

2023 EIPBN MicroGraph Contest



MicroGraph Title: Suspended SET

Description: Single Electron Transistor (SET) suspended on a Silicon cavity

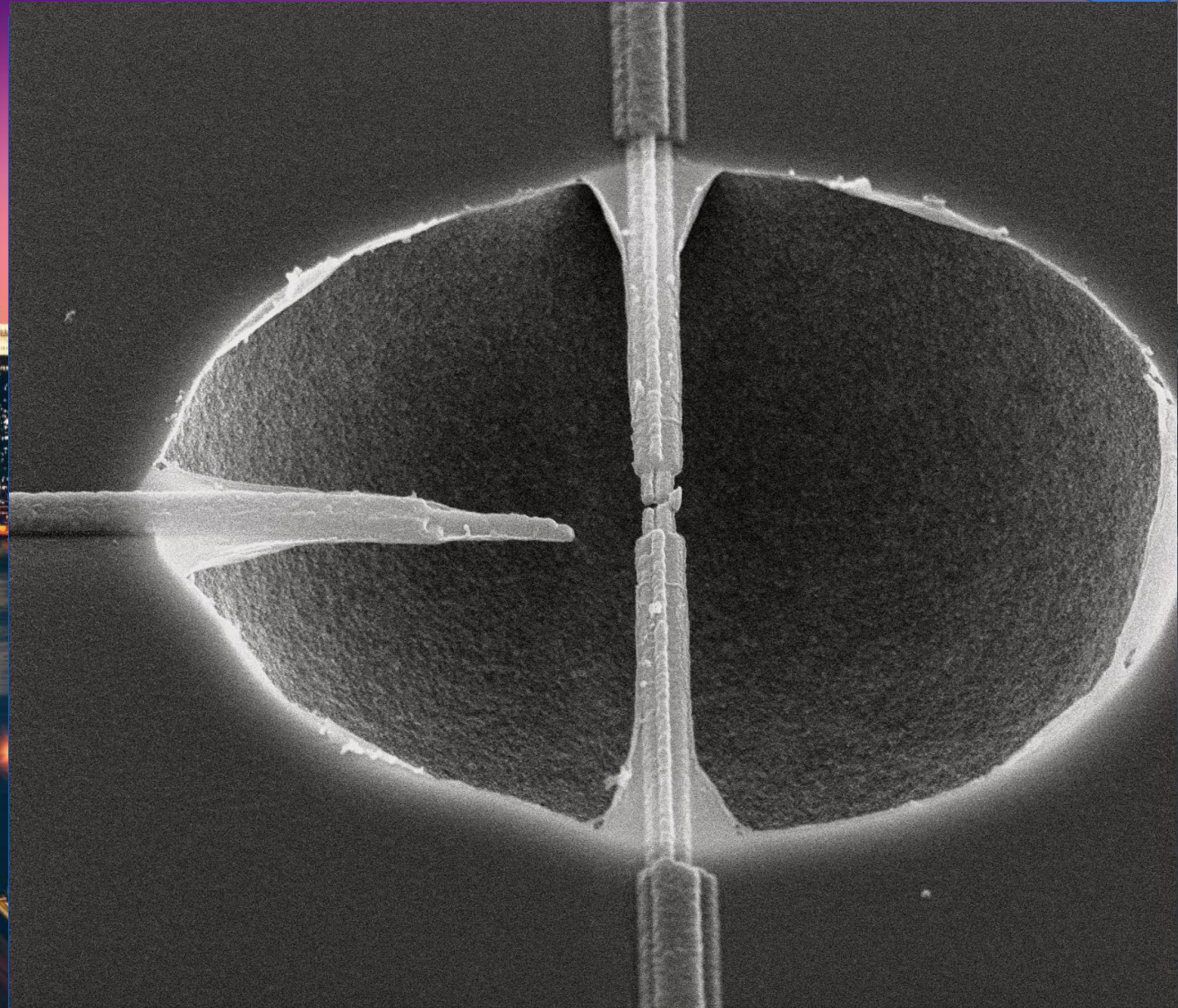
Image Details:

Orig. Mag: (3" x 4" image): 25kX

Instrument: : FESEM-Magellan 400 (FEI)

Submitted By: Mohammad Istiaque Rahaman

Affiliation: University of Notre Dame



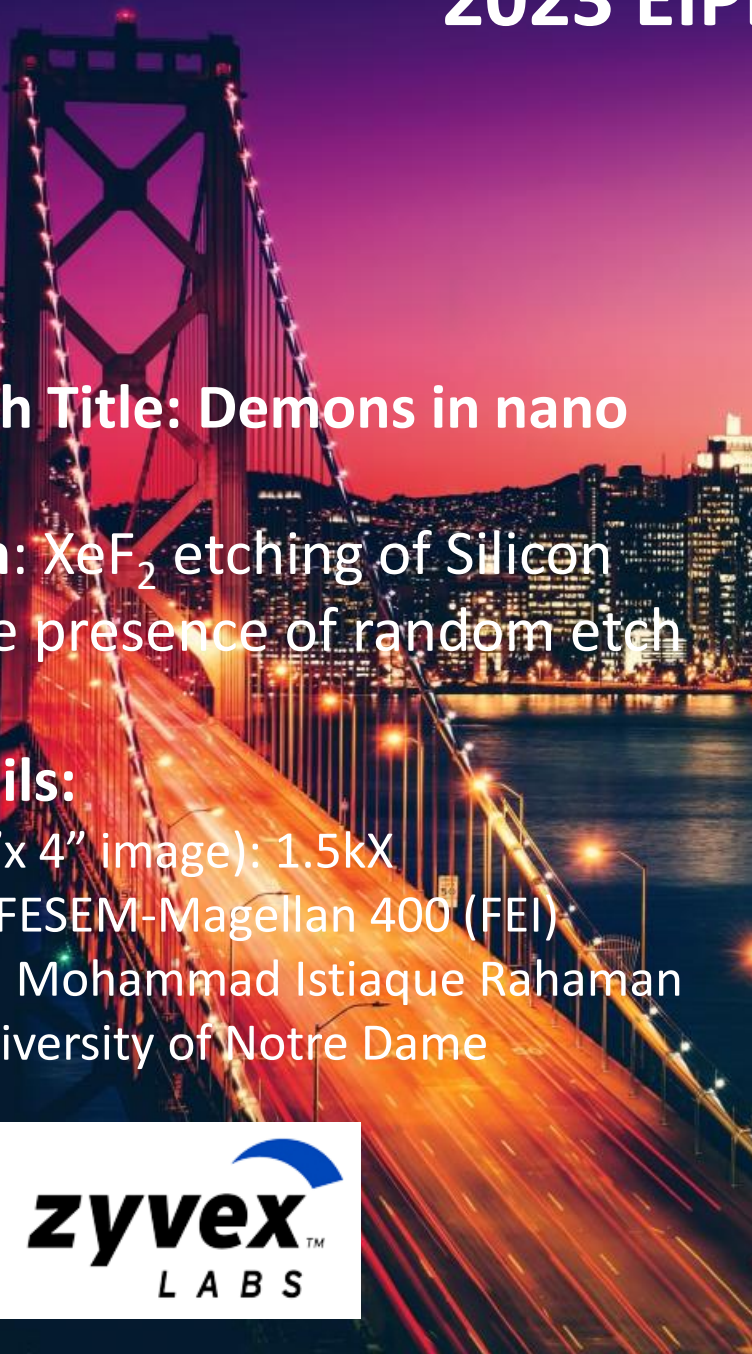
Sponsored by:



E

HV	curr	mag	WD	3 μ m
5.00 kV	25 pA	25 000 x	4.6 mm	SET_on_cavity_v4_30_60

2023 EIPBN MicroGraph Contest



MicroGraph Title: Demons in nano fabrication

Description: XeF₂ etching of Silicon wafer in the presence of random etch mask.

