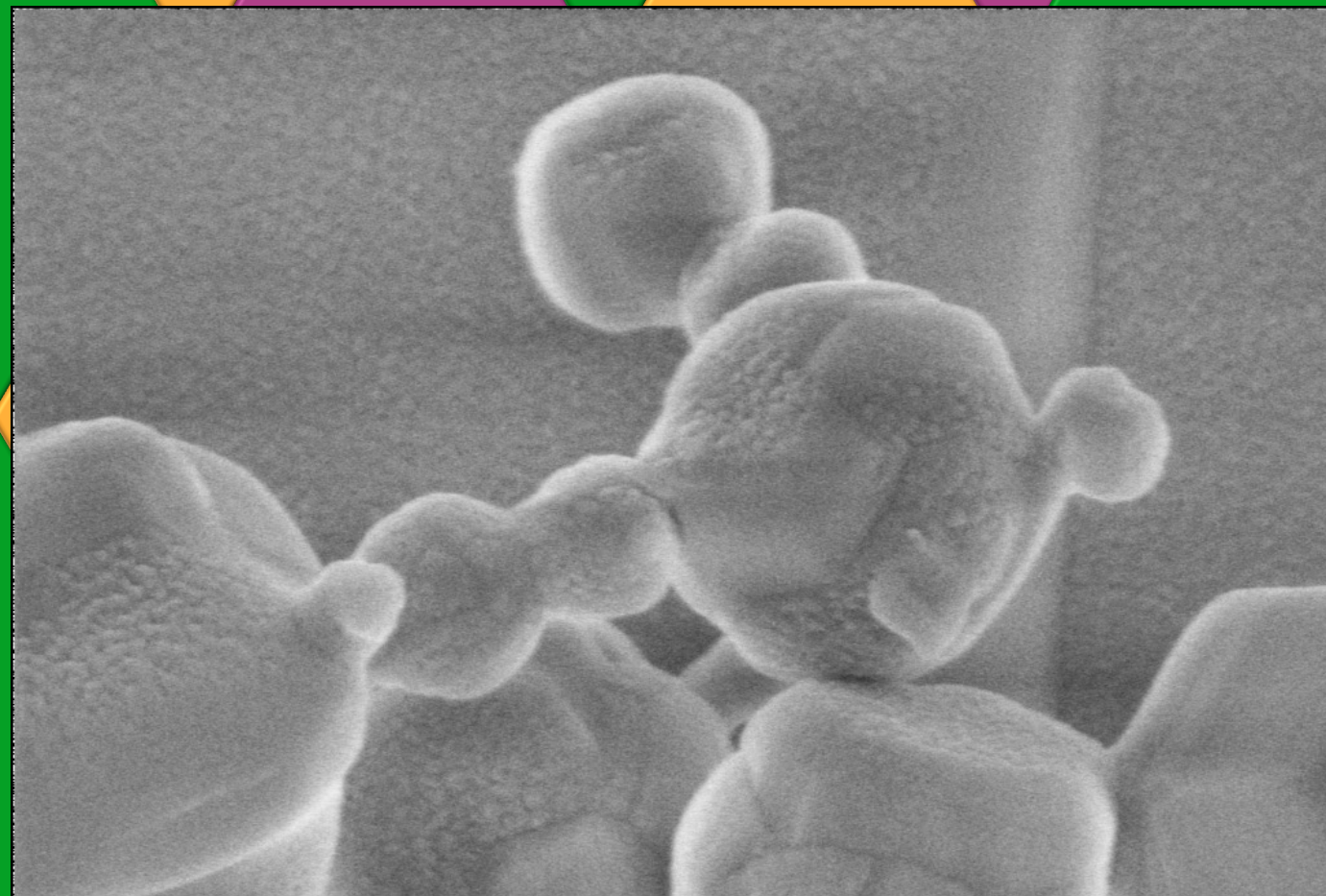
Image Details:

Orig. Mag (See dimension bar.)

Instrument : Zeiss 550 Dual Beam with Leica Cryostage. Sustrate Carbon membrane on Cu TEM grid. Desired sample: SARS CoV-2

Submitted by: Elizabeth Dobisz

Affiliation: SLAC



200 nm



EHT = 2.00 kV

WD = 4.9 mm

Signal A = InLens

Mag = 45.50 K X

I Probe = 6 pA

Stage at T = -0.1 °

Date: 6 May 2021

Time: 15:53:11



2022 EIPBN MicroGraph Contest

(#28)

Micrograph Title: Popsicles

Anyone?

Description: SEM Image of ice formed on sample at -150C in SEM.

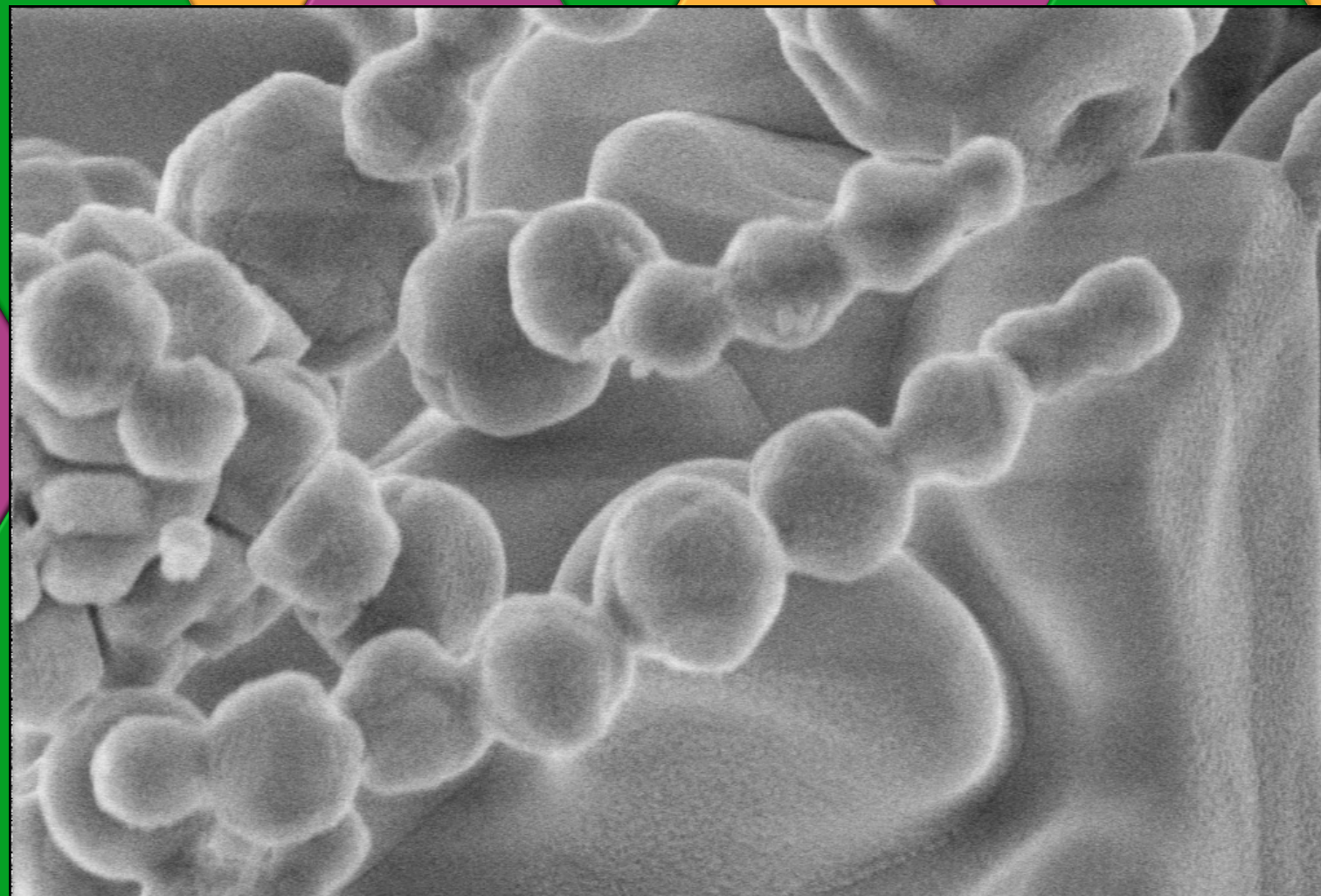
Image Details:

Orig. Mag (See dimension bar.)

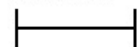
Instrument : Zeiss 550 Dual Beam with Leica Cryostage. Sustrate Carbon membrane on Cu TEM grid. Desired sample: SARS CoV-2

Submitted by: Elizabeth Dobisz

Affiliation: SLAC



Sponsored by: **zyvex**
LABS

300 nm


EHT = 2.00 kV
WD = 4.9 mm

Signal A = InLens
Mag = 29.71 K X

I Probe = 6 pA
Stage at T = -0.1 °

Date: 6 May 2021
Time: 15:47:54



2022 EIPBN MicroGraph Contest

(#29)

Micrograph Title: My Flower Garden

Description: SEM Image of ice formed on sample at -150C in SEM.

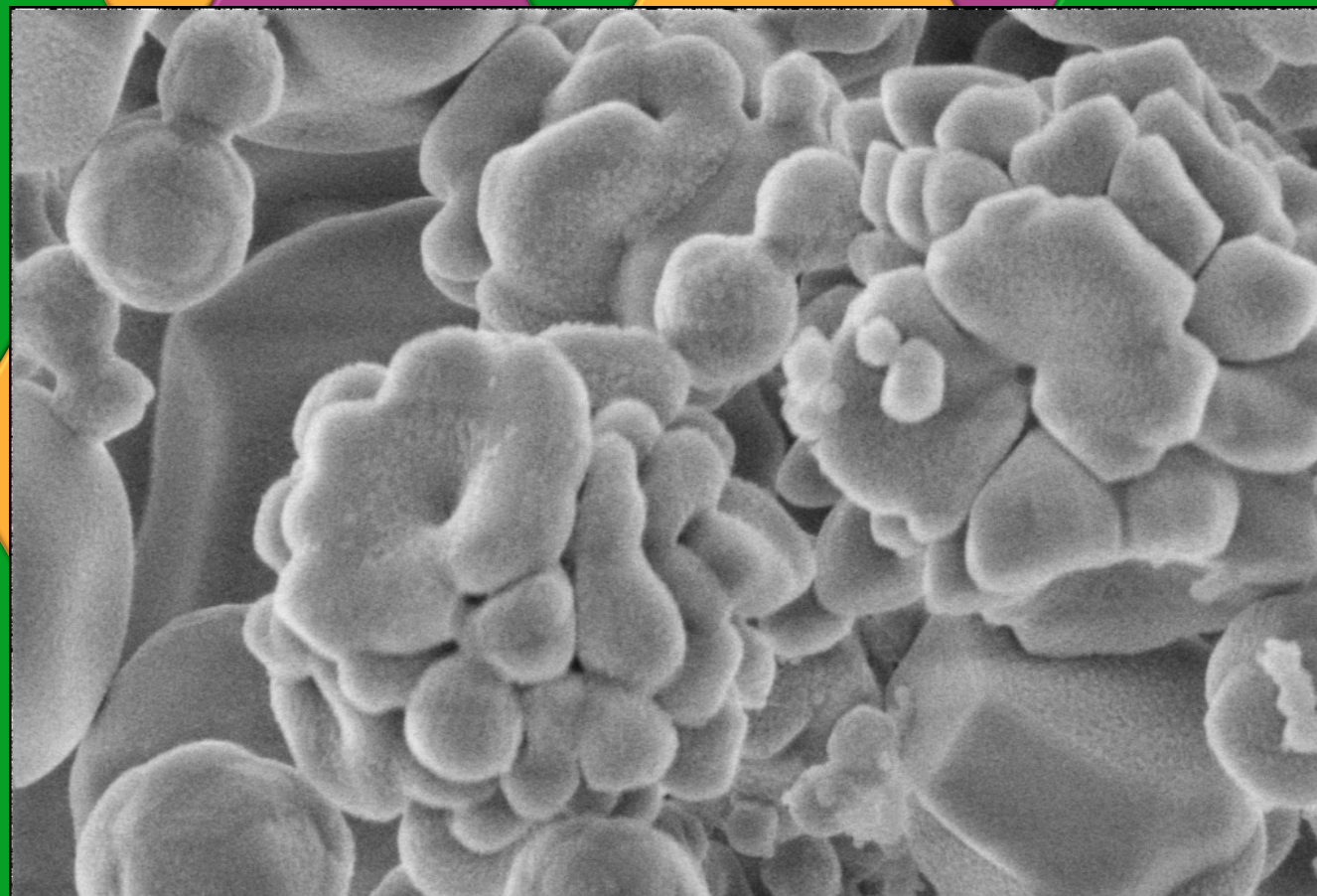
Image Details:

Orig. Mag (See dimension bar.)

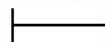
Instrument : Zeiss 550 Dual Beam with Leica Cryostage. **Sustrate** Carbon membrane on Cu TEM grid. **Desired sample:** SARS CoV-2

Submitted by: Elizabeth Dobisz

Affiliation: SLAC



300 nm



EHT = 2.00 kV

WD = 4.9 mm

Signal A = InLens

Mag = 27.34 K X

I Probe = 6 pA

Stage at T = -0.1 °

Date: 6 May 2021

Time: 15:50:32



2022 EIPBN MicroGraph Contest

(#30)

Micrograph Title: Those who live in glass houses shouldn't get hit with cesium ion beams!

Description: Secondary-ion-mass-spectrometry image of a diatom (glass-walled plant). The colors are the silicon and oxygen detector channels of its body

Image Details:

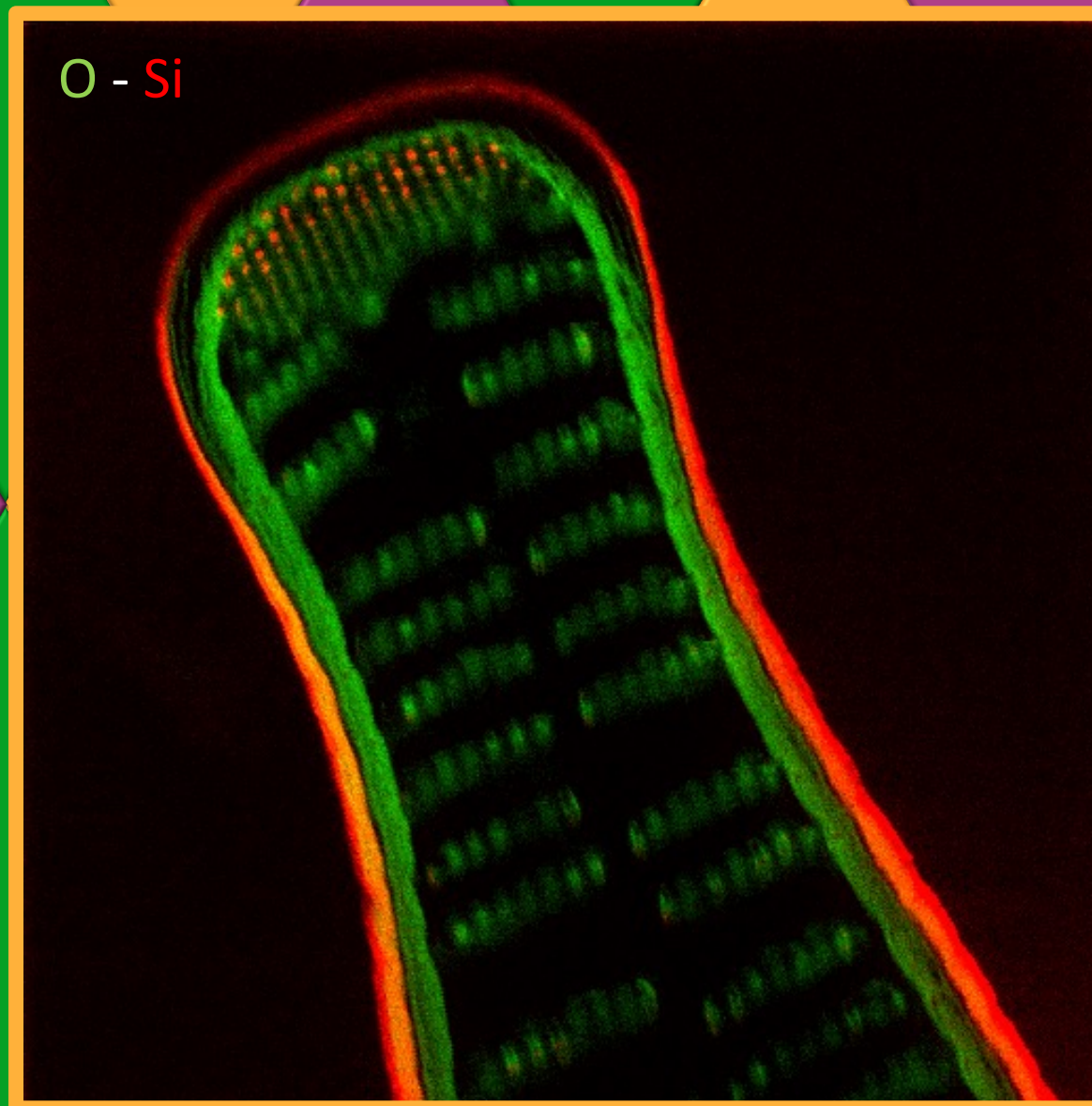
Orig. Mag (3"x 4" image): 12 kX

Instrument : SIMS:ZERO

Submitted by: Adam Steele

Affiliation: zeroK NanoTech

Sponsored by: zyvex
LABS





2022 EIPBN MicroGraph Contest

(#31)

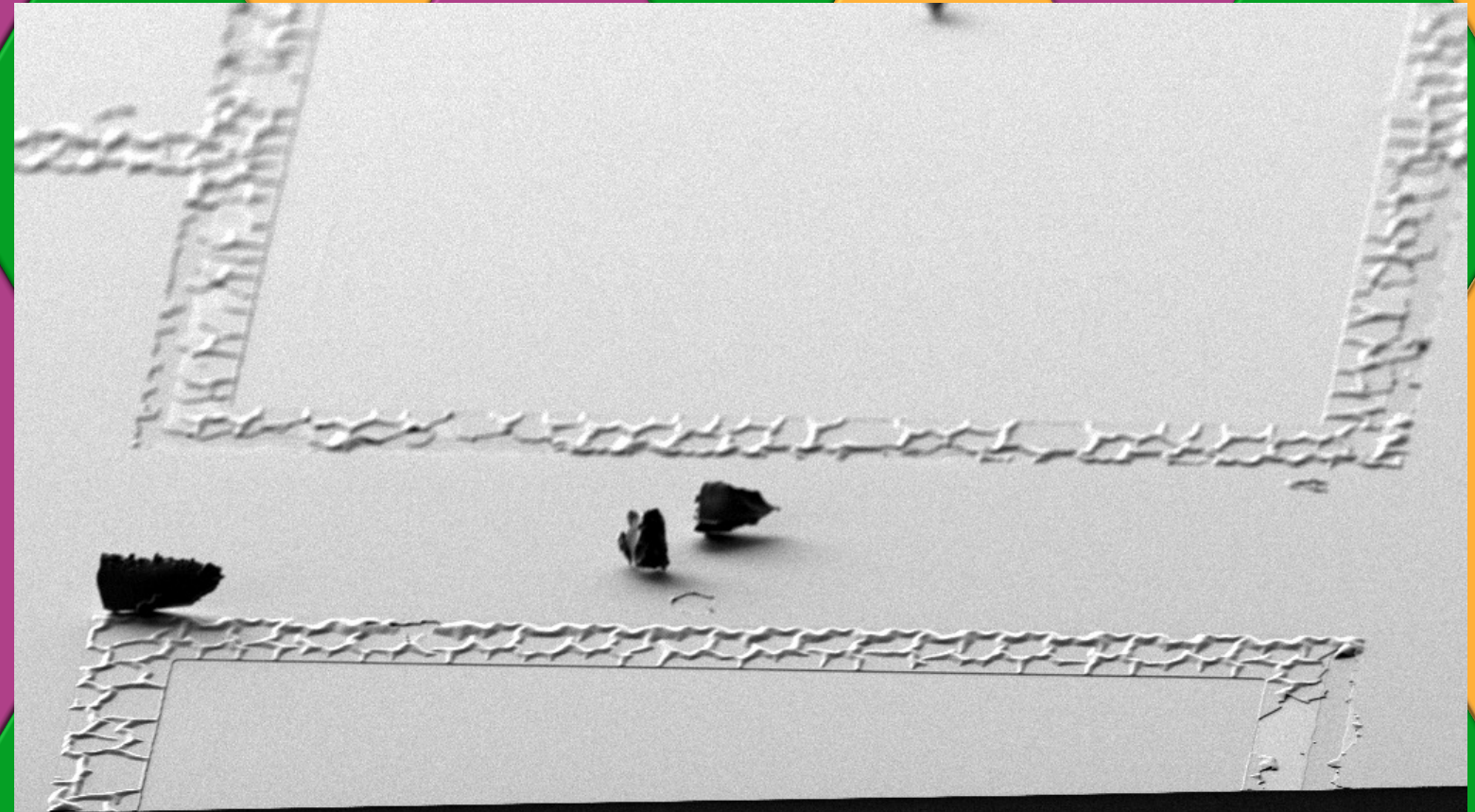
Micrograph Title:
Three boats

Description:
HSQ deformed between metal layers.
Residue stands upright and casts shadows.
Uniform squares outline bond pads for
superconducting devices.

Image Details:

Orig. Mag (3"x 4" image): 1.14kX
Instrument : Zeiss Gemini
Submitted by: Owen Medeiros
Affiliation: MIT

Sponsored by: **zyvex**
LABS



10 μ m

EHT = 3.00 kV
WD = 4.9 mm

Signal A = SE2
Mag = 1.14 K X

Date :10 May 2021
Detector = SE2





2022 EIPBN MicroGraph Contest

(#32)

Micrograph Title: Field of Roses
Description: Collapsed concentric rings in ebeam resist

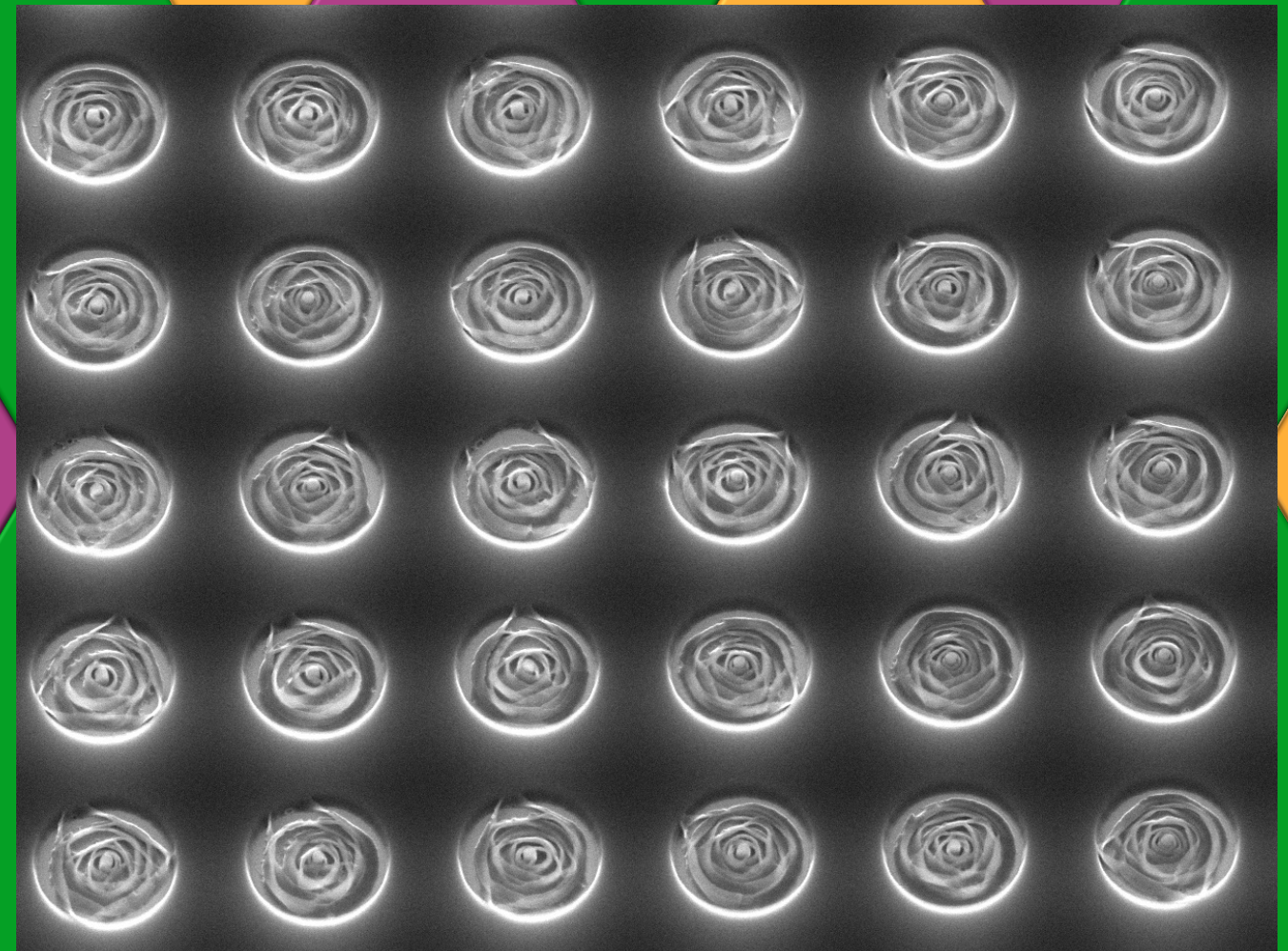
Image Details:

Orig. Mag (3" x 4" image): 7kX

Instrument : JEOL, FE-SEM, JSM-7200F

Submitted by: Greg Holloway

Affiliation: QNFCF, University of Waterloo



x7,000 12.0kV LED 1µm QNFCF 5/25/2022
SEM WD 8.6mm 15:35:12



2022 EIPBN MicroGraph Contest

(#33)

Micrograph Title: Pearl necklace gone wrong

Description: Random growth of amorphous silicon nodules

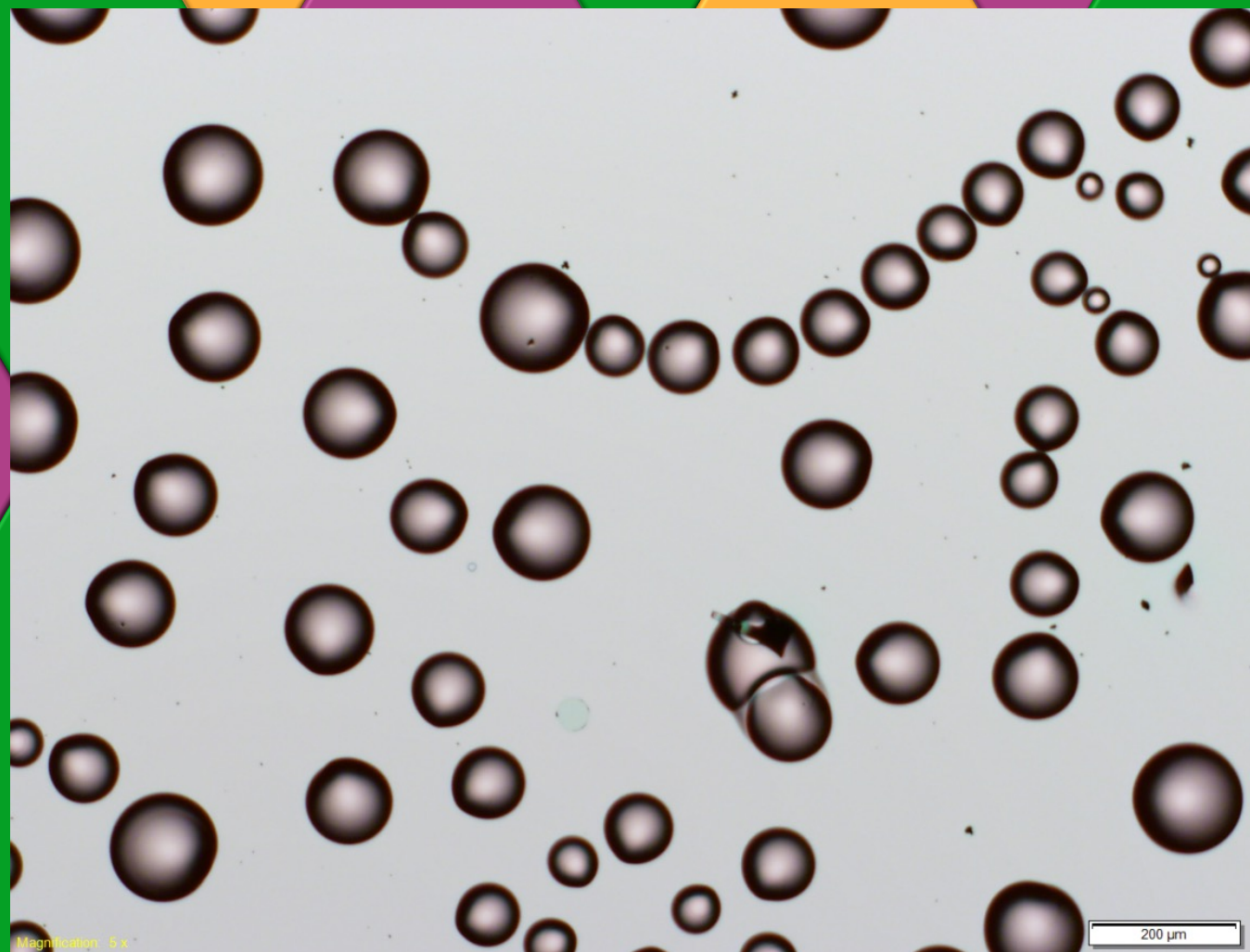
Image Details:

Orig. Mag (3" x 4" image): 50X

Instrument : Olympus, MX61A

Submitted by: Greg Holloway

Affiliation: QNFCF, University of Waterloo





2022 EIPBN MicroGraph Contest

(#34)

Micrograph Title: A maze in Grace

Description: A dried up drop of an unknown substance on niobium nitride thin film

Image Details:

Orig. Mag (3" x 4" image): 18kX

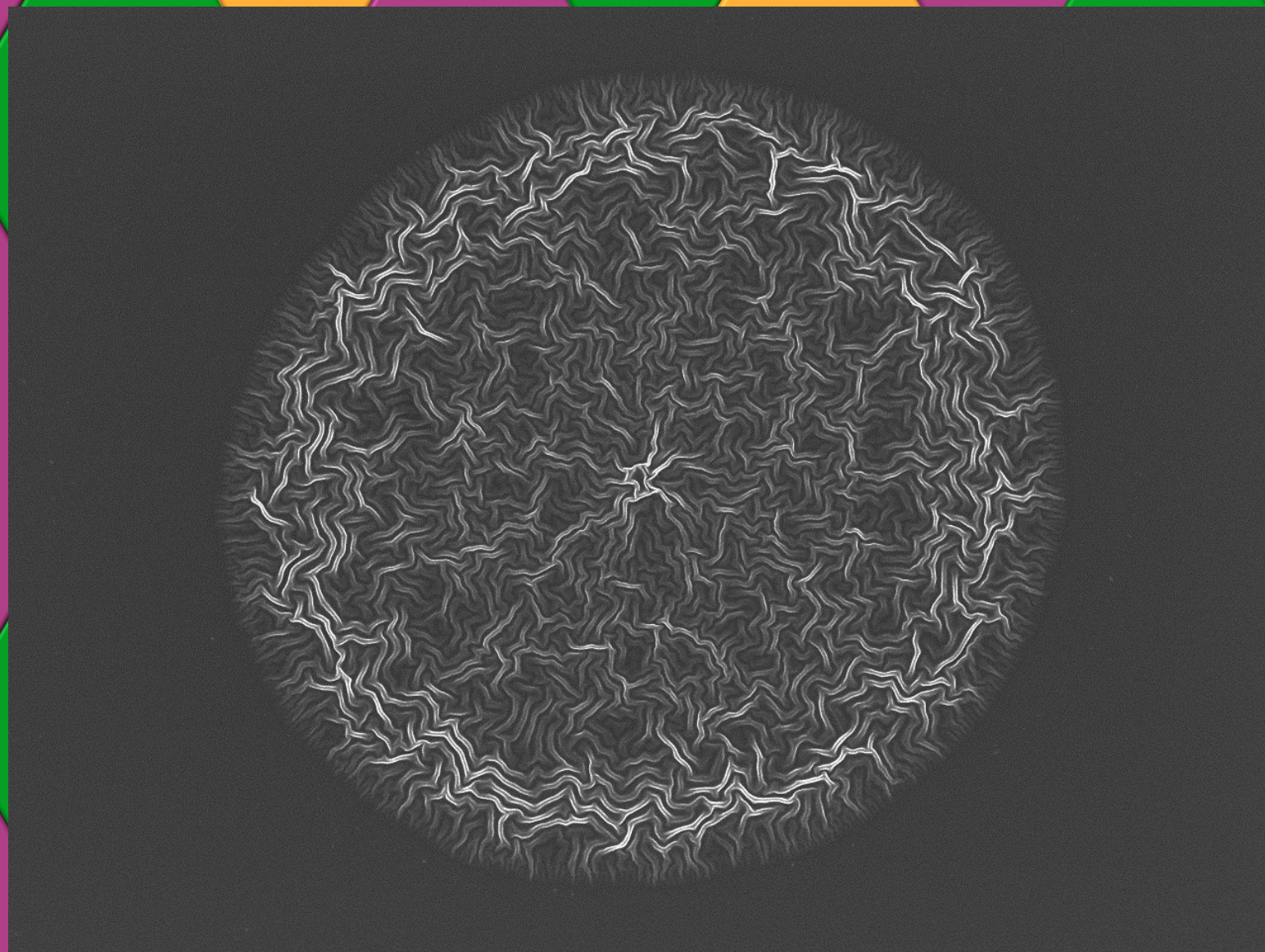
Instrument : Zeiss Gemini

Submitted by: Matteo Castellani,

Alessandro Buzzi

Affiliation: MIT

Sponsored by: **zyvex**
LABS





2022 EIPBN MicroGraph Contest

(#35)

**Micrograph Title: Nano Wine
Cellar**

Description:

**Silicon pillars made by low RF
power ICP-RIE**

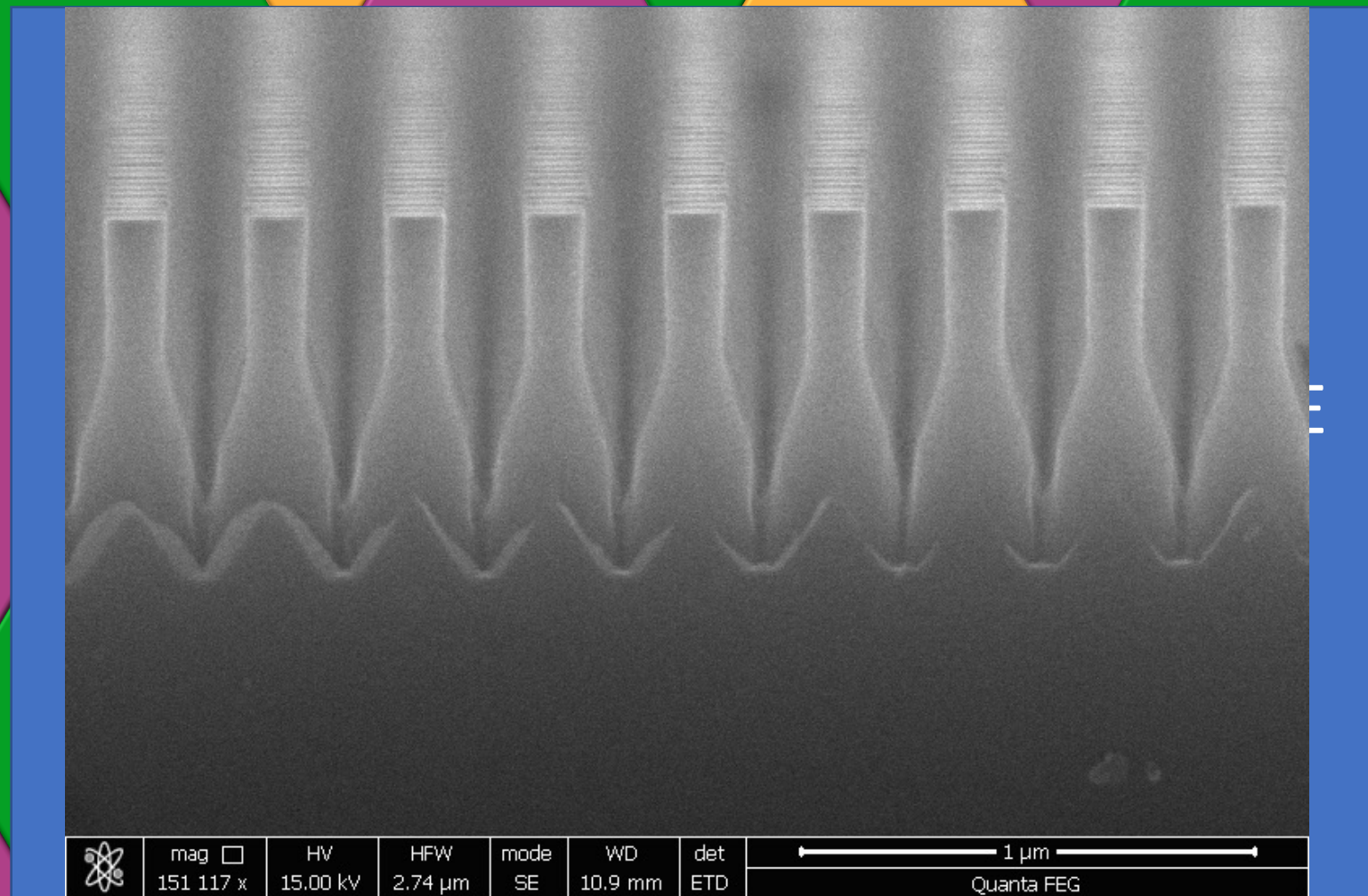
Image Details:

Orig. Mag (3"x 4" image): 151.117kX

Instrument : FEI Quanta 650 ESEM

Submitted by: Kun-Chieh Chien

Affiliation: UT-Austin





2022 EIPBN MicroGraph Contest

(#36)

Micrograph Title: Minecraft Cliff

Description:

**Silicon pillars made by low RF
power ICP-RIE**

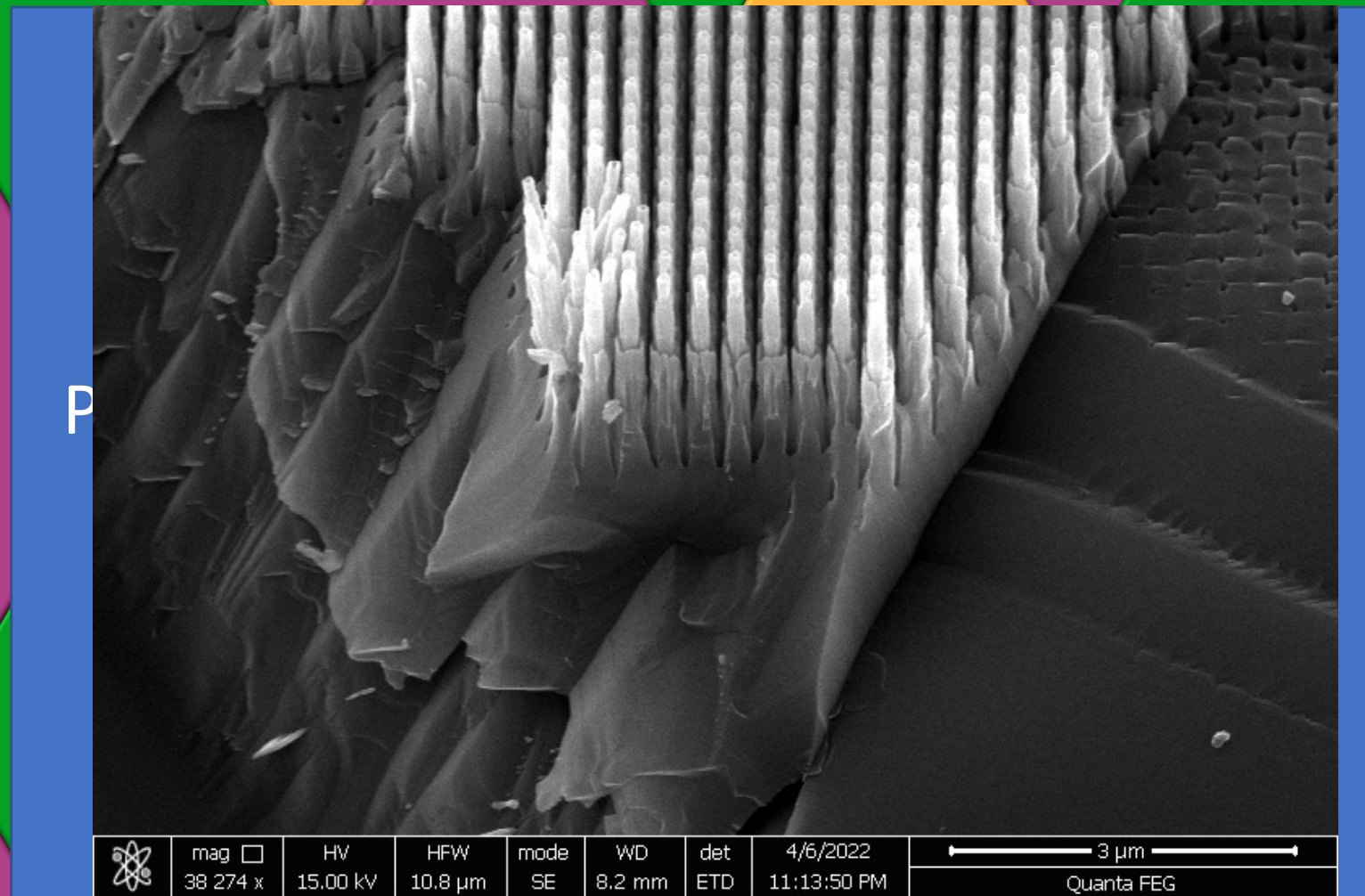
Image Details:

Orig. Mag (3"x 4" image): 38.274kX

Instrument : FEI Quanta 650 ESEM

Submitted by: Kun-Chieh Chien

Affiliation: UT-Austin





2022 EIPBN MicroGraph Contest

(#37)

Micrograph Title: Weight of a Nanoparticle

Description: 100 nm particles creating divot around a 1000 nm particle on periodic structure.

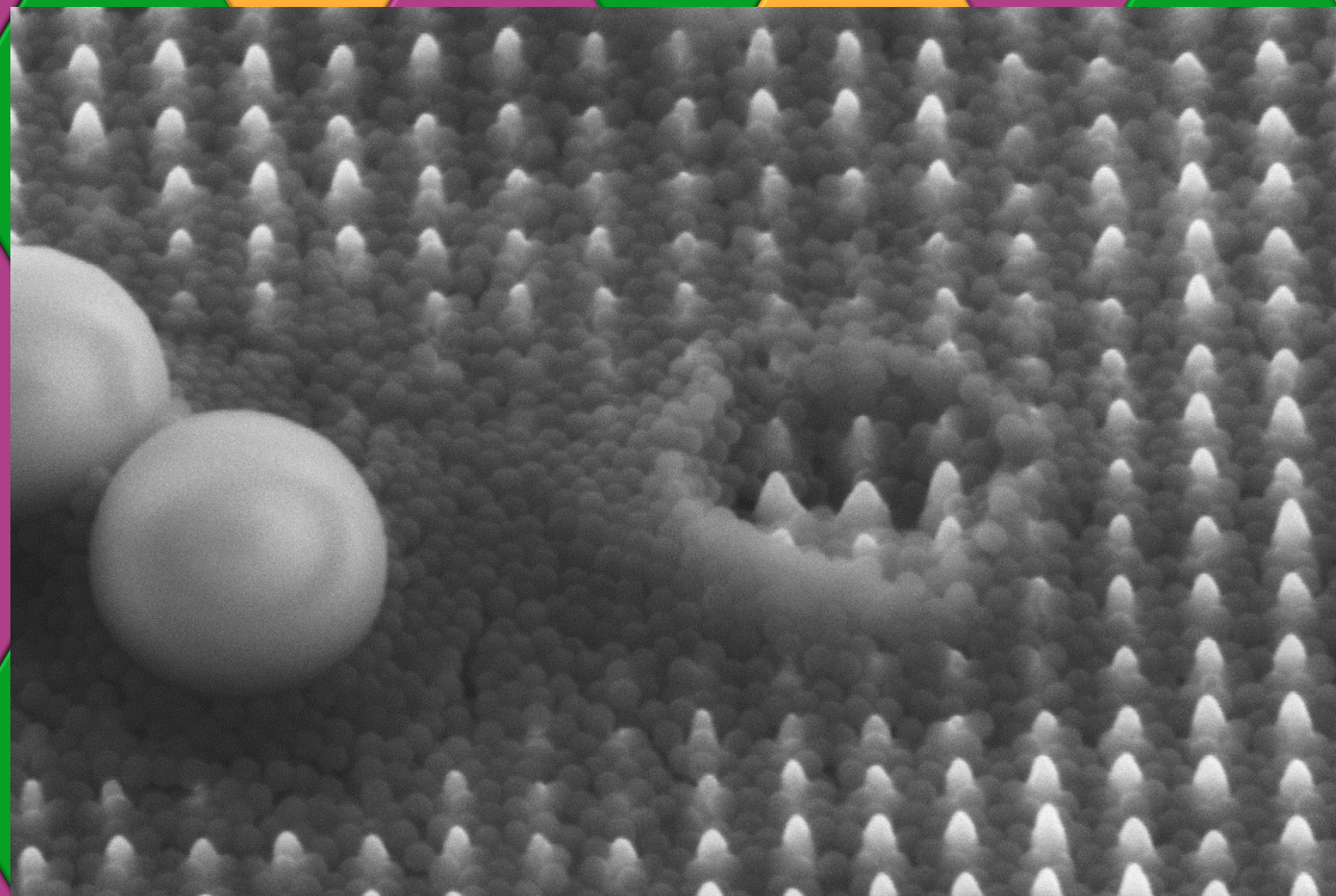
Image Details:

Orig. Mag (3"x 4" image): 84 819X

Instrument : FEI, SEM, Quanta 650

Submitted by: Andrew Tunell

Affiliation: University of Texas at Austin



	mag <input type="checkbox"/>	HV	HFW	mode	WD	det	← 2 μm →	
	84 819 x	5.00 kV	4.89 μm	SE	10.7 mm	ETD	Quanta FEG	



2022 EIPBN MicroGraph Contest

(#38)

Micrograph Title: Floating on a Bed of Nails

Description: Nanoparticles on a bed of nanospikes.

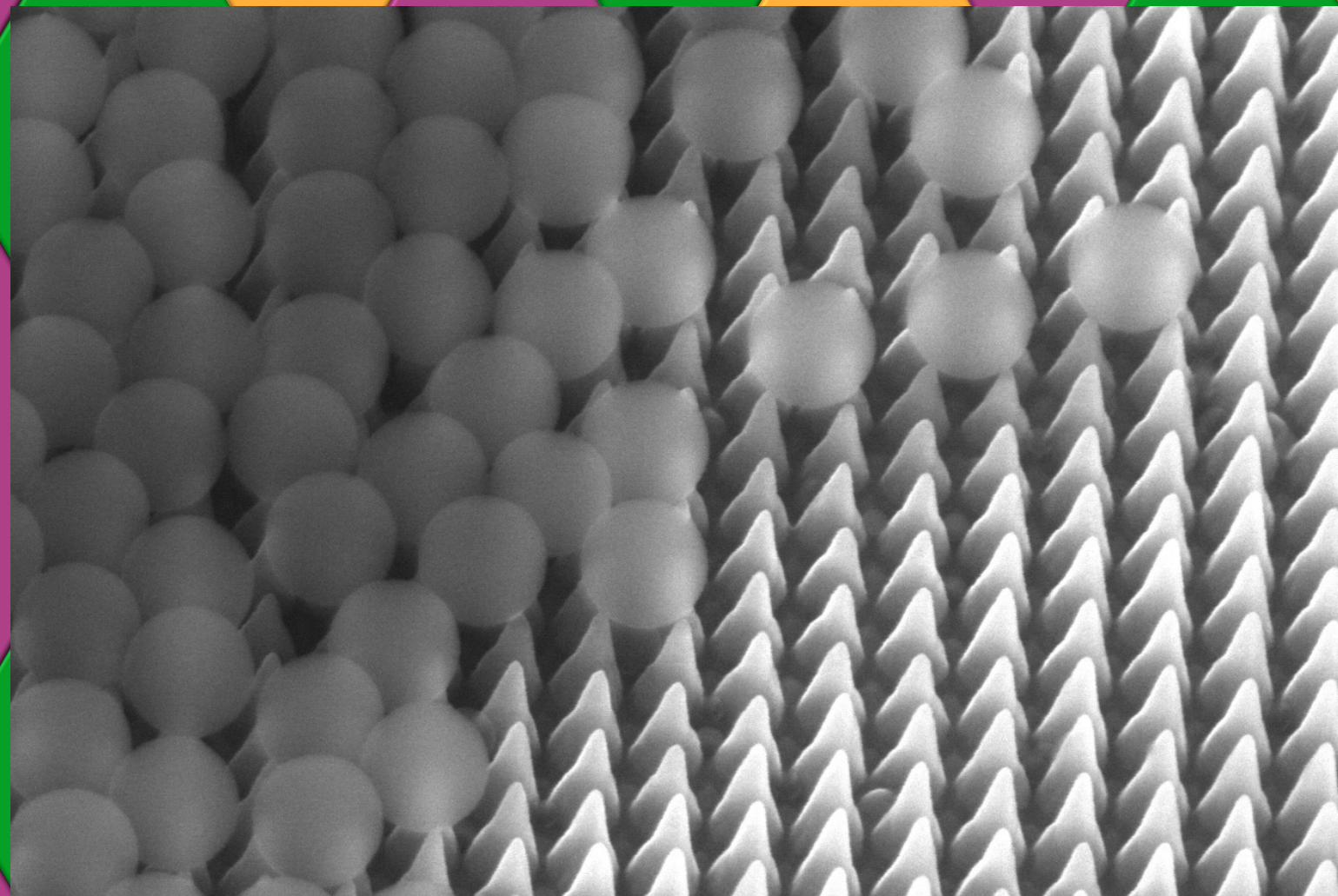
Image Details:

Orig. Mag (3" x 4" image): 81 736X

Instrument : FEI, SEM, Quanta 650

Submitted by: Andrew Tunell

Affiliation: University of Texas at Austin



	mag	HV	HPW	mode	WD	det	 Quanta FEG
	81 736 x	15.00 kV	5.07 μm	SE	14.5 mm	ETD	



2022 EIPBN MicroGraph Contest

(#39)

Micrograph Title: A River Runs Through It

Description: Nanoparticles on collapsed copper nanowires.

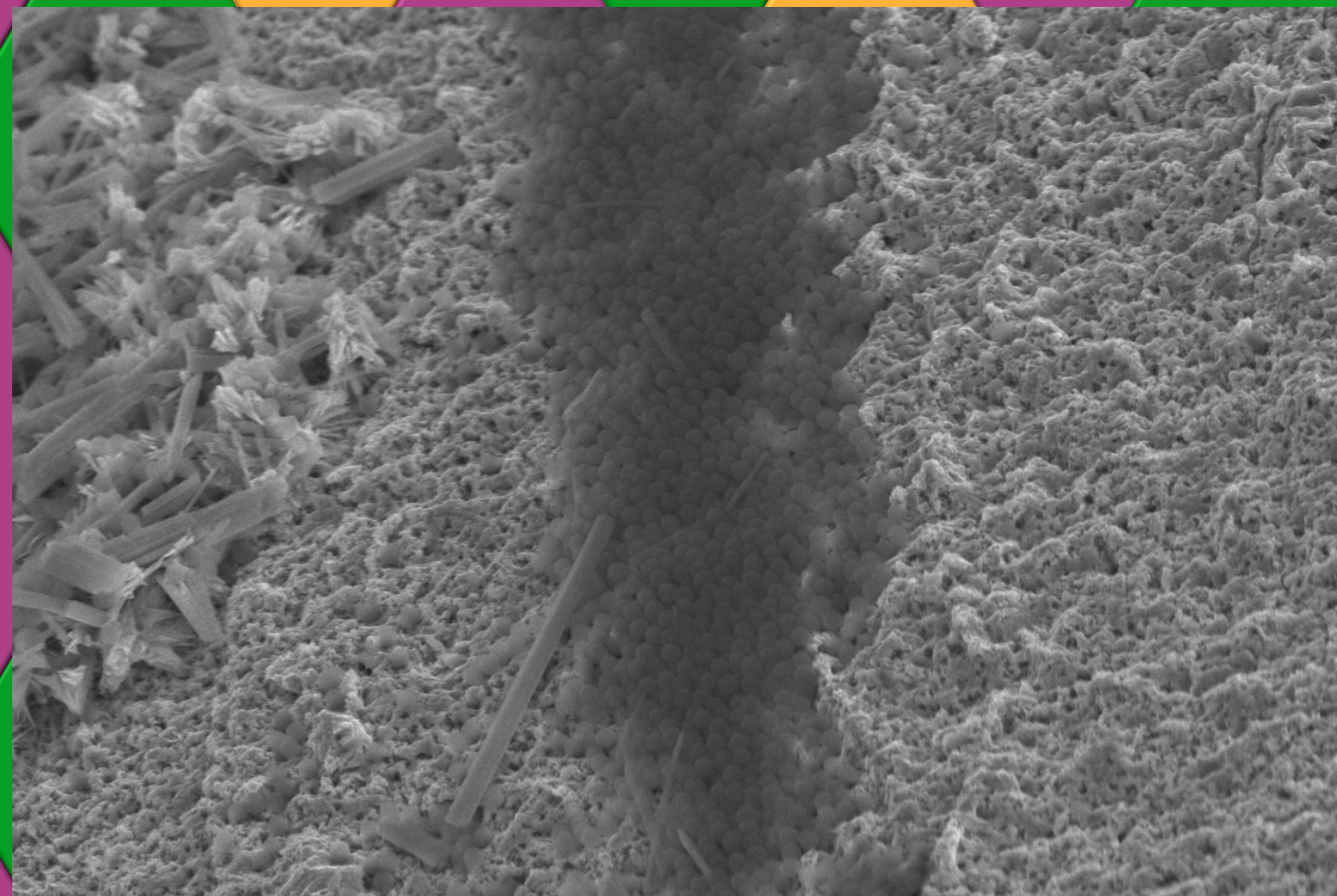
Image Details:

Orig. Mag (3" x 4" image): 12 482X

Instrument : FEI, SEM, Quanta 650

Submitted by: Andrew Tunell

Affiliation: University of Texas at Austin



	mag <input type="checkbox"/>	HV	HFV	mode	WD	det	10 μ m Quanta FEG
	12 482 x	10.00 kV	33.2 μ m	SE	8.5 mm	ETD	



2022 EIPBN MicroGraph Contest

(#40)

Micrograph Title: Rocks and Waves

Description: An incorrectly cleaved wafer with nanoparticles on a periodic structure

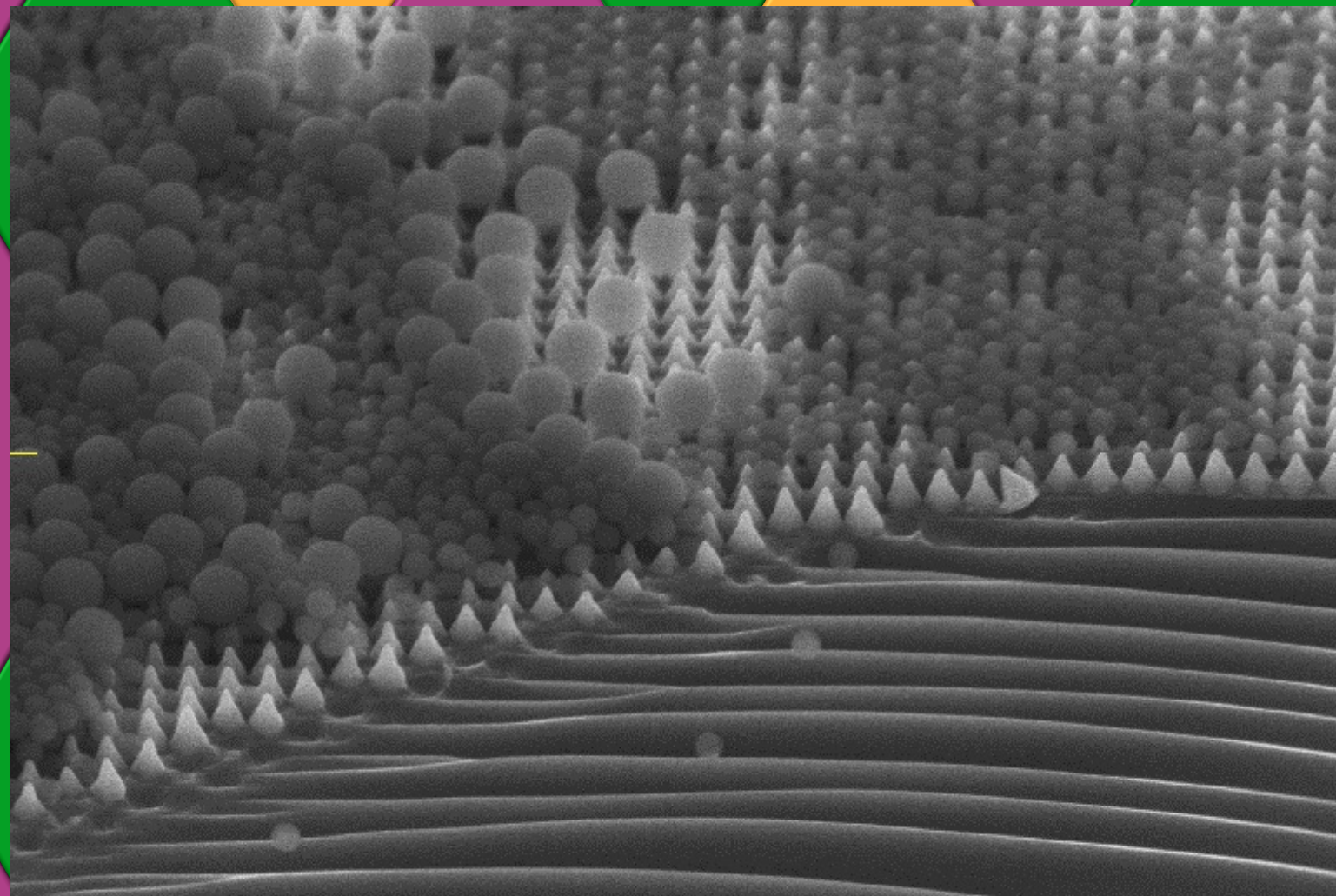
Image Details:

Orig. Mag (3"x 4" image): 39 296X

Instrument : FEI, SEM, Quanta 650

Submitted by: Andrew Tunell

Affiliation: University of Texas at Austin



	mag <input type="checkbox"/> 39 296 x	HV 5.00 kV	HFWD 10.5 μ m	mode SE	WD 7.2 mm	det ETD	4/29/2022 9:18:26 AM	 3 μ m Quanta FEG
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2022 EIPBN MicroGraph Contest

(#41)

Micrograph Title: The Ball Pit

Description: Nanoparticles on a periodic nanostructure.