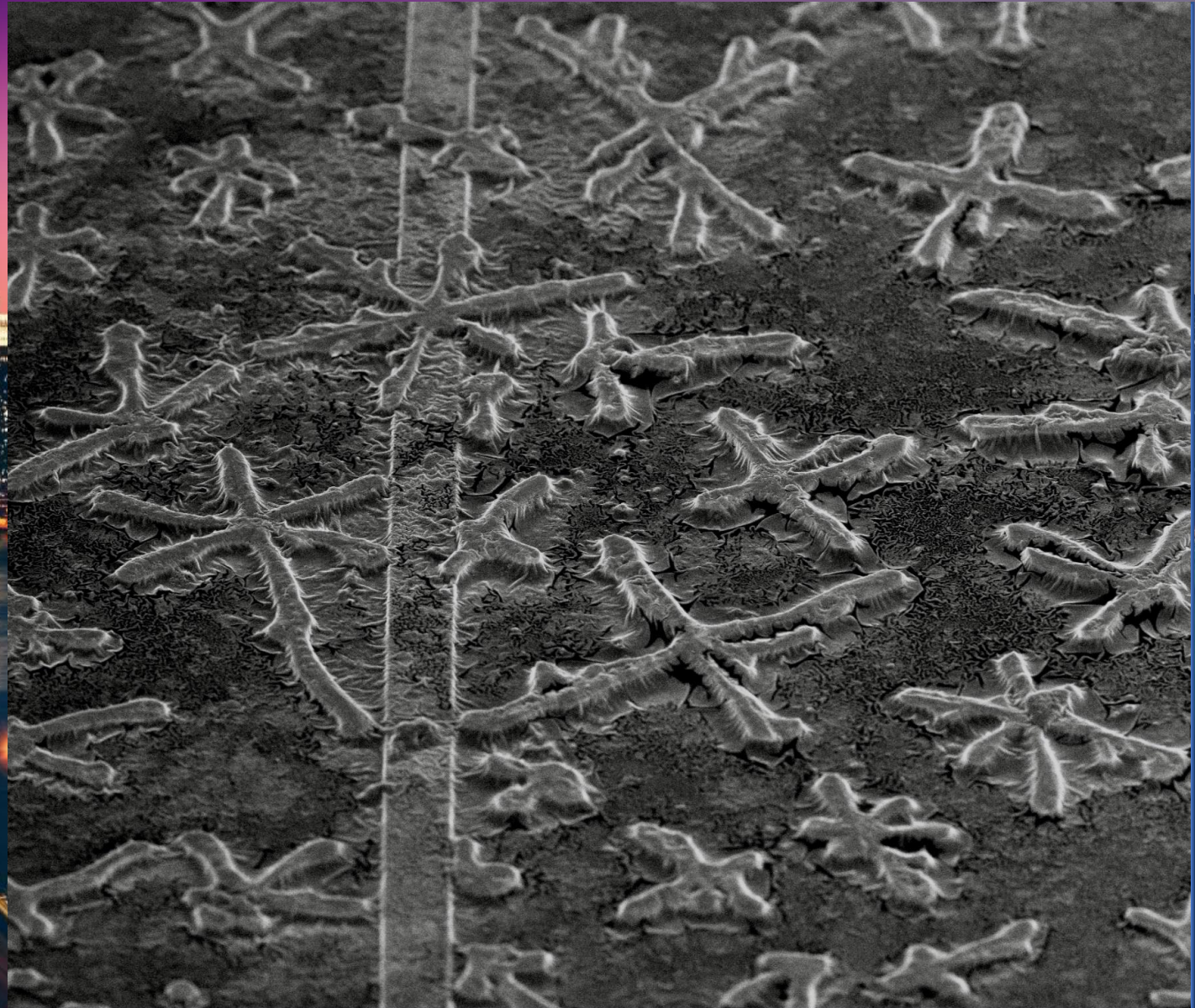
Image Details:

Orig. Mag: (3" x 4" image): 1.5kX

Instrument: : FESEM-Magellan 400 (FEI)

Submitted By: Mohammad Istiaque Rahaman

Affiliation: University of Notre Dame



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E

HV	curr	mag	▣	HFW	50 μm
5.00 kV	50 pA	1 500 x		85.3 μm	SET_on_cavity_v4_XeF2_without_PMMA

2023 EIPBN MicroGraph Contest



MicroGraph Title: Greivous's Mark in Nano-Coruscant

Description: Defect within Photoresist nano-pillar array.

Image Details:

Orig. Mag: (3" x 4" image): 3.5kX

Instrument: : Thermo Fisher, SEM, Apreo 2 SEM

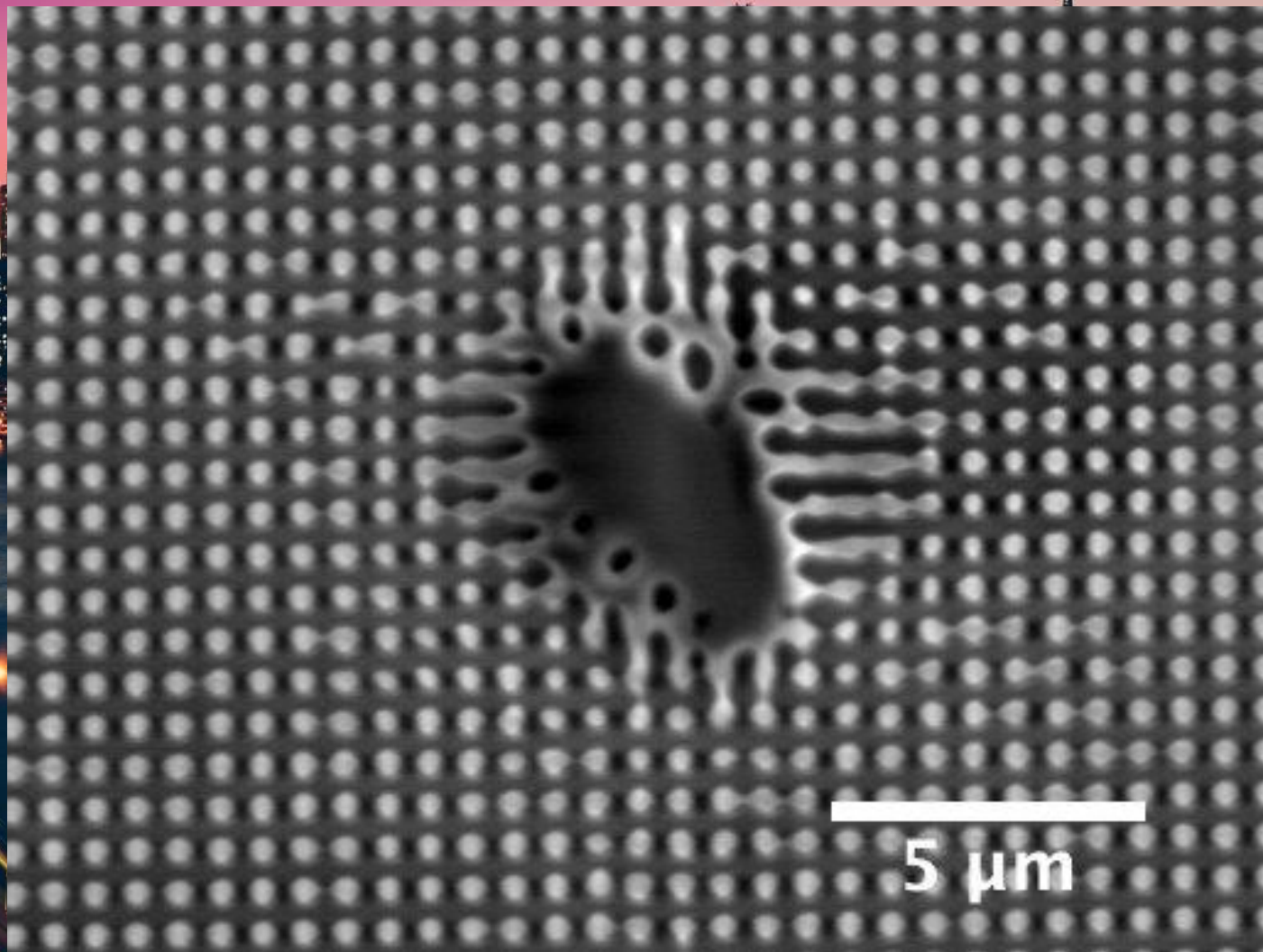
Submitted By: KWON SANG LEE

Affiliation: UT Austin

Sponsored by:



E



2023 EIPBN MicroGraph Contest



MicroGraph Title: Electron showers bring blooming flowers

Description: Flower-like patterns were embedded in silicon nitride iso-nanopores

Image Details:

Orig. Mag: (3" x 4" image): 114.33kX

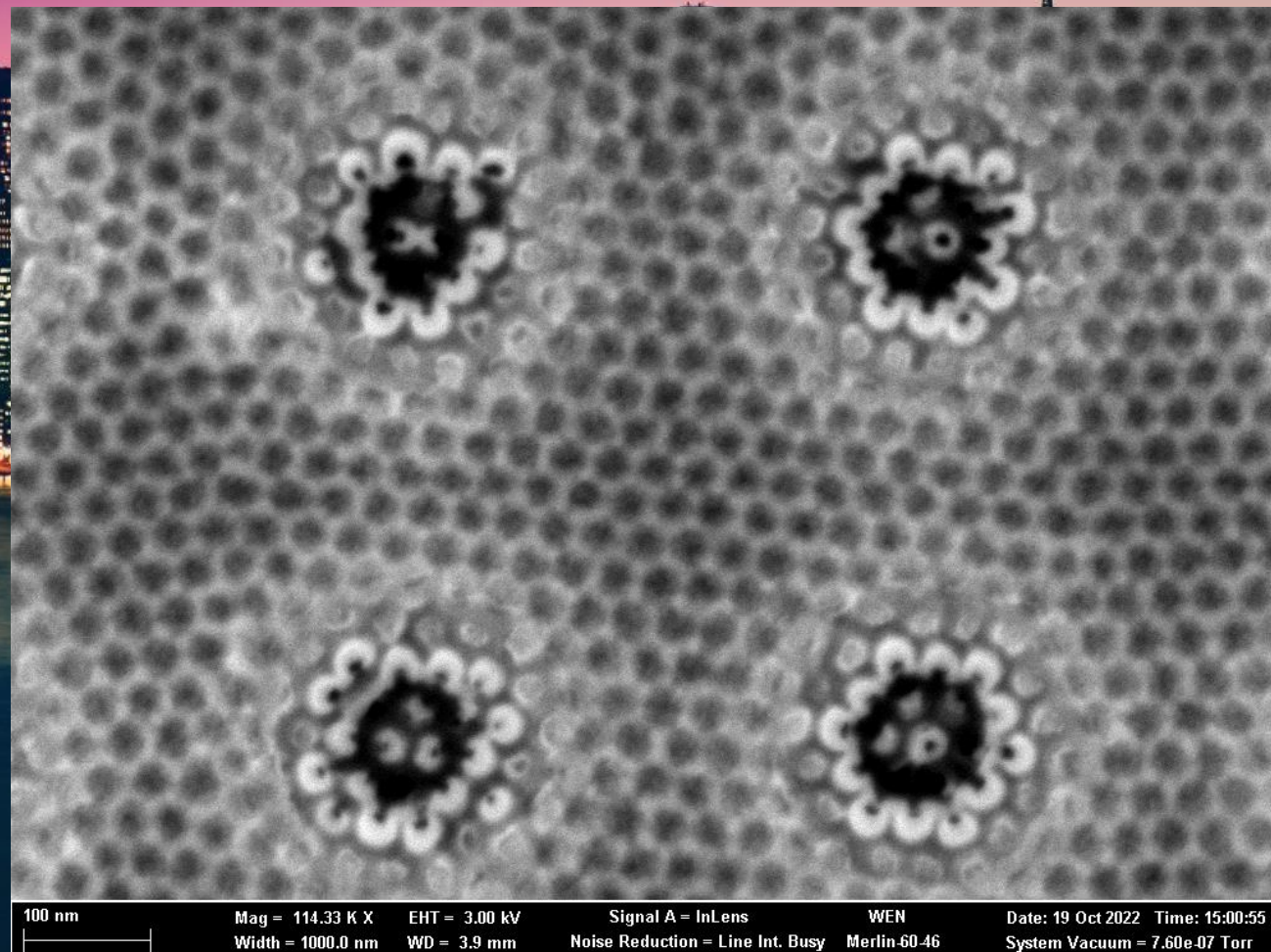
Instrument: : Carl Zeiss Merlin SEM

Submitted By: Wen Chen

Affiliation: Pritzker School of Molecular Engineering at University of Chicago

Sponsored by:

E



2023 EIPBN MicroGraph Contest



MicroGraph Title: Electron showers bring PhD flowers

Description: Flower-like patterns were embedded in silicon nitride iso-nanopores

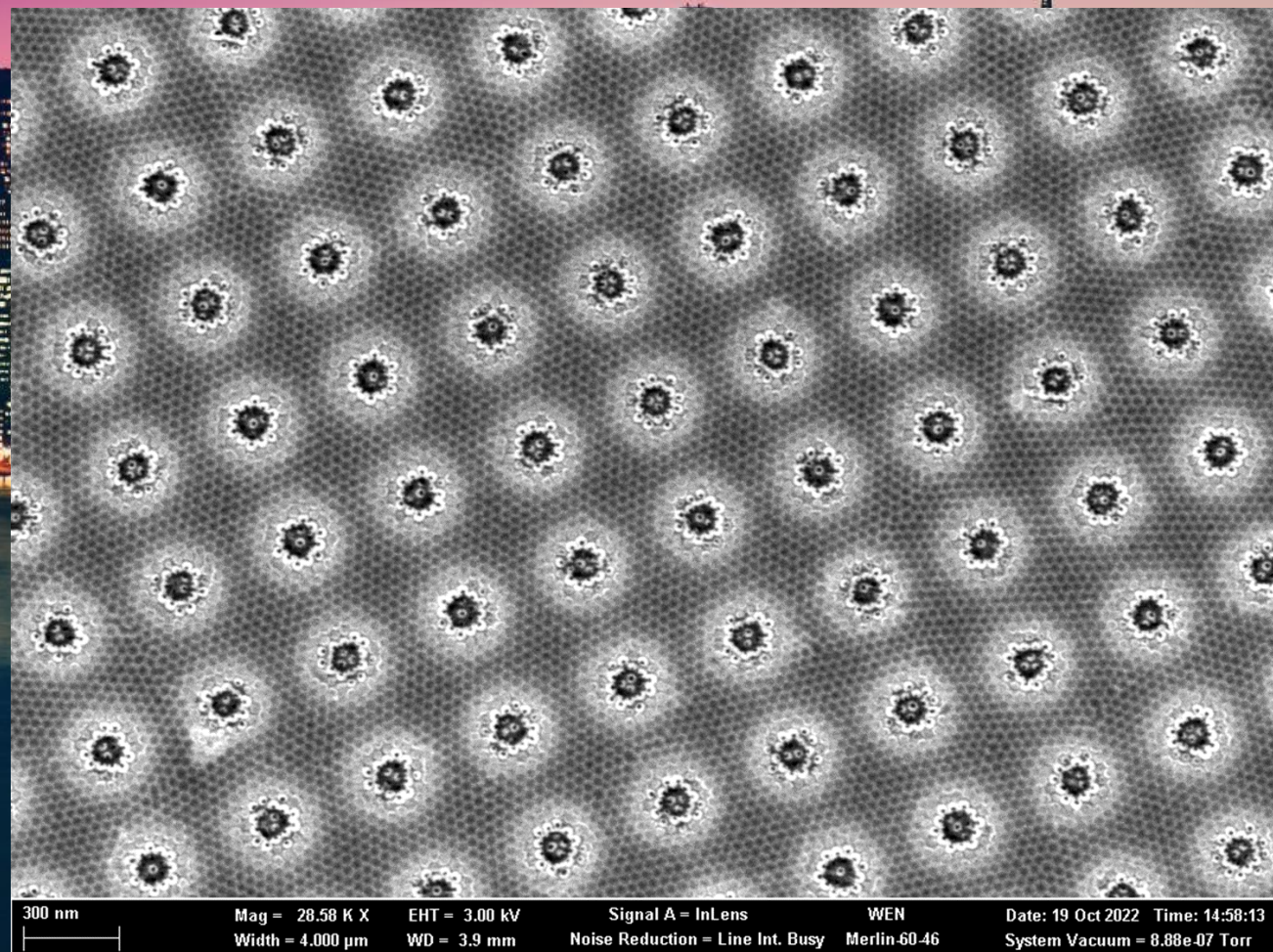
Image Details:

Orig. Mag: (3" x 4" image): 28.58kX

Instrument: : Carl Zeiss Merlin SEM

Submitted By: Wen Chen

Affiliation: Pritzker School of Molecular Engineering at University of Chicago



300 nm

Mag = 28.58 K X

EHT = 3.00 kV

Signal A = InLens

WEN

Date: 19 Oct 2022 Time: 14:58:13

Width = 4.000 μ m

WD = 3.9 mm

Noise Reduction = Line Int. Busy

Merlin-60-46

System Vacuum = 8.88e-07 Torr

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2023 EIPBN MicroGraph Contest



MicroGraph Title: Hexagon checkerboard forest

Description: Gold nanoparticle was surrounded by hexagonal array of "trees"

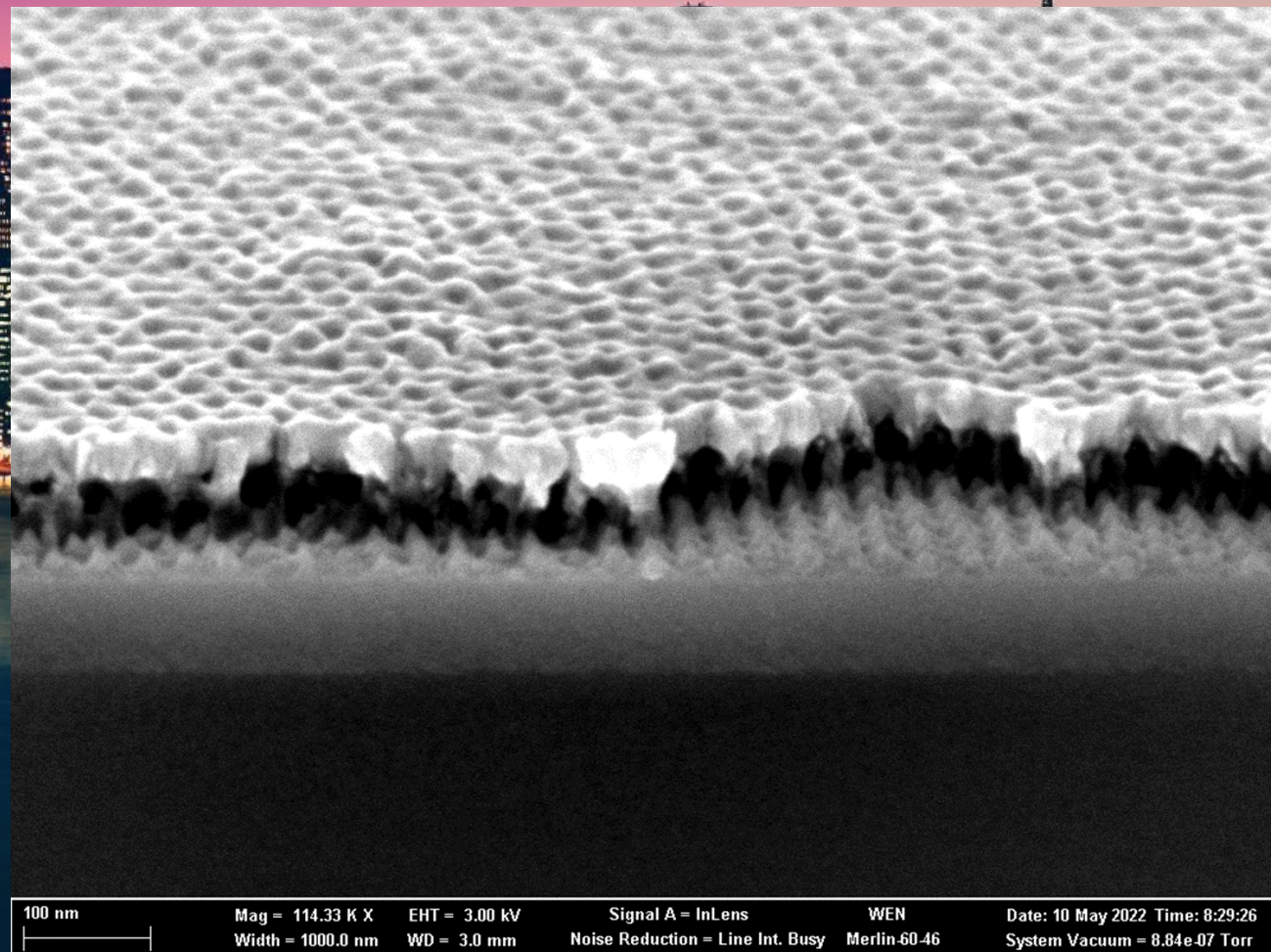
Image Details:

Orig. Mag: (3" x 4" image): 114.33kX

Instrument: : Carl Zeiss Merlin SEM

Submitted By: Wen Chen

Affiliation: Pritzker School of Molecular Engineering at University of Chicago



100 nm Mag = 114.33 K X EHT = 3.00 kV Signal A = InLens WEN Date: 10 May 2022 Time: 8:29:26
Width = 1000.0 nm WD = 3.0 mm Noise Reduction = Line Int. Busy Merlin-60-46 System Vacuum = 8.84e-07 Torr

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2023 EIPBN MicroGraph Contest



MicroGraph Title: Erupting volcano

Description: STEM image of copper quantum dots with graphene film mixture give us the beauty of smoky cloud feeling and lava erupting from the mountain

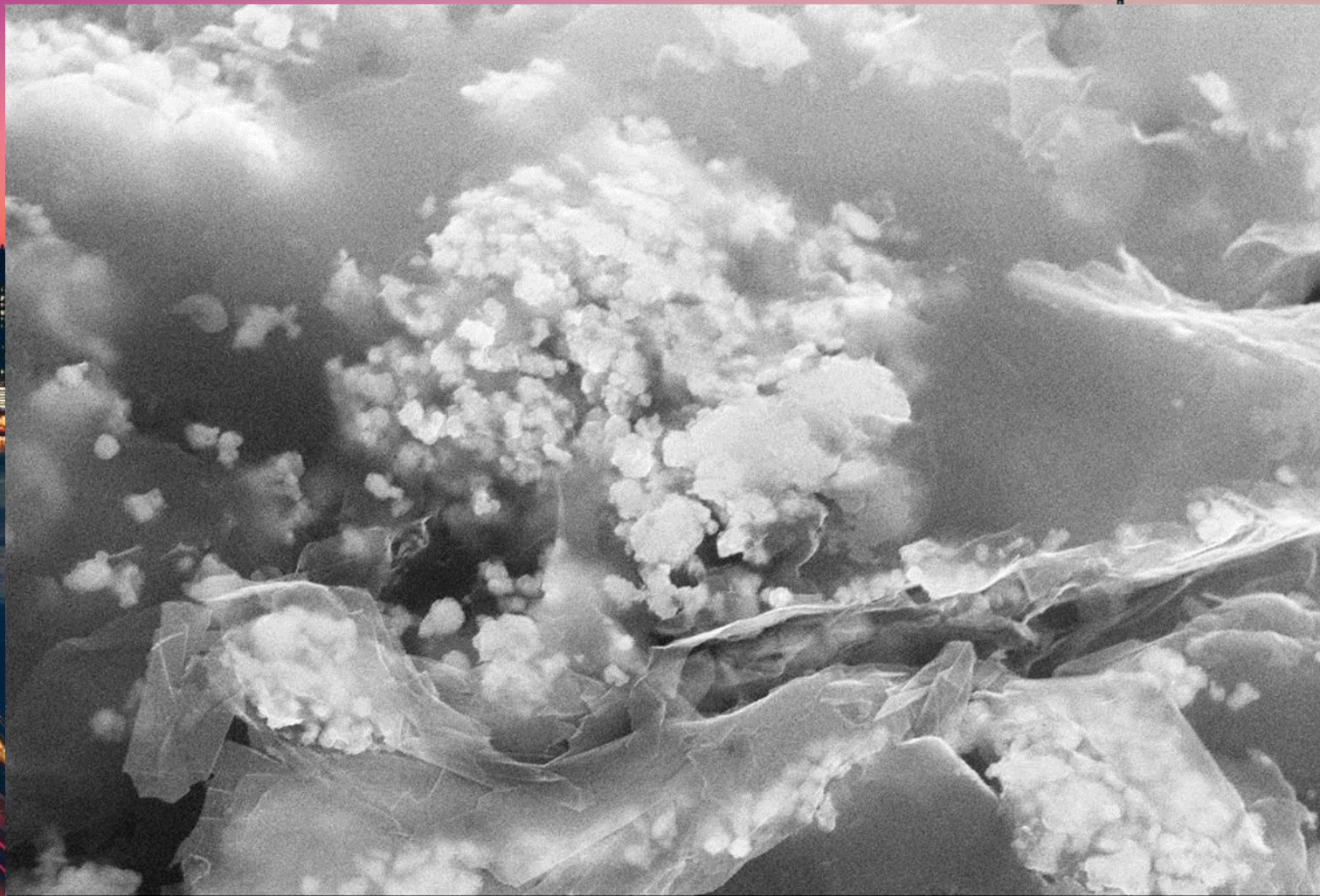
Image Details:

Orig. Mag: (3"x 4" image): 7.22kX

Instrument: : Zeiss, STEM

Submitted By: Tammy Huang

Affiliation: ASML



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2023 EIPBN MicroGraph Contest



MicroGraph Title: Head game

Description: Tilt FIB/SEM image of bulk silicon etch down for phononic and photonic device guiding light and sound into this 3D tunnel of maze

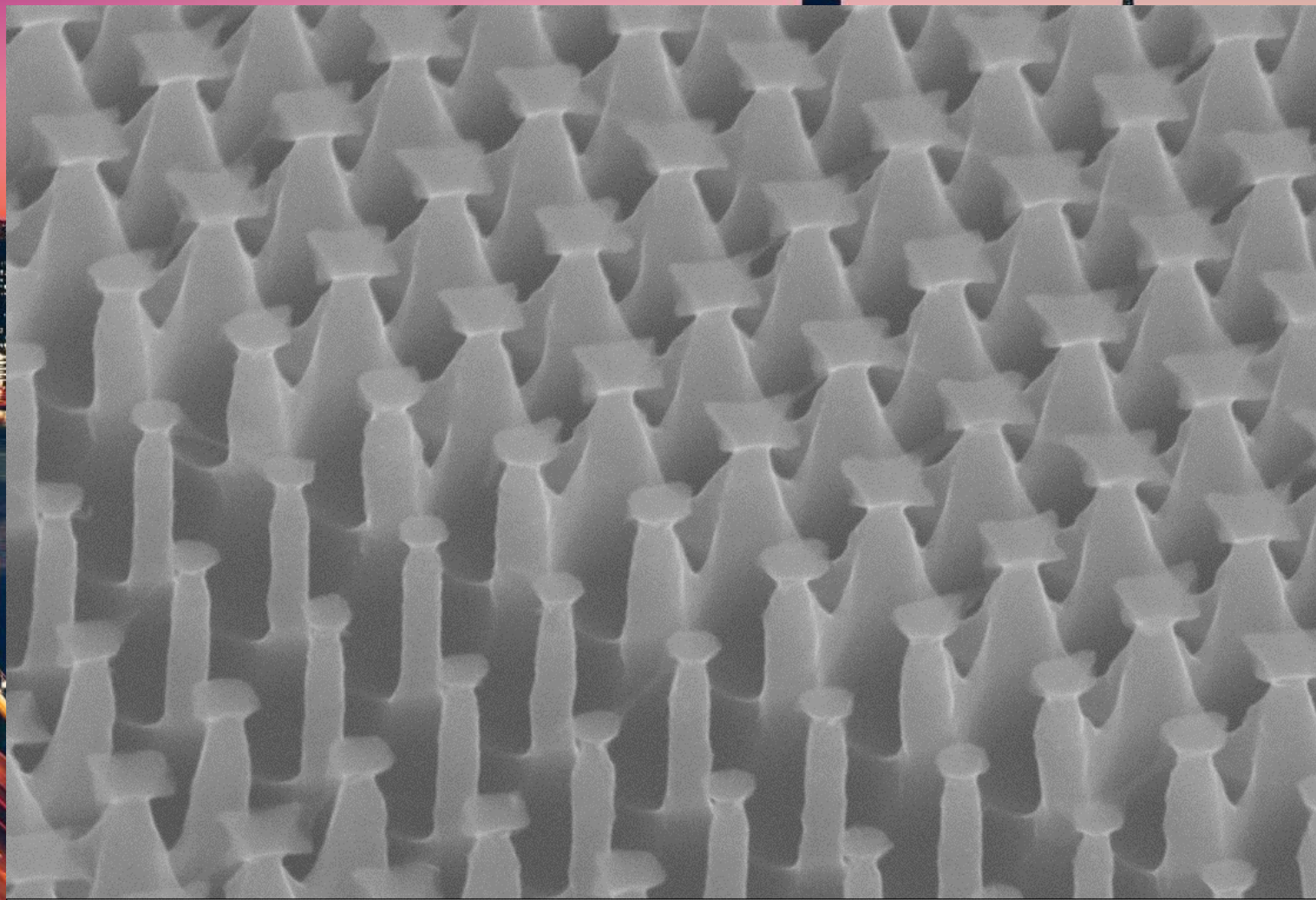
Image Details:

Orig. Mag: (3"x 4" image): 814X

Instrument: : Zeiss, STEM/Leo XB1540

Submitted By: Tammy Huang

Affiliation: ASML



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2023 EIPBN MicroGraph Contest



MicroGraph Title: Ordered holes

Description: HEXAGONAL ORDER HOLES DIRECTLY ETCHED INTO SAPPHIRE SUBSTRATE.