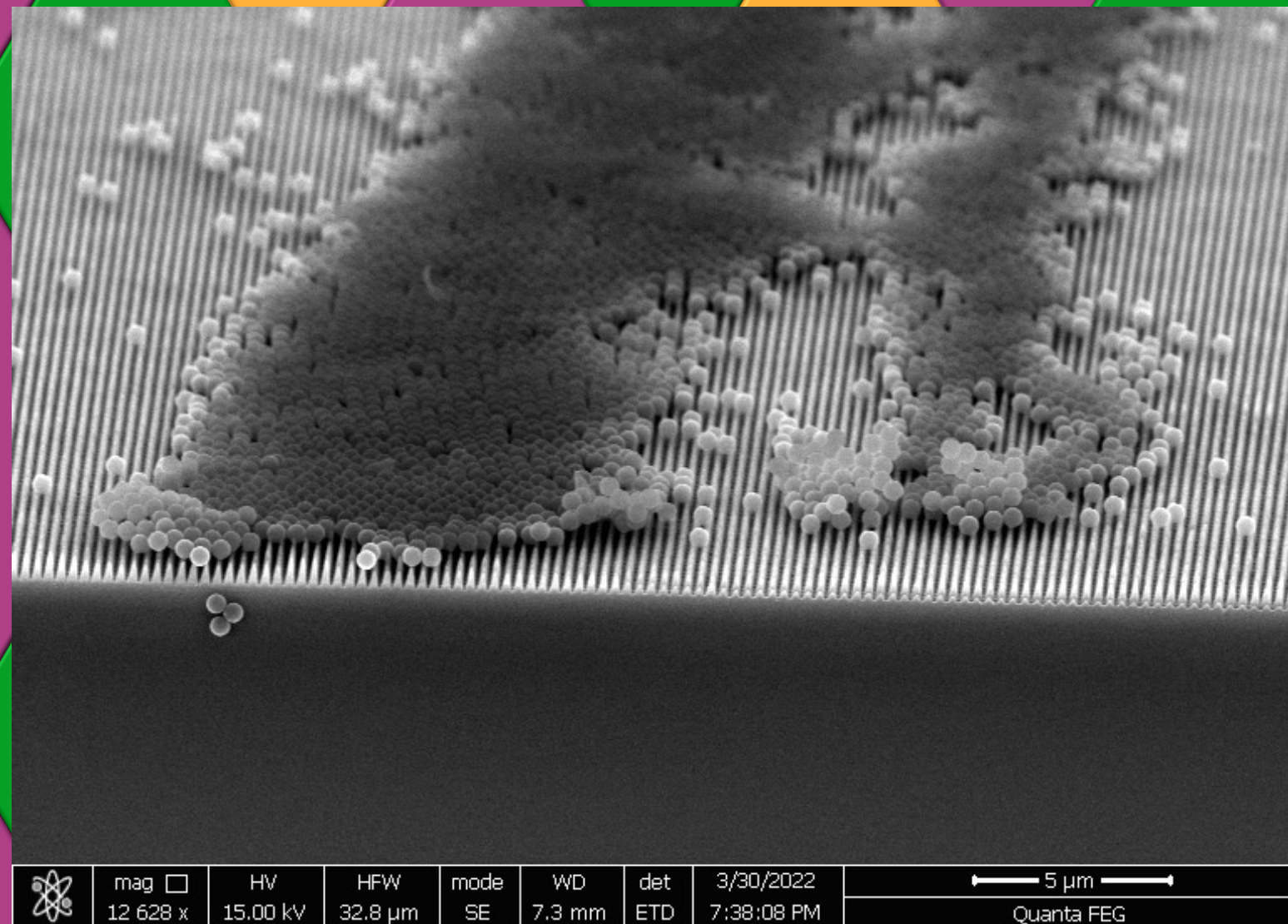
Image Details:

Orig. Mag (3"x 4" image): 12 628X

Instrument : FEI, SEM, Quanta 650

Submitted by: Andrew Tunell

Affiliation: University of Texas at Austin



mag
12 628 x

HV
15.00 kV

HFW
32.8 μm

mode
SE

WD
7.3 mm

det
ETD

3/30/2022
7:38:08 PM

5 μm

Quanta FEG



2022 EIPBN MicroGraph Contest

(#42)

Micrograph Title: The Crystal Forest

Description: Dense surface grown copper nanowires.

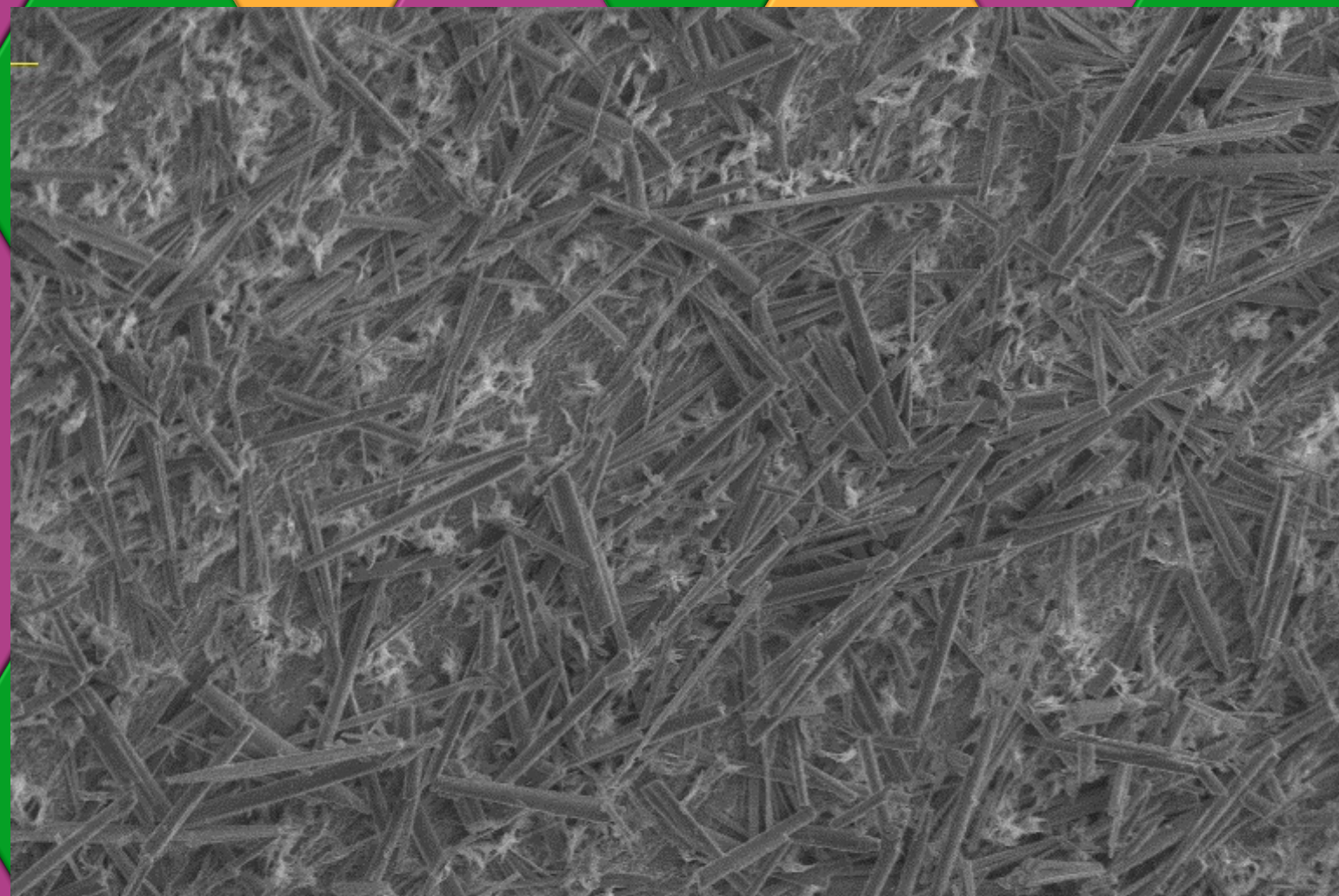
Image Details:

Orig. Mag (3"x 4" image): 5 610X

Instrument : FEI, SEM, Quanta 650

Submitted by: Andrew Tunell

Affiliation: University of Texas at Austin



	mag <input type="checkbox"/>	HV	HFW	mode	WD	det	4/29/2022	 20 μm
	5 610 x	5.00 kV	73.9 μm	SE	17.8 mm	ETD	9:36:28 AM	Quanta FEG



2022 EIPBN MicroGraph Contest

(#43)

Micrograph Title: Don't Let Me Fall

Description: Nanoparticles on the edge of a periodic nanostructure.

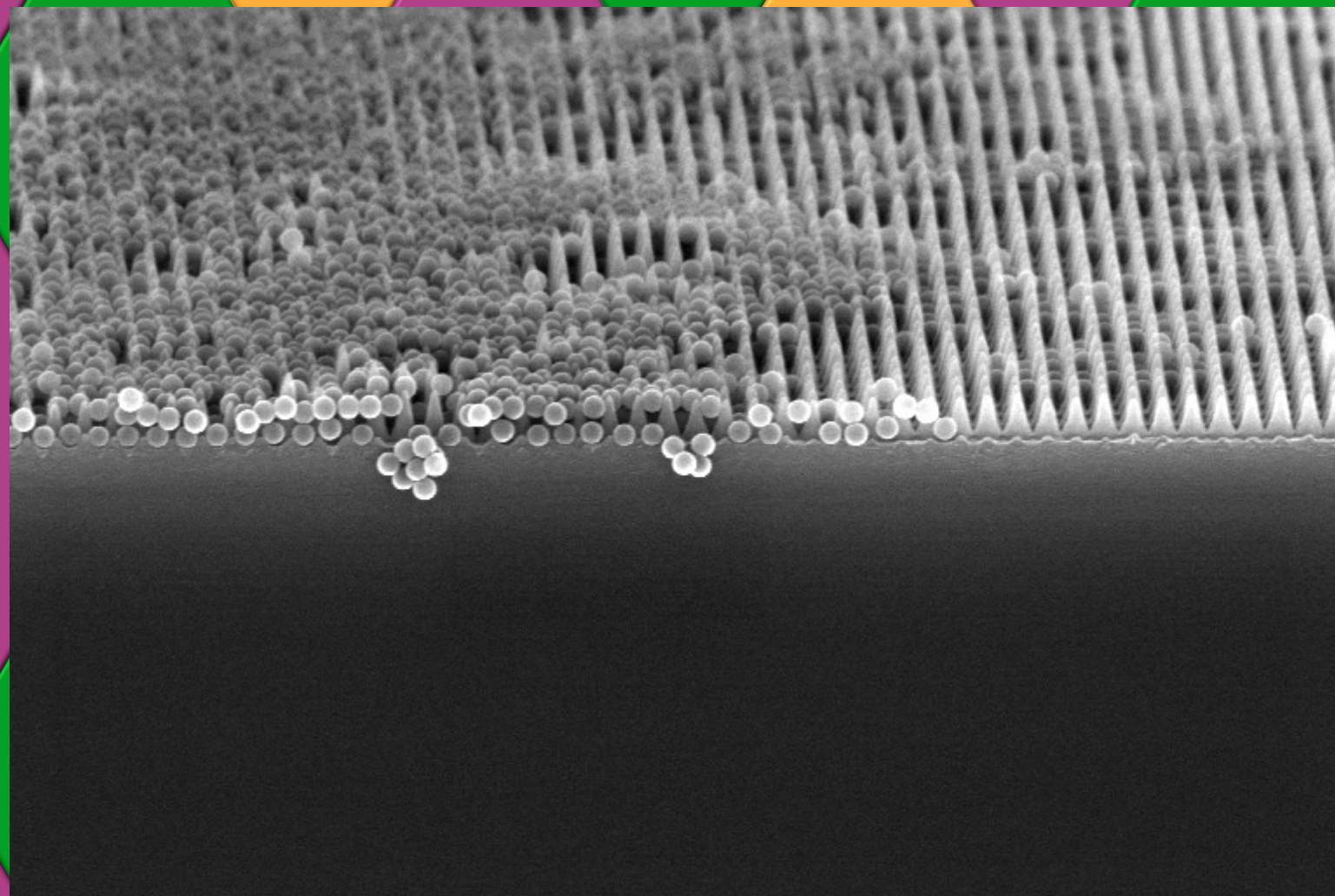
Image Details:

Orig. Mag (3" x 4" image): 29 463X

Instrument : FEI, SEM, Quanta 650

Submitted by: Andrew Tunell

Affiliation: University of Texas at Austin



	mag <input type="checkbox"/>	HV	HFW	mode	WD	det	3/30/2022	 Quanta FEG
29 463 x	15.00 kV	14.1 μm	SE	5.6 mm	ETD	8:13:32 PM		



2022 EIPBN MicroGraph Contest

(#44)

All in one

A Ronchigram-like SEM image of a square grating pattern, imaged with the beam-scan pivot point shifted from the lens plane to just above the sample. Consequently, the magnification of the sub-micron and sub-mm periodicities varies from $>100kX$ at the centre of the image, to $\sim 10x$ at the edge, where the rings represent the boundaries of the magnetic lens pole piece at the mm scale. In between is a ring of infinite magnification.

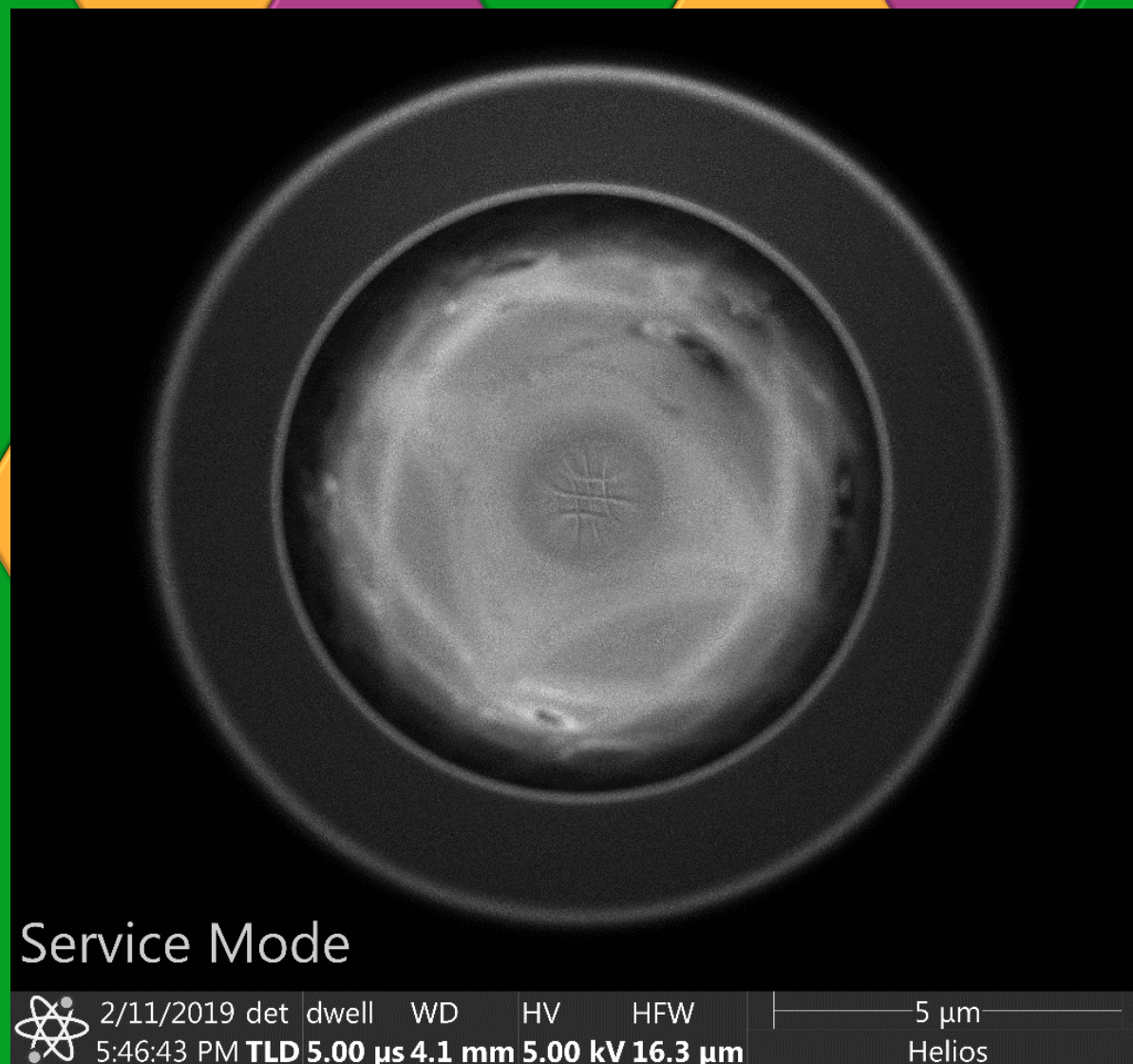
Orig. Mag (3" x 3" image): 10^{-2} - 10^2 - ∞ kX

Instrument : FEI Helios small dual beam

Submitted by: Dustin Laur, Diederik Maas

Affiliation: TU Delft - MInT

Sponsored by: **zyvex**
LABS



Service Mode



2/11/2019 det dwell WD HV HFW
5:46:43 PM TLD 5.00 μ s 4.1 mm 5.00 kV 16.3 μ m

5 μ m
Helios



2022 EIPBN MicroGraph Contest

(#45)

Micrograph Title: Star Tetrahedron (Merkaba)

Description: Field emission scanning electron microscopic image of rice husk carbon treated with KOH heated at 700 °C in Argon atmosphere

Image Details:

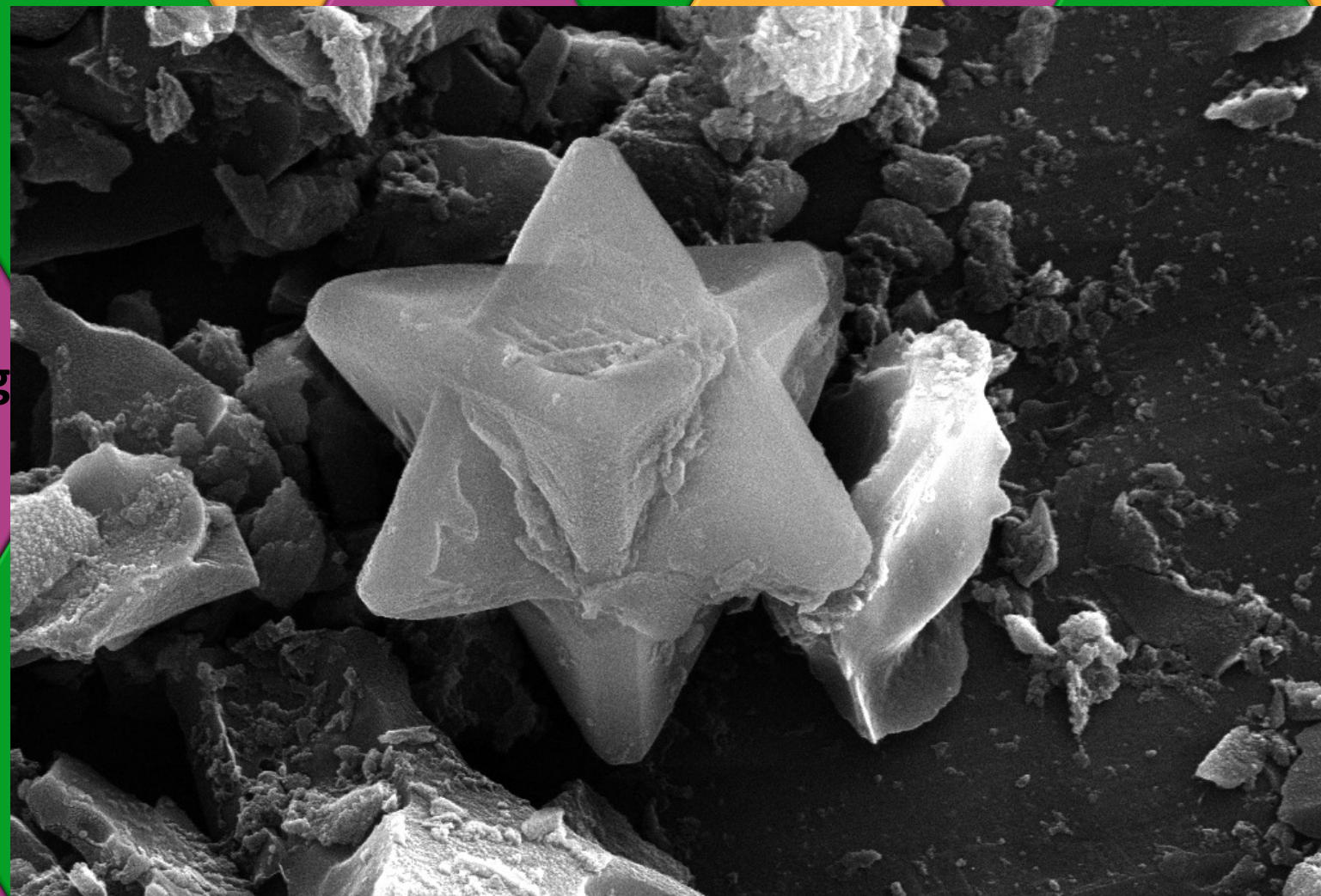
Orig. Mag (3"x 4" image): 30kX

Instrument : ZEISS SUPRA GEMINI55

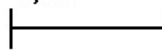
Submitted by: Surya Kanta Ghadei

Affiliation: CSIR-IMMT

Sponsored by: **zyvex**
LABS



1 μ m



EHT = 15.00 kV

WD = 6.2 mm

Signal A = InLens

Mag = 30.00 K X

Date :13 May 2022

Time :17:20:53





2022 EIPBN MicroGraph Contest

(#46)

Micrograph Title: Grayscale lithography makes colorful process

Description: Resist after development using grayscale lithography. This none colorized image shows how the color of the resist change with the thickness.

Image Details:

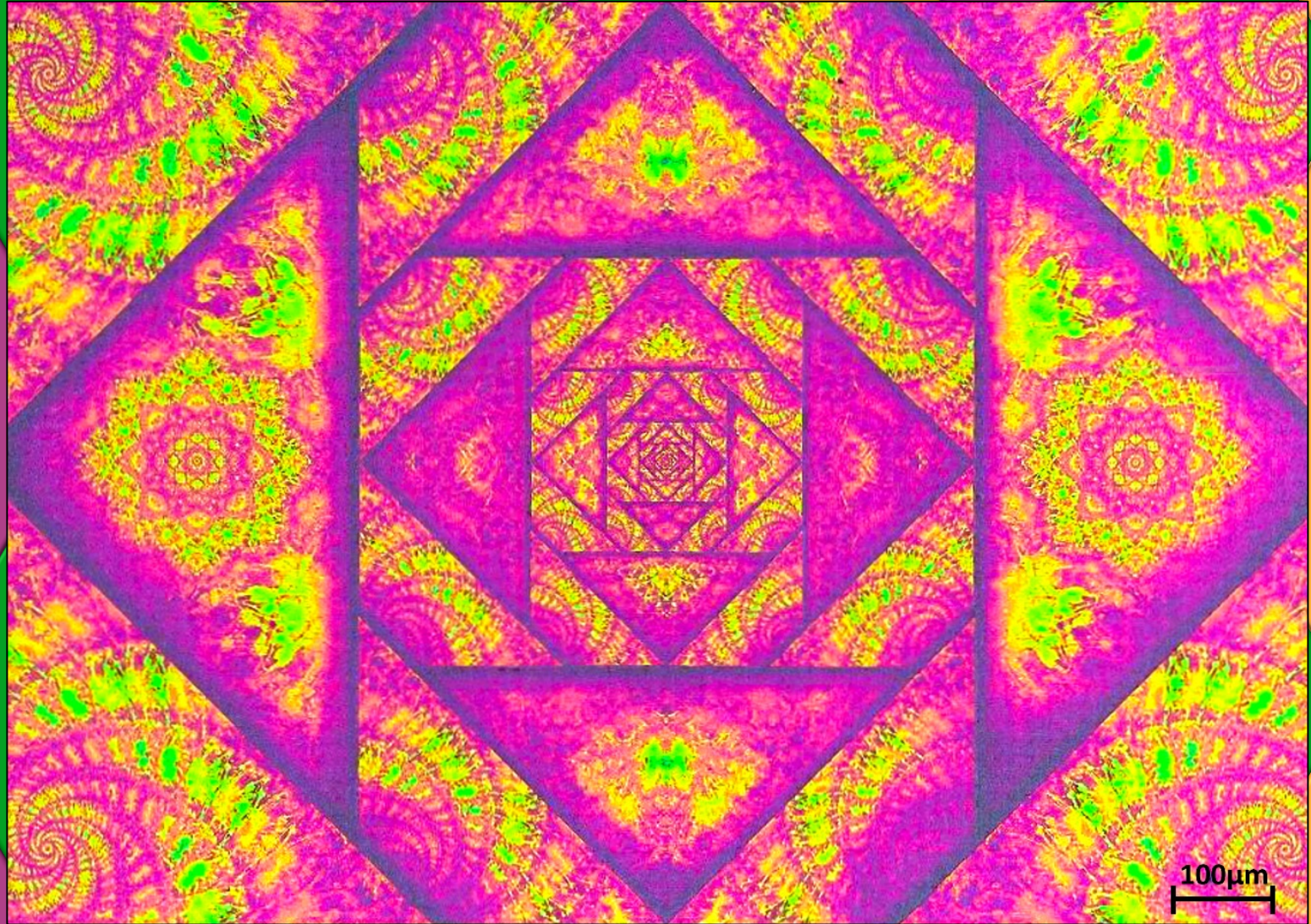
Orig. Mag (3" x 4" image): 5X

Instrument : Digital Microscope - Keyence - VK-X1100

Submitted by: Raphael Dawant

Affiliation: 3IT - USherbrooke

Sponsored by: **zyvex**
LABS





2022 EIPBN MicroGraph Contest

(#47)

Micrograph Title: Penrose tiling

Description: Penrose tiling marker used for Ebeam alignment by cross-correlation. This non-periodic structure is used for alignment by images on an EBPG5200 system

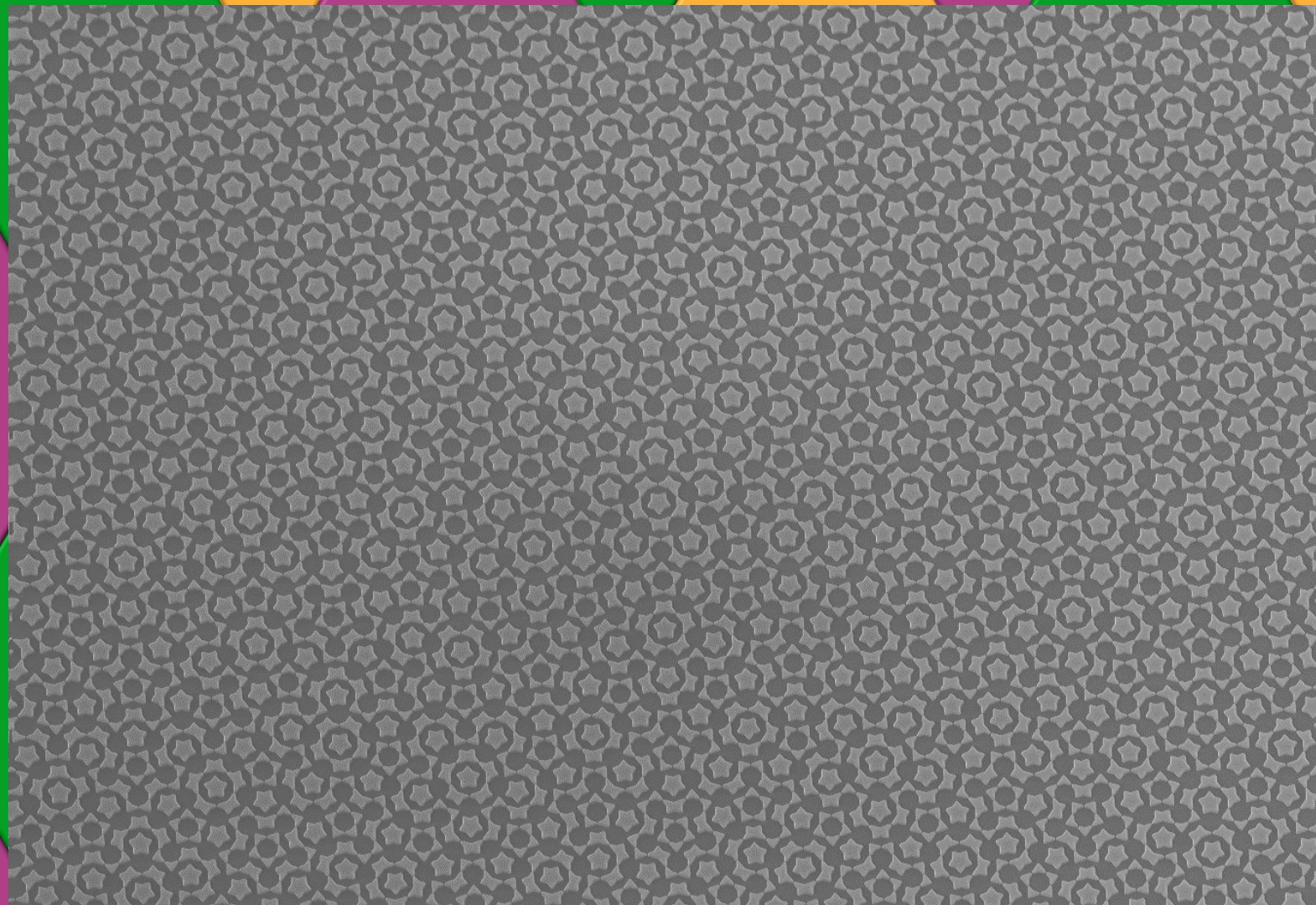
Image Details:

Orig. Mag (3" x 4" image): 2kX

Instrument : Microscope Zeiss Leo 1540 XB

Submitted by: Raphael Dawant

Affiliation: 3IT - USherbrooke



Sponsored by: **zyvex**
LABS

Signal A = InLens EHT = 20.00 kV Mag = 2.00 K X 2 μ m CRN2 Aperture Size = 30.00 μ m Tilt Angle = 0.0 ° Date :8 Apr 2022
penrose46.tif WD = 6.5 mm Stage at T = 0.0 ° Tilt Corr. = Off Time :16:17:46



2022 EIPBN MicroGraph Contest

(#48)

Micrograph Title:

Swimming Past Blushing Star Coral

Description: This image is of a block co-polymer with “blocks” dissolved and stretched by sonication. This layer in our materials enables simultaneous electron movement and protection of deeper layers.

Image Details:

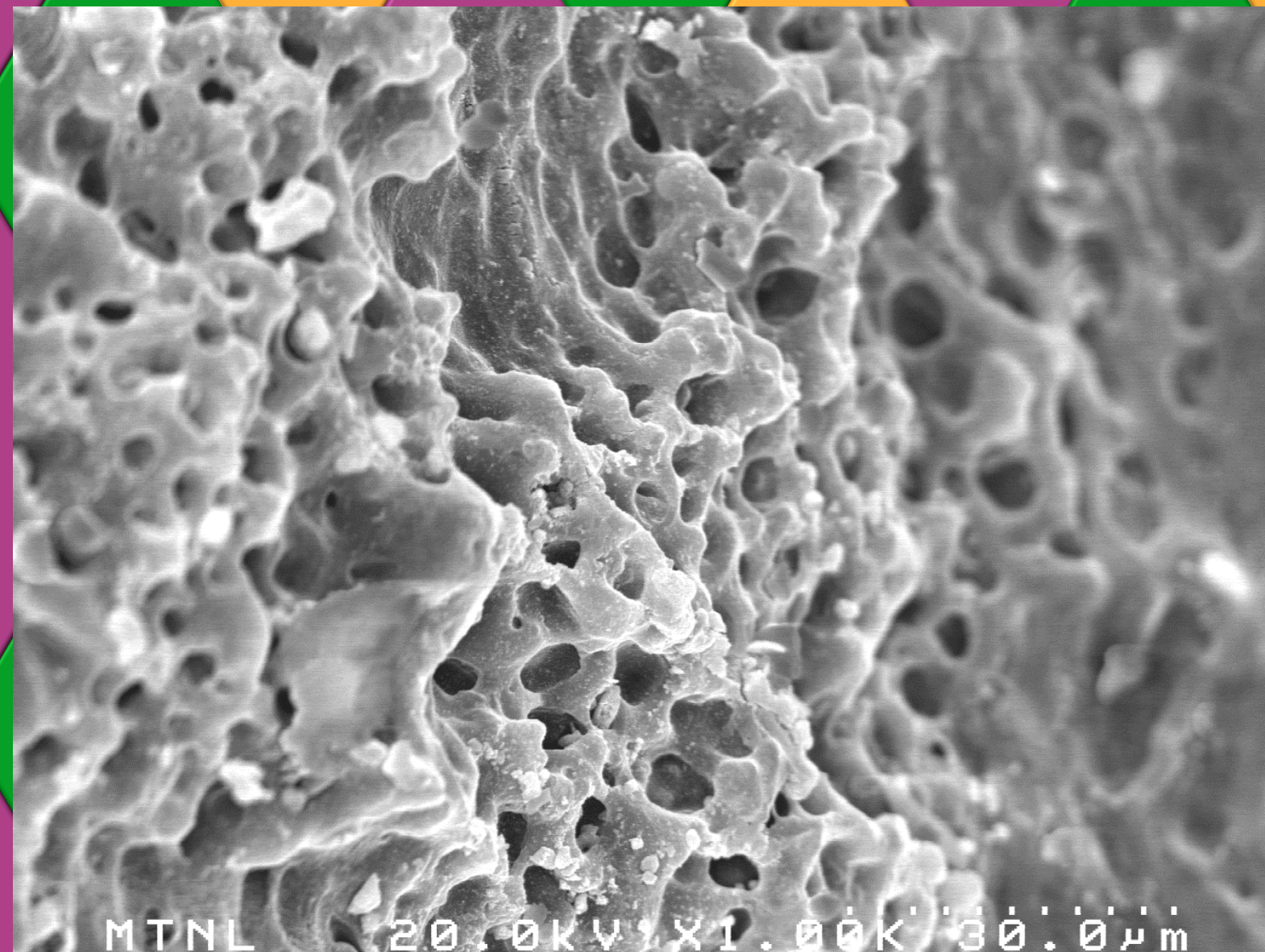
Orig. Mag (3”x 4” image): 1 kX

Instrument : Hitachi S-4500

Submitted by: Jessica M. Andriolo

**Affiliation: Montana Tech Nanotechnology
Laboratory**

Sponsored by: **zyvex**
LABS





2022 EIPBN MicroGraph Contest

(#49)

Micrograph Title: Dino-lamella

Description: An induced pluripotent stem cell cardiomyocyte was cultured on an EM grid, frozen in LN2-cooled ethane, and loaded into the Aquilos. After a protective Pt GIS coating, a lamella was milled with a focused Ga ion beam. The GIS coating could not protect the cell from morphing into...dino-lamella!

Image Details:

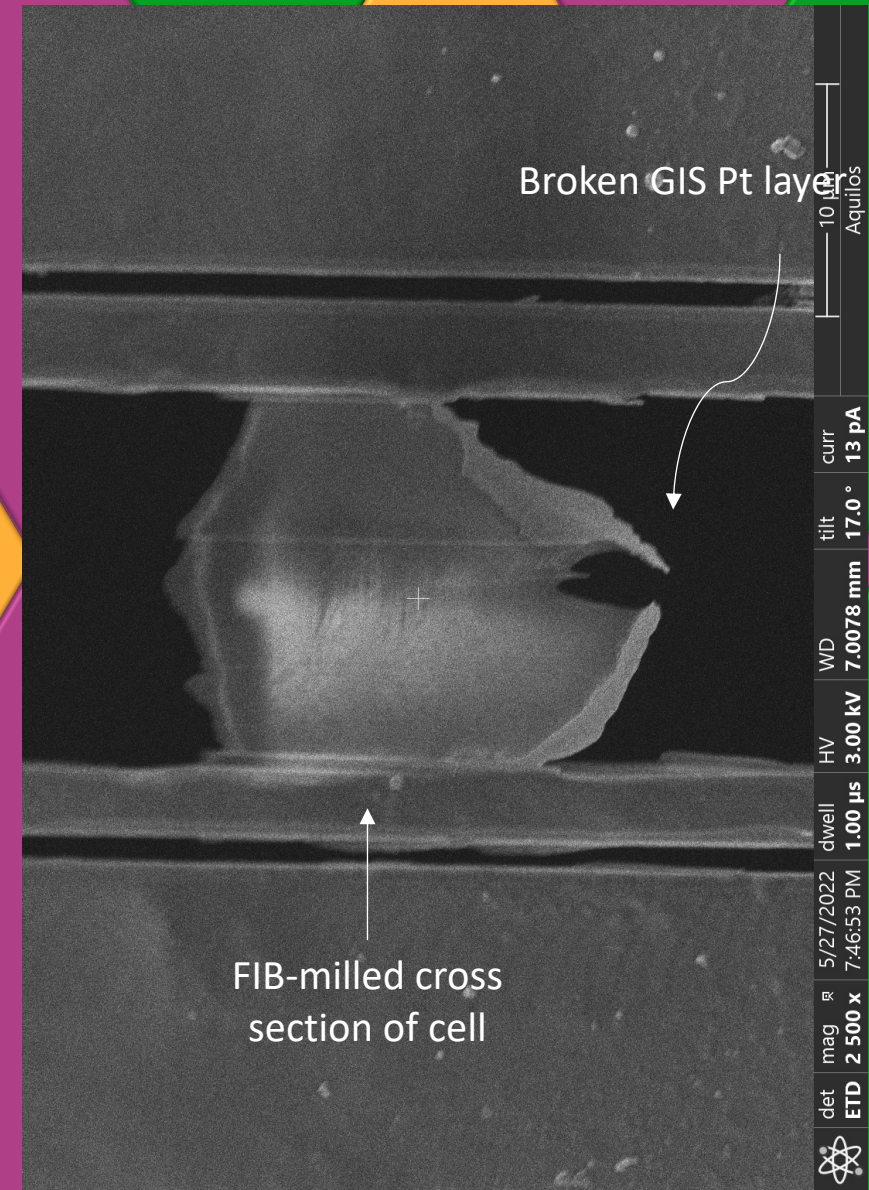
Orig. Mag (3"x 4" image): 2.5 kX

Instrument :The Thermo Scientific Aquilos Cryo-FIB for Life Sciences

Submitted by: Leeya Engel

Affiliation: Stanford University

Sponsored by: **zyvex**
LABS





2022 EIPBN MicroGraph Contest

(#50)

Micrograph Title: Unicorn Dreams

Description: Fractured silicon and polymethylmethacrylate fragments from cleaving a polymethylmethacrylate coated silicon wafer.

Image Details:

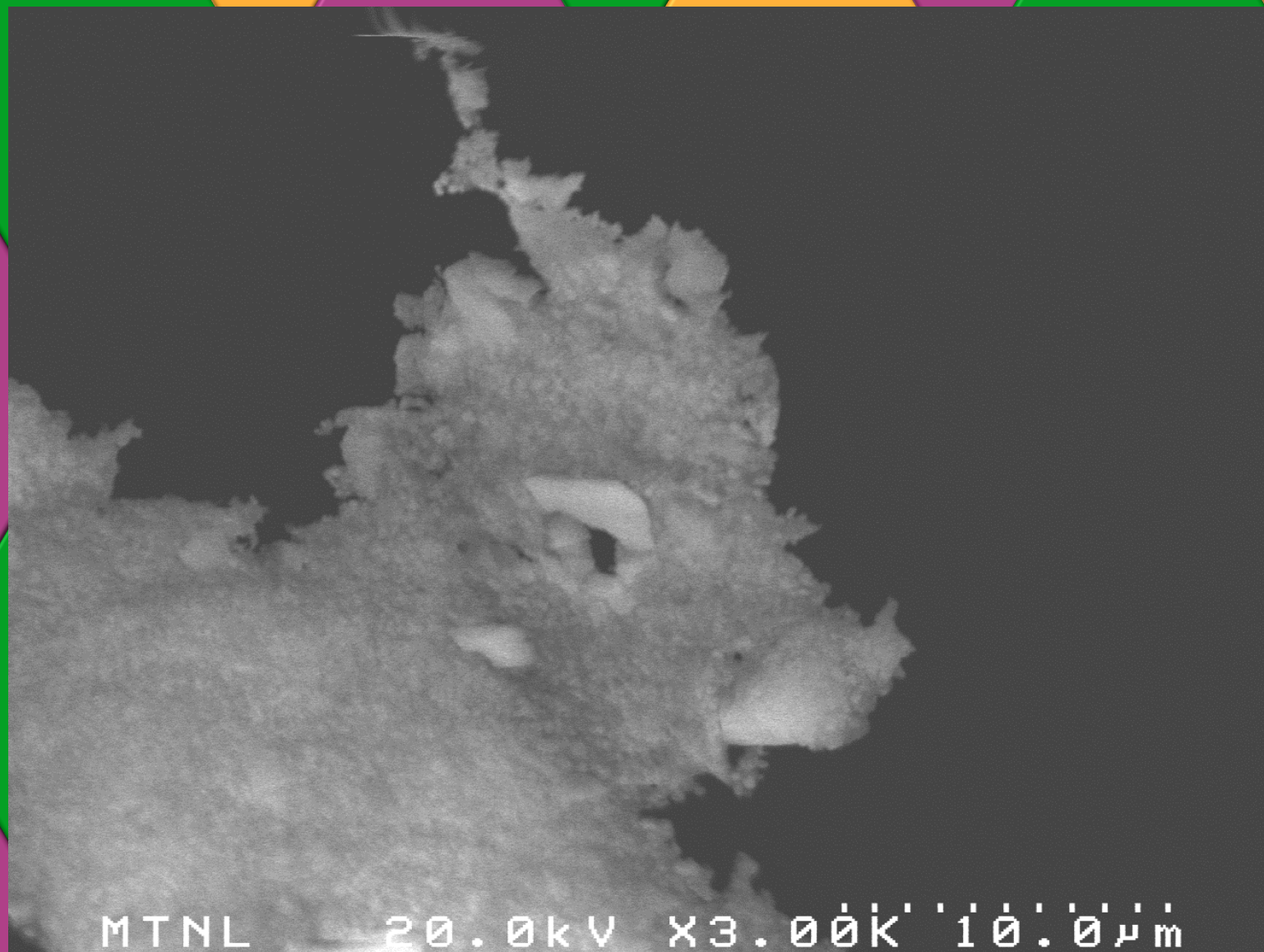
Orig. Mag (3" x 4" image): 3.00kX

Instrument : Hitachi S-4500 SEM

Submitted by: Luke J. Suttey

Affiliation: Montana Tech Nanotechnology Laboratory

Sponsored by:  zyvex
LABS





2022 EIPBN MicroGraph Contest

(#51)

Micrograph Title: Just Keep Swimming

Description: Beaded polycaprolactone fibers formed via electrospinning on construction paper.

Image Details:

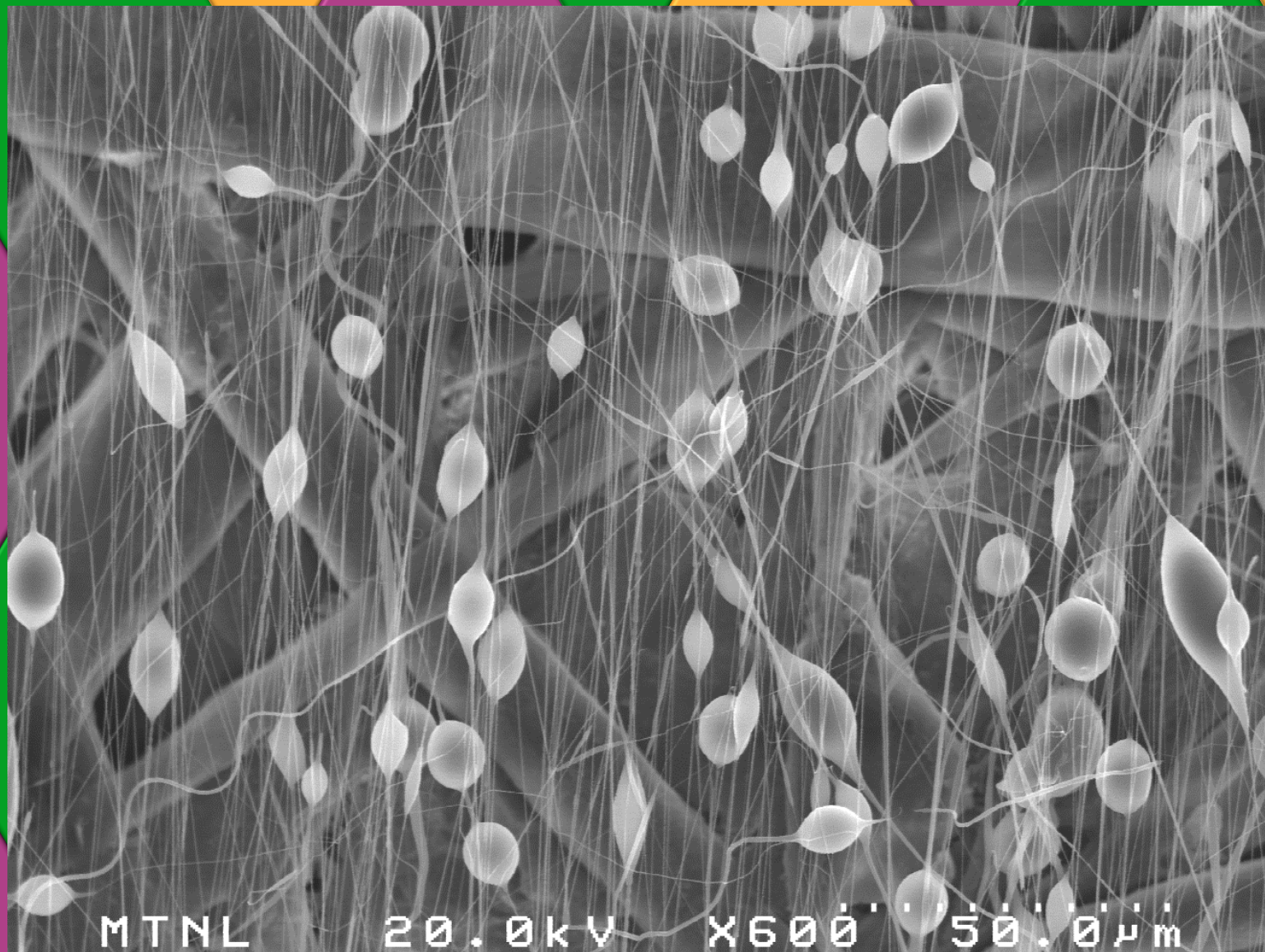
Orig. Mag (3"x 4" image): 0.6kX

Instrument : Hitachi S-4500 SEM

Submitted by: Luke J. Suttey

Affiliation: Montana Tech Nanotechnology Laboratory

Sponsored by: **zyvex**
LABS





2022 EIPBN MicroGraph Contest

(#52)

Micrograph Title:

Grumpy Nanomonster hiding

Description: Material Contrast

Image of BiCaCoO sample

acquired with AsB detector

Image Details:

Orig. Mag (3"x 4" image): 1.82 kX

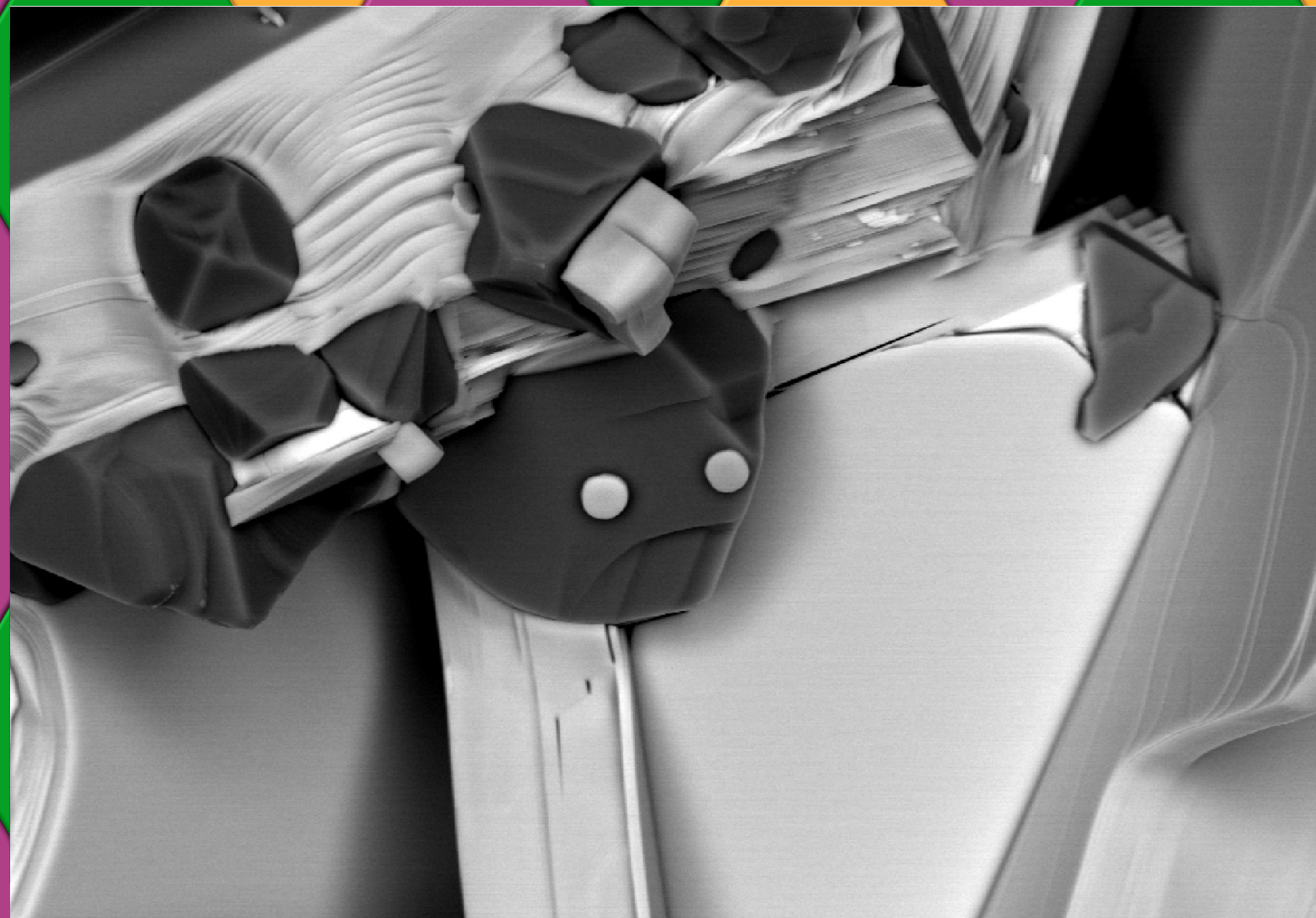
**Instrument : Raith, eLINE Plus System
(based on Zeiss Gemini SEM)**

Submitted by:

Frank Nouvertne, Heiner Malchus

Affiliation: Raith GmbH

Sponsored by: zyvex
LABS



RAITH

Mag = 1.82 KX
2 μ m

EHT = 20.00 kV
WD = 7.7 mm

Signal A = AsB
Aperture Size = 120.0 μ m



2022 EIPBN MicroGraph Contest

(#53)

Micrograph Title: Square Peg in a Round hole

Description: E-Beam resist overexposed to the point of switching from negative to positive tone

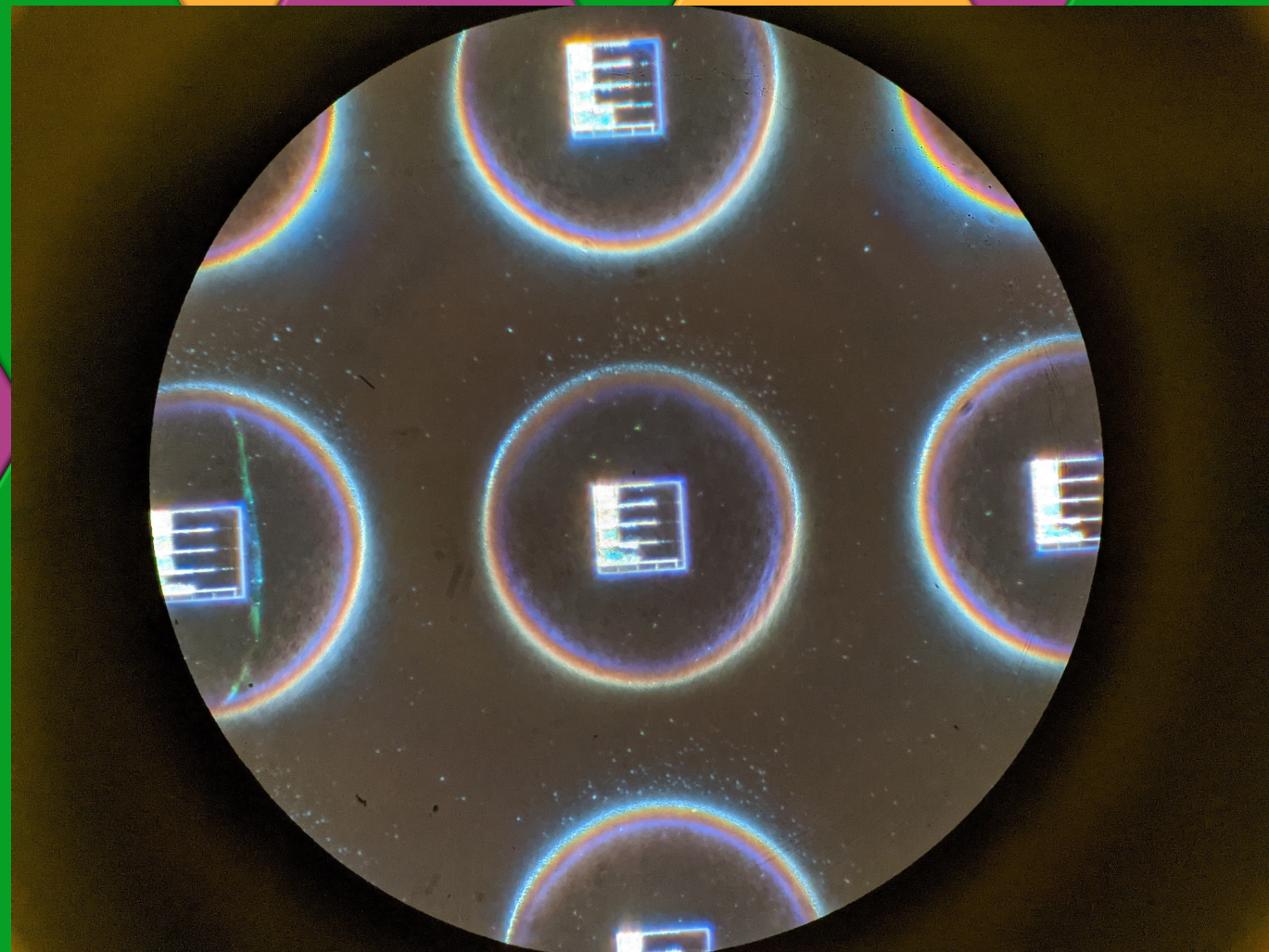
Image Details: Orig. Mag (3"x 4" image): 50X

Instrument : Olympus optical scope in dark field mode

Submitted by: Guy DeRose

Affiliation: California Institute of Technology

Sponsored by: 





2022 EIPBN MicroGraph Contest

(#54)

Micrograph Title: Tiniest

Butterfly: Made of 2 Atoms

Description: This is an empty states STM image of a single bare dimer on hydrogen terminated Si(100)-2x1 surface.

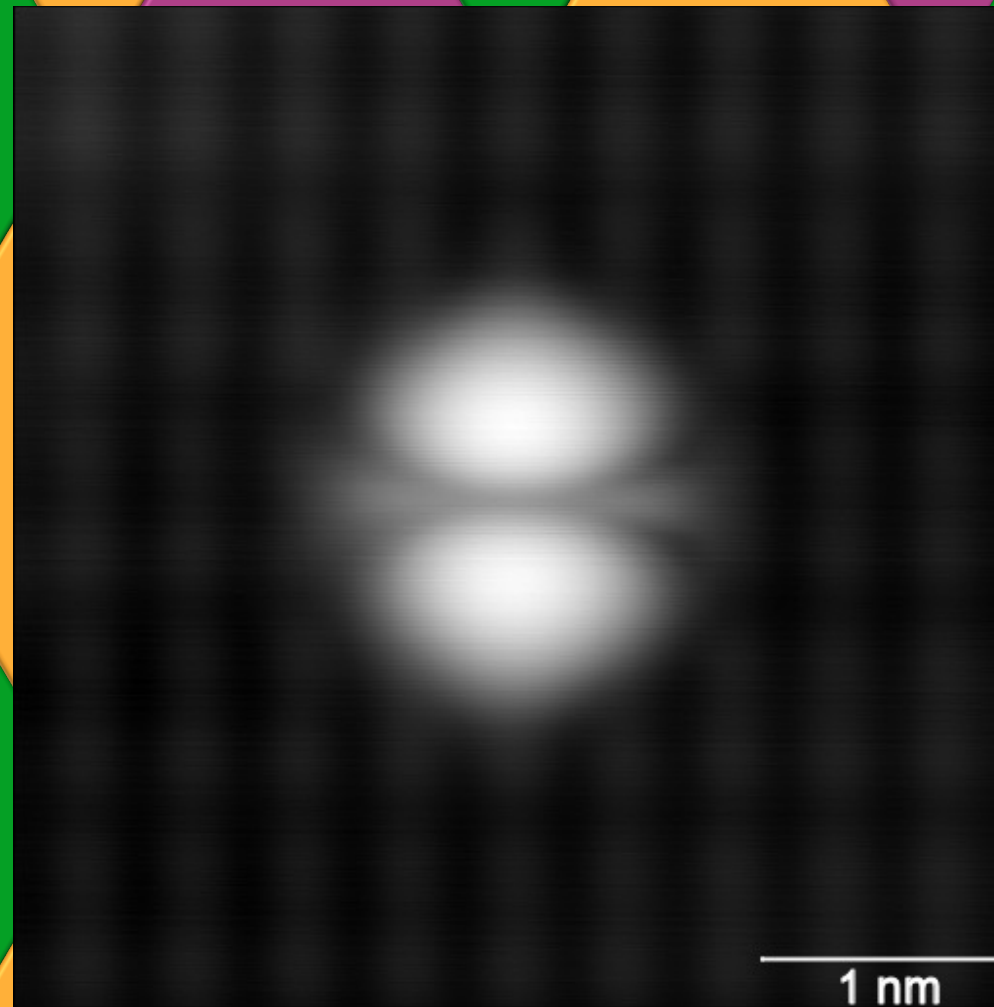
Image Details:

Orig. Mag (3" x 4" image): ~1bX

Instrument : Scienta Omicron LT UHV STM

Submitted by: Furkan Altincicek

Affiliation: University of Alberta





2022 EIPBN MicroGraph Contest

(#55)

Micrograph Title: Bird over a lake with a forest reflection

Description: Ion image of a micro-lens milled in lithium niobate

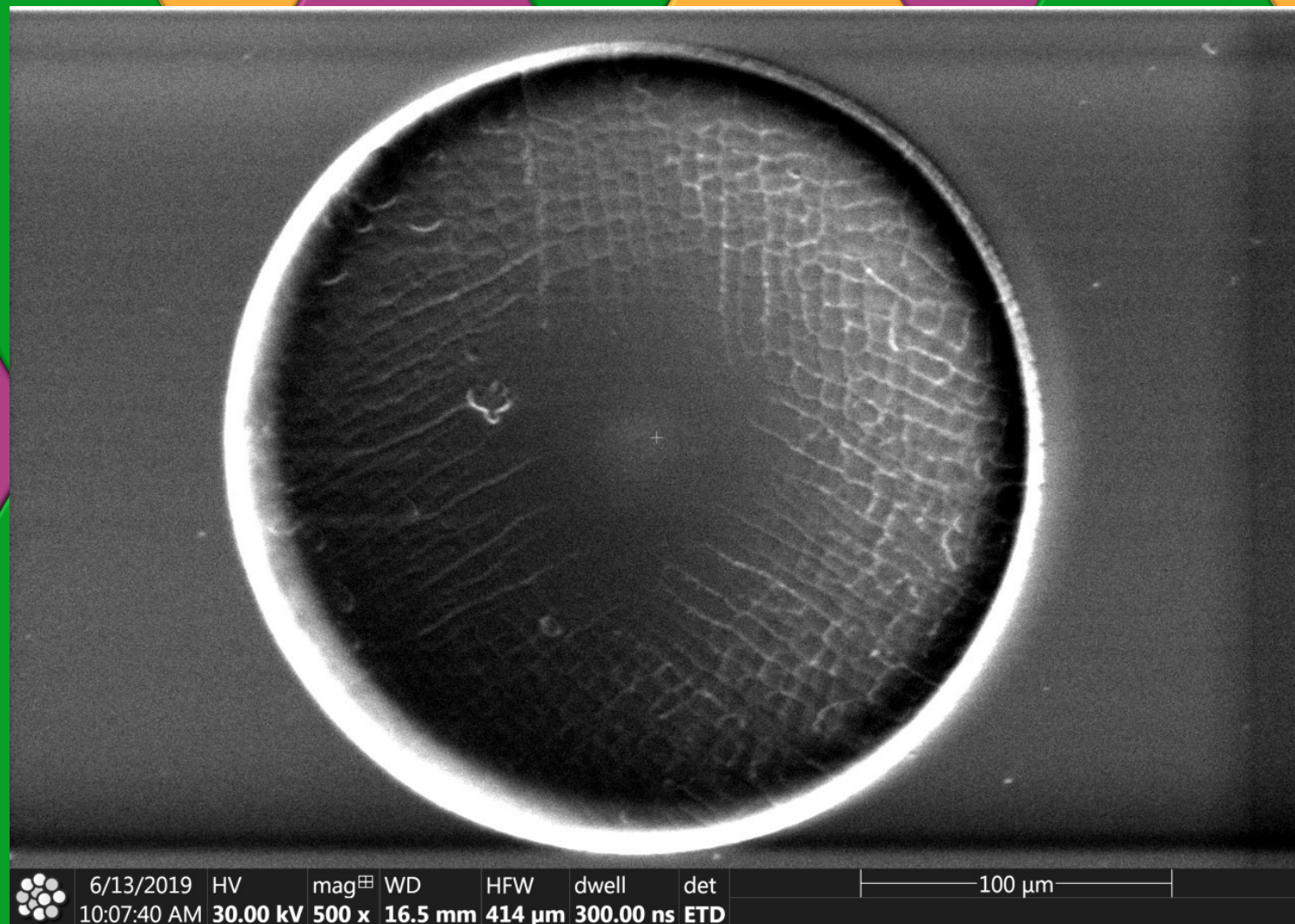
Image Details:

Orig. Mag (3" x 4" image): 500×

Instrument : ThermoFisher Helios Ux-G4 plasma-FIB

Submitted by: Sergey Gorelick

Affiliation: Monash University, Australia





2022 EIPBN MicroGraph Contest

(#56)

Micrograph Title: Can you spot a human face under the worm?

Description: Ion image of a 1D array of focusing lenses milled with Xe ion beam

Description: Ion image of a 1D array of focusing lenses milled with Xe ion beam

Image Details:

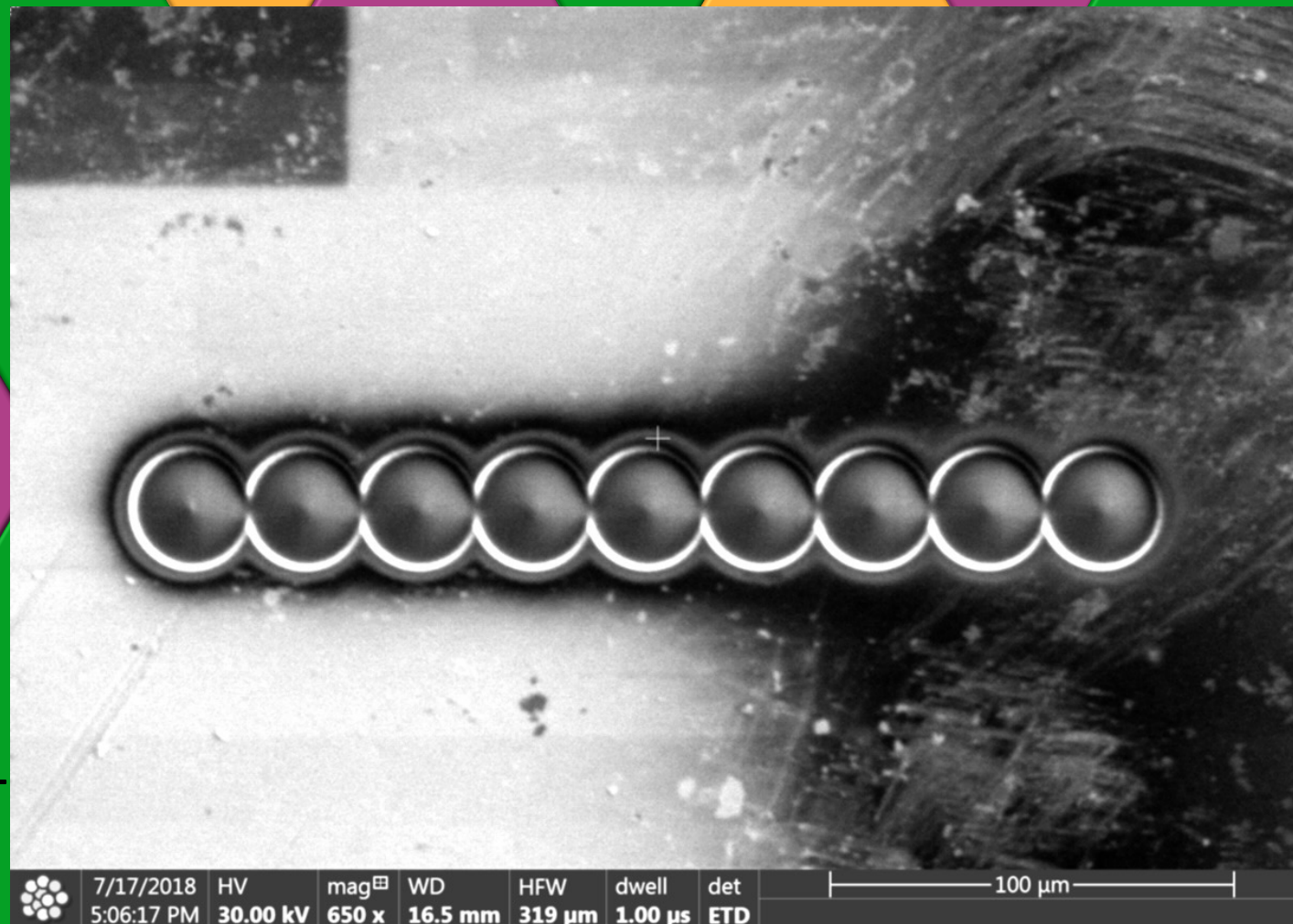
Orig. Mag (3" x 4" image): 650x

Instrument : ThermoFisher Helios Ux-G4 plasma-FIB

Submitted by: Sergey Gorelick

Affiliation: Monash University, Australia

Sponsored by: 





2022 EIPBN MicroGraph Contest

(#57)

Micrograph Title: Surface of a 6D hyper cube

Description: Surface of lithium niobite after ultra-high beam current milling

Image Details:

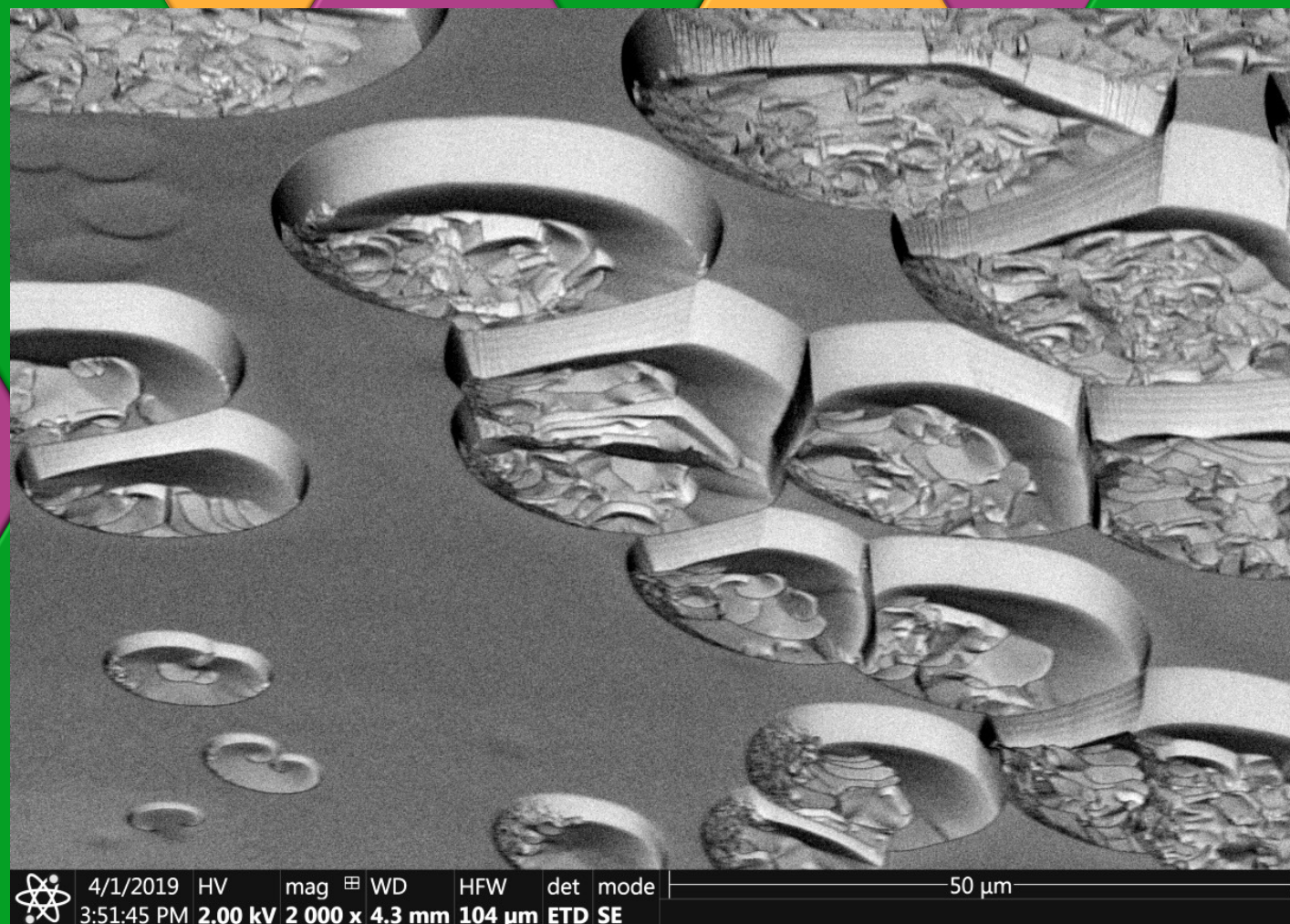
Orig. Mag (3" x 4" image): 2kx

Instrument : ThermoFisher Helios Ux-G4 plasma-FIB

Submitted by: Sergey Gorelick

Affiliation: Monash University, Australia

Sponsored by: **zyvex**
LABS





2022 EIPBN MicroGraph Contest

(#58)

Micrograph Title: Fat micro-worm

Description: 1D array of focusing microlenses milled with ion beam

Image Details:

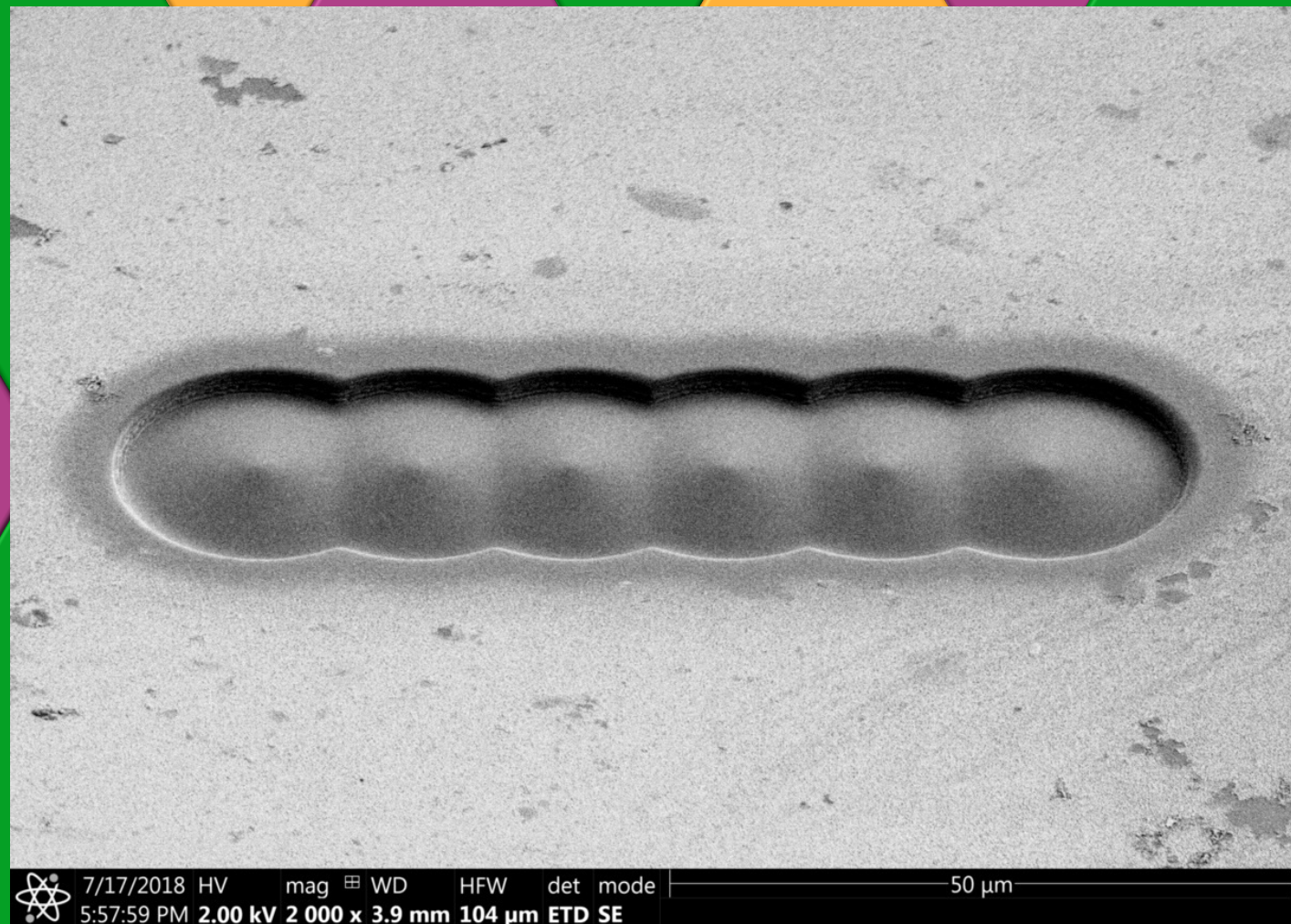
Orig. Mag (3" x 4" image): 2kx

Instrument : ThermoFisher Helios Ux-G4 plasma-FIB

Submitted by: Sergey Gorelick

Affiliation: Monash University, Australia

Sponsored by:  **zyvex**
LABS



7/17/2018 HV mag \boxplus WD HFW det mode
5:57:59 PM 2.00 kV 2 000 x 3.9 mm 104 μ m ETD SE

50 μ m



2022 EIPBN MicroGraph Contest

(#59)

Micrograph Title: Big worm watching Giza pyramids

Description: Pyramids milled in substrate with ion beam

Image Details:

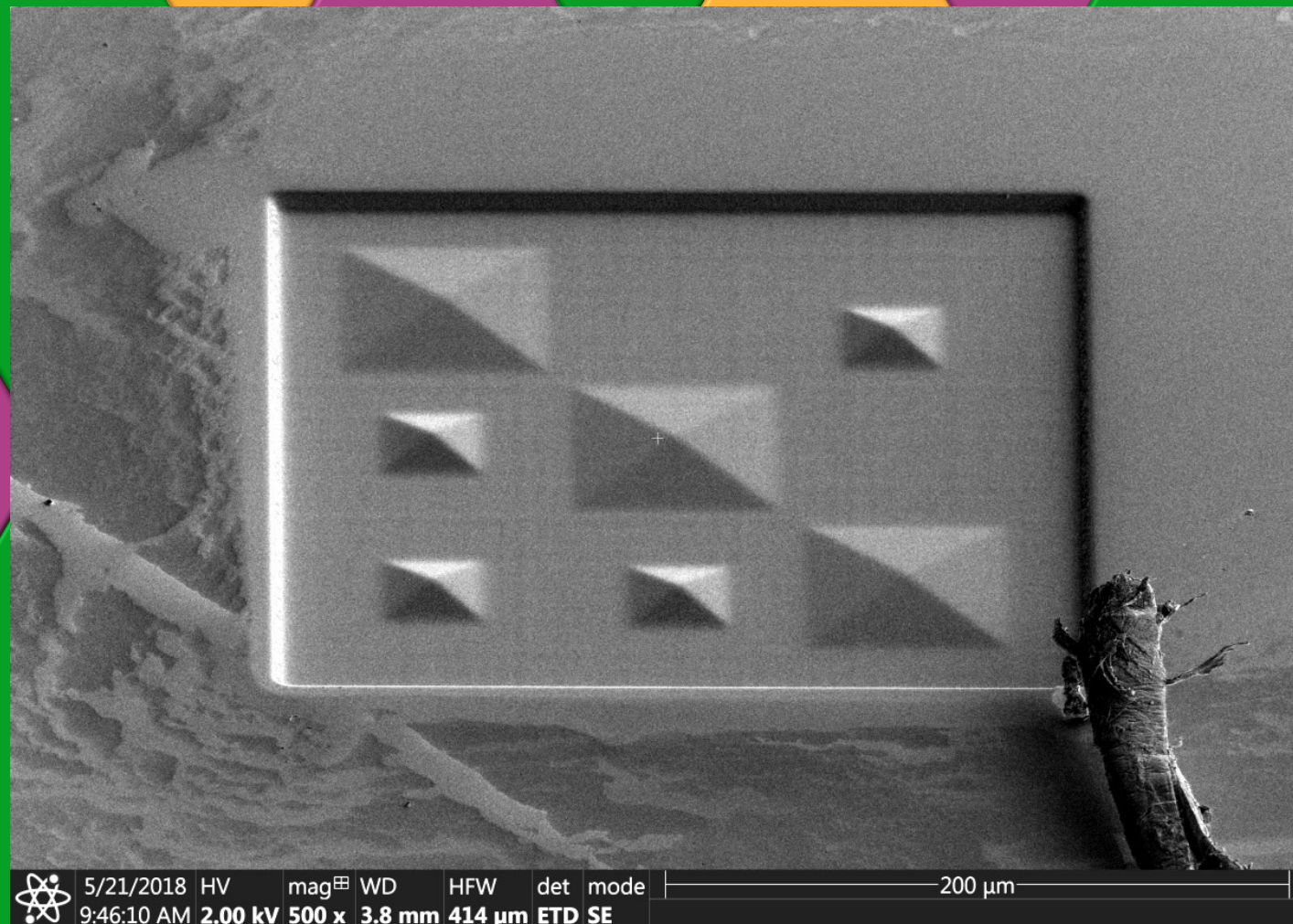
Orig. Mag (3" x 4" image): 500x

Instrument : ThermoFisher Helios Ux-G4 plasma-FIB

Submitted by: Sergey Gorelick

Affiliation: Monash University, Australia

Sponsored by: **zyvex**
LABS





2022 EIPBN MicroGraph Contest

(#60)

Micrograph Title: Wrinkly pyramid
Description: Micro-pyramid milled in substrate with ion beam

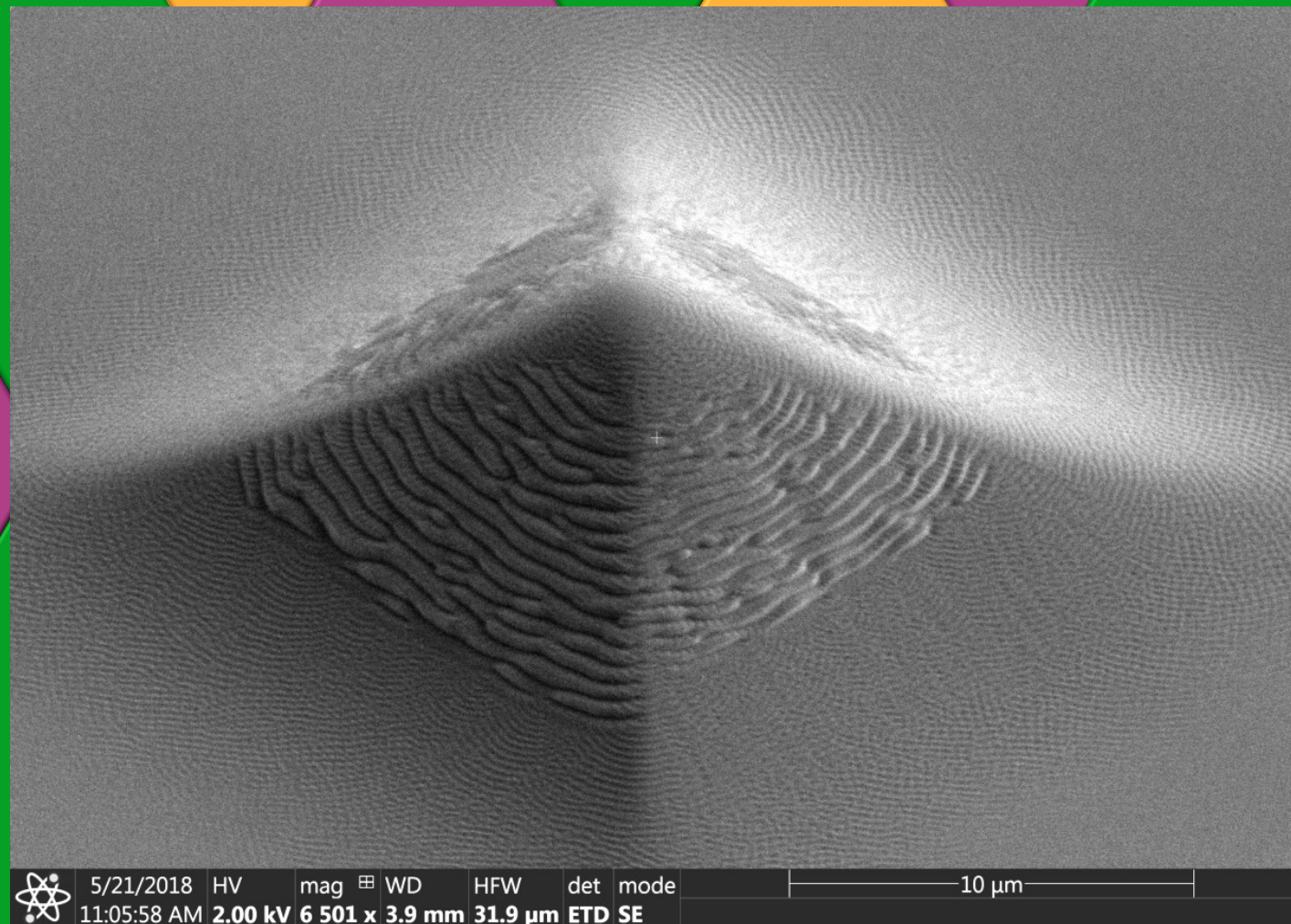
Image Details:

Orig. Mag (3" x 4" image): 6.5k \times

Instrument : ThermoFisher Helios Ux-G4
plasma-FIB

Submitted by: Sergey Gorelick

Affiliation: Monash University, Australia



	5/21/2018	HV	mag	WD	HFW	det	mode
	11:05:58 AM	2.00 kV	6 501 x	3.9 mm	31.9 μm	ETD	SE

10 μm



2022 EIPBN MicroGraph Contest

(#61)

Micrograph Title: Micro-buns

Description: 2D array of focusing rectangular lenses by ion beam milling

Image Details:

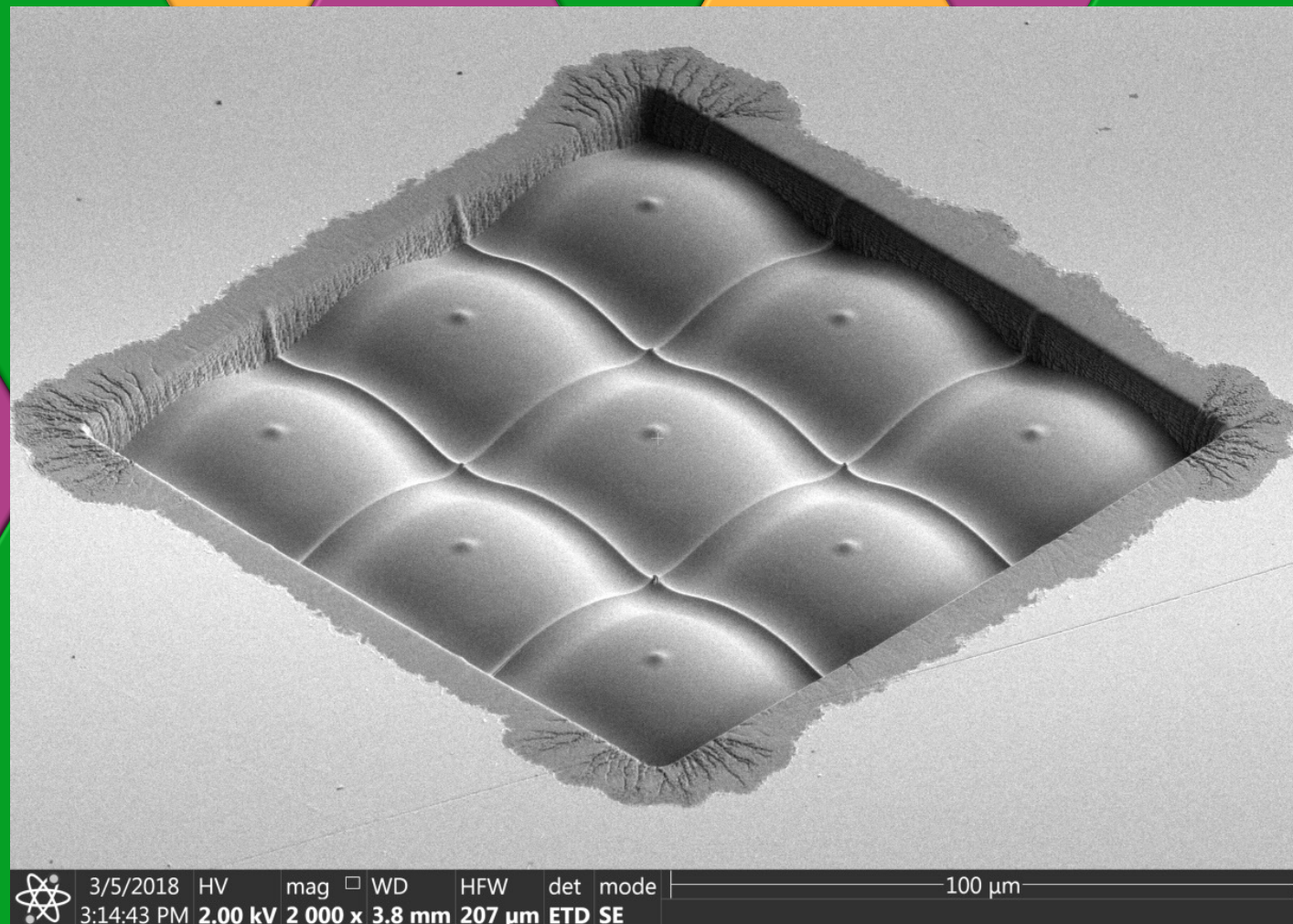
Orig. Mag (3" x 4" image): 2kx

Instrument : ThermoFisher Helios Ux-G4 plasma-FIB

Submitted by: Sergey Gorelick

Affiliation: Monash University, Australia

Sponsored by: **zyvex**
LABS





2022 EIPBN MicroGraph Contest

(#62)

**Micrograph Title: Photonics
snowflake**

**Description: Near-field intensity
produced by a diffractive optical
element**

Image Details:

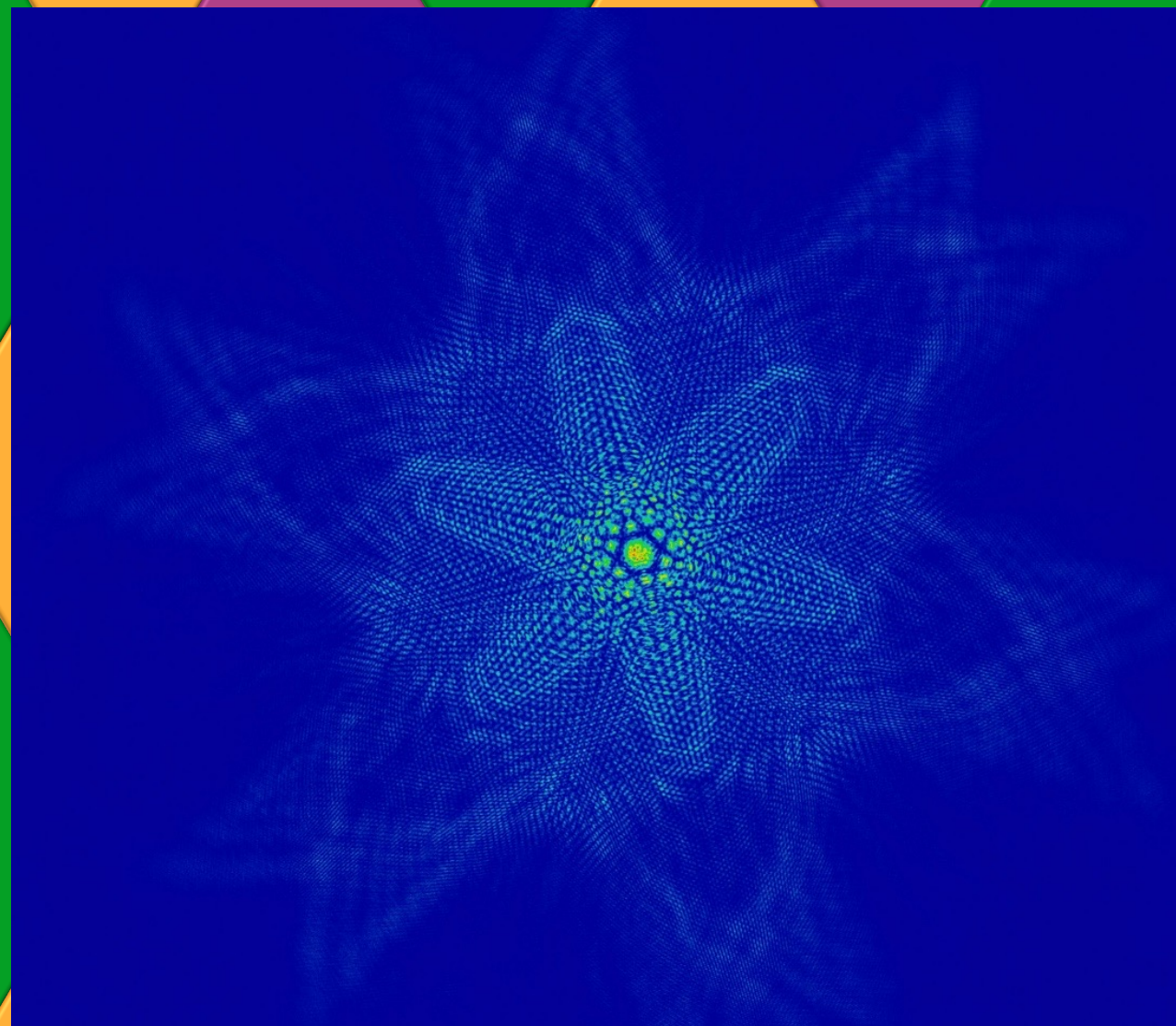
Orig. Mag (3" x 4" image): 20x

Instrument : Andor Zyla 4.2 cMOS

Submitted by: Sergey Gorelick

Affiliation: Monash University, Australia

Sponsored by: zyvex
LABS





2022 EIPBN MicroGraph Contest

(#63)

Micrograph Title: The flux capacitor

Description: Focal-plane intensity produced by a diffractive optical element

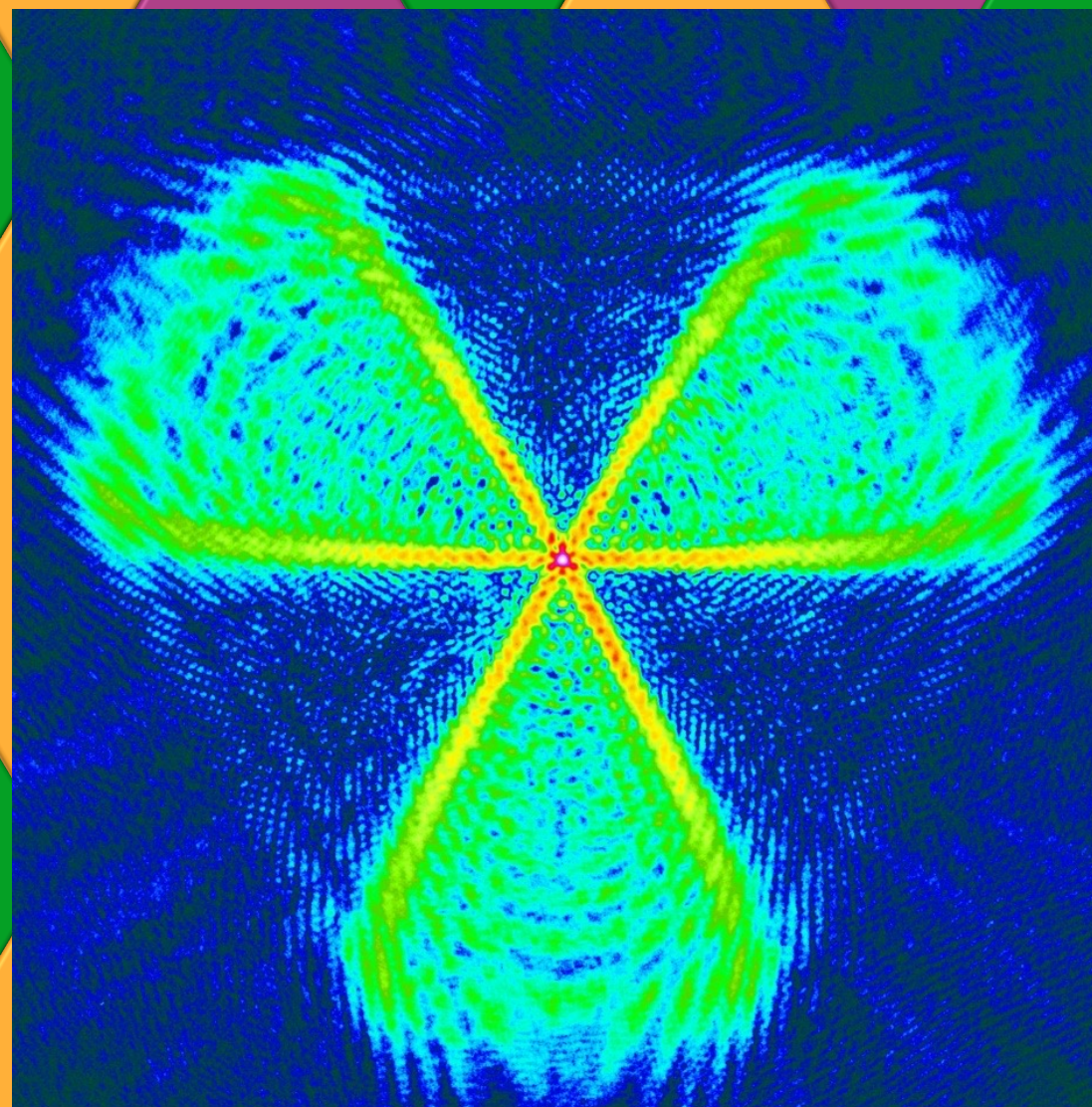
Image Details:

Orig. Mag (3" x 4" image): 20x

Instrument : Andor Zyla 4.2 cMOS

Submitted by: Sergey Gorelick

Affiliation: Monash University, Australia





2022 EIPBN MicroGraph Contest

(64)

Micrograph Title: Cancer

Description: The SEM image of a T cell attached to a cancer cell

Image Details:

Orig. Mag (3"x 4" image) 3019X

Instrument : SEM

Submitted by: Saba Ghassemi

Affiliation: University Of Pennsylvania