Image Details:

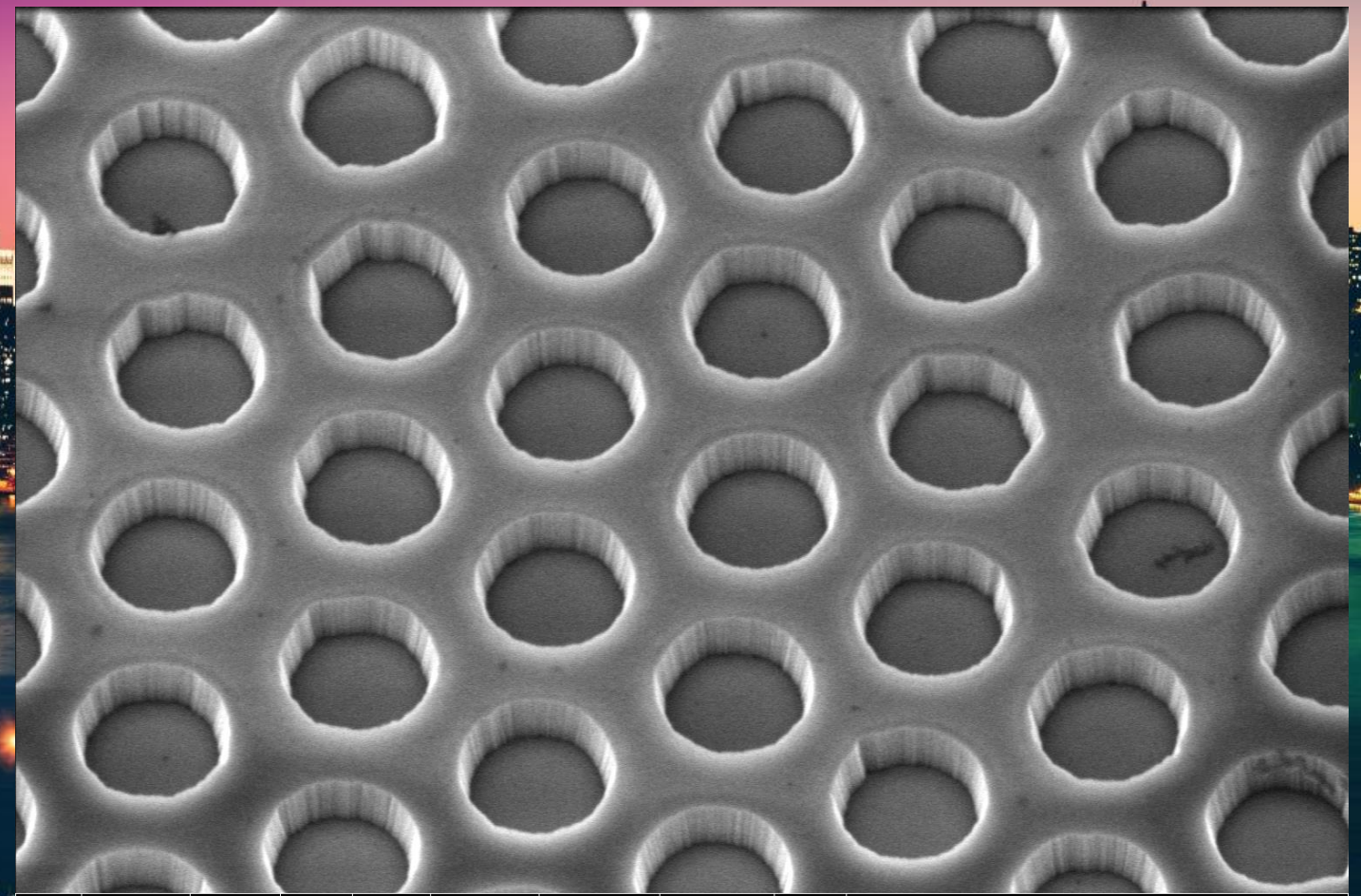
Orig. Mag: (3"x 4" image): 19,993X

Instrument: SEM

Manufacturer, Type and Model of Microscope Verios XHR 460L SEM

Submitted By: Sivan Tzadka

Affiliation: Ben Gurion university



	HV	curr	det	mode	WD	mag	HFV	tilt	2 μm	
	5.00 kV	25 pA	TLD	SE	6.7 mm	19 993 x	6.35 μm	30 °	Verios	

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2023 EIPBN MicroGraph Contest



MicroGraph Title: Blooming flower

Description: NANOSPHERE AFTER ETCHING USED AS A MASK FOR METAL DEPOSITION.

Image Details:

Orig. Mag: (3"x 4" image): 50,006X

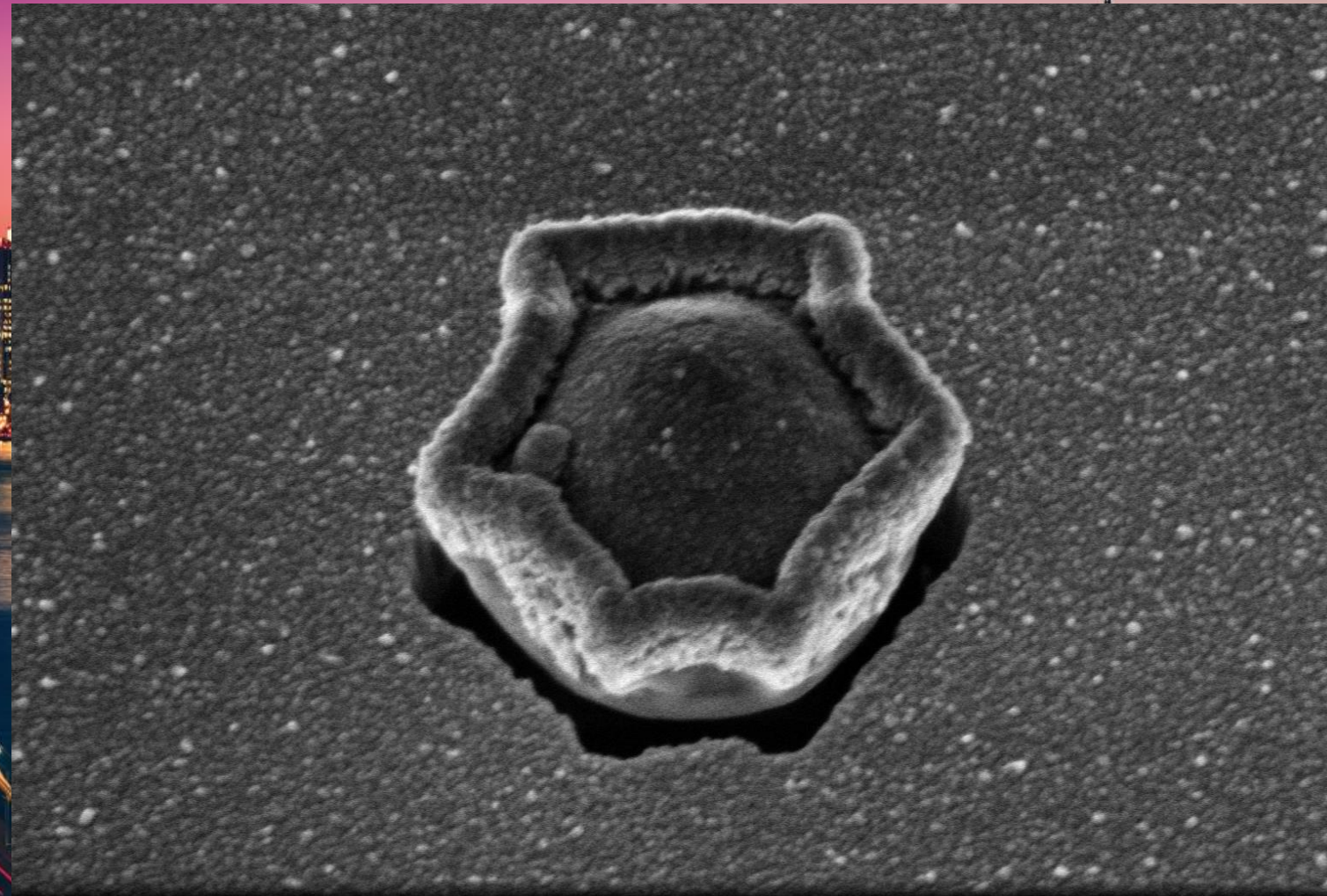
Instrument: : SEM

Manufacturer, Type and Model of Microscope Verios XHR 460L SEM

Submitted By: Sivan Tzadka

Affiliation: Ben Gurion university

Sponsored by:



	HV	curr	det	mode	WD	mag	HFV	tilt	 500 nm Verios
	3.00 kV	25 pA	TLD	SE	6.5 mm	50 006 x	2.54 μm	30 °	

2023 EIPBN MicroGraph Contest



MicroGraph Title Stuffed holes

Description: nanospheres inside imprinted holes of PMMA film.

Image Details:

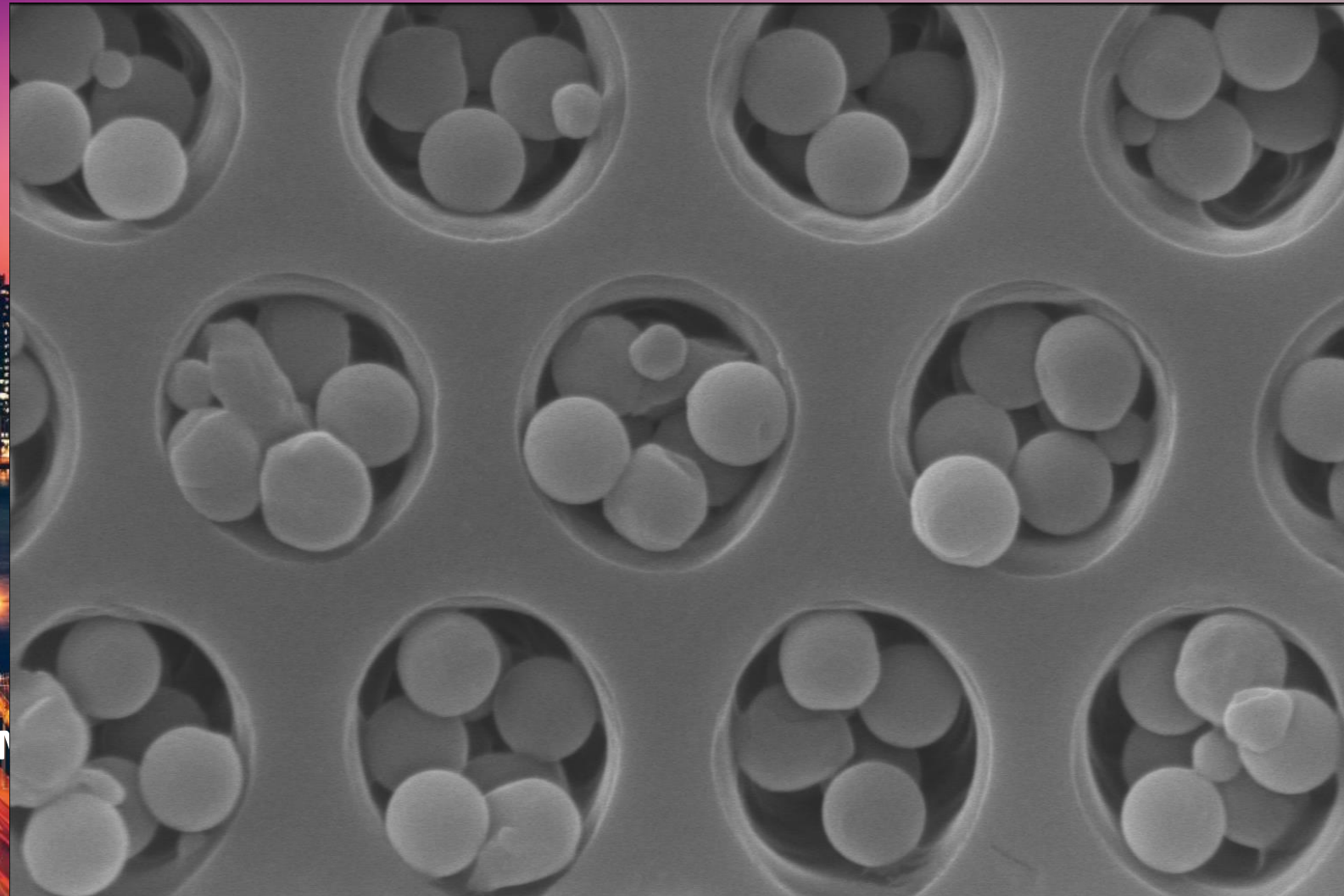
Orig. Mag: (3" x 4" image): 20,001X

Instrument: SEM

Manufacturer, Type and Model of Microscope Verios XHR 460L SEM

Submitted By: Sivan Tzadka

Affiliation: Ben Gurion university



	HV 10.00 kV	curr 0.20 nA	det ETD	mode SE	WD 4.2 mm	mag 只 20 001 x	HPW 6.35 μm	tilt 0 °	← 2 μm → Verios
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2023 EIPBN MicroGraph Contest



MicroGraph Title: Sea anemone

Description: Etched polystyrene nanoparticles on etched pillars

Image Details:

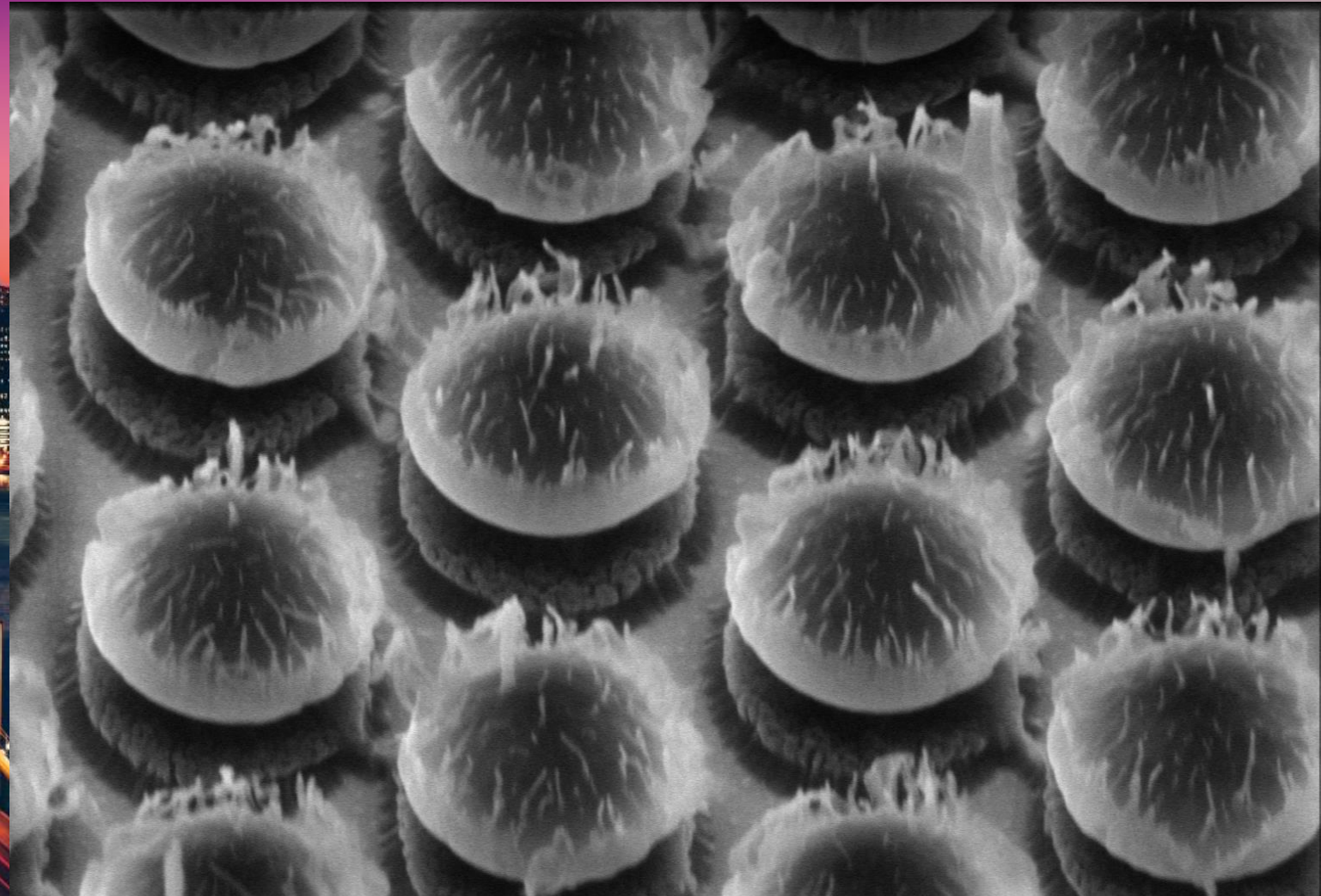
Orig. Mag: (3"x 4" image): 35,000X

Instrument: SEM

Manufacturer, Type and Model of Microscope Verios XHR 460L SEM

Submitted By: Sivan Tzadka

Affiliation: Ben Gurion university



	HV 3.00 kV	curr 25 pA	det TLD	mode SE	WD 4.5 mm	mag \times 35 000 x	HFV 3.63 μ m	tilt 30 $^{\circ}$	 1 μ m Verios
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2023 EIPBN MicroGraph Contest



MicroGraph Title: Magic mushroom

Description: NANOSPHERE AFTER ETCHING USED AS A MASK FOR METAL DEPOSITION.

Image Details:

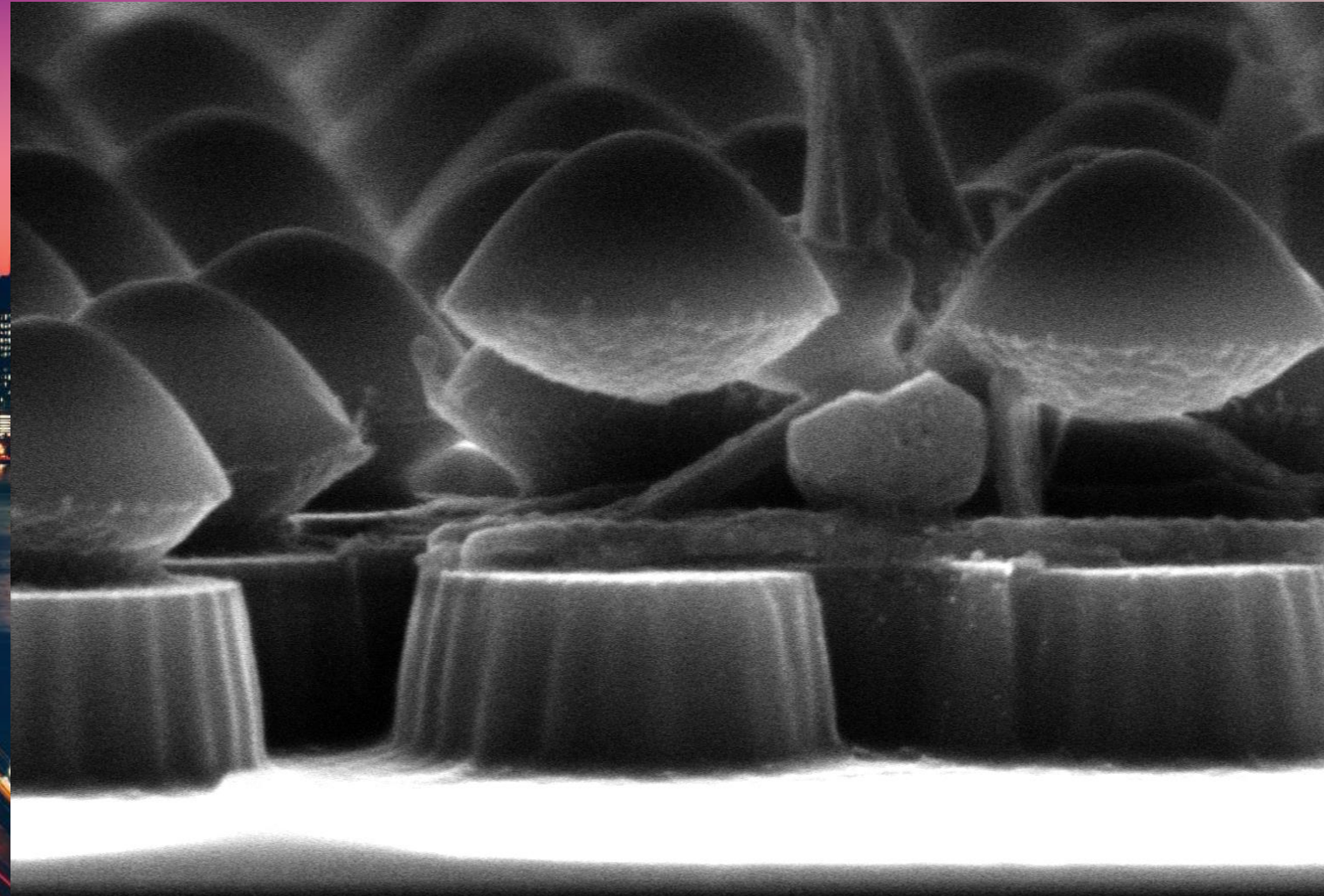
Orig. Mag: (3" x 4" image): 50,003X

Instrument: SEM

Manufacturer, Type and Model of Microscope Verios XHR 460L SEM

Submitted By: Sivan Tzadka

Affiliation: Ben Gurion university



	HV 5.00 kV	curr 50 pA	det TLD	mode SE	WD 7.2 mm	mag 只 50 003 x	HPW 2.54 μm	tilt -3 °	500 nm
									Verios

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2023 EIPBN MicroGraph Contest



MicroGraph Title: The mesh

Description: Etched nanoparticles filled a mesh.

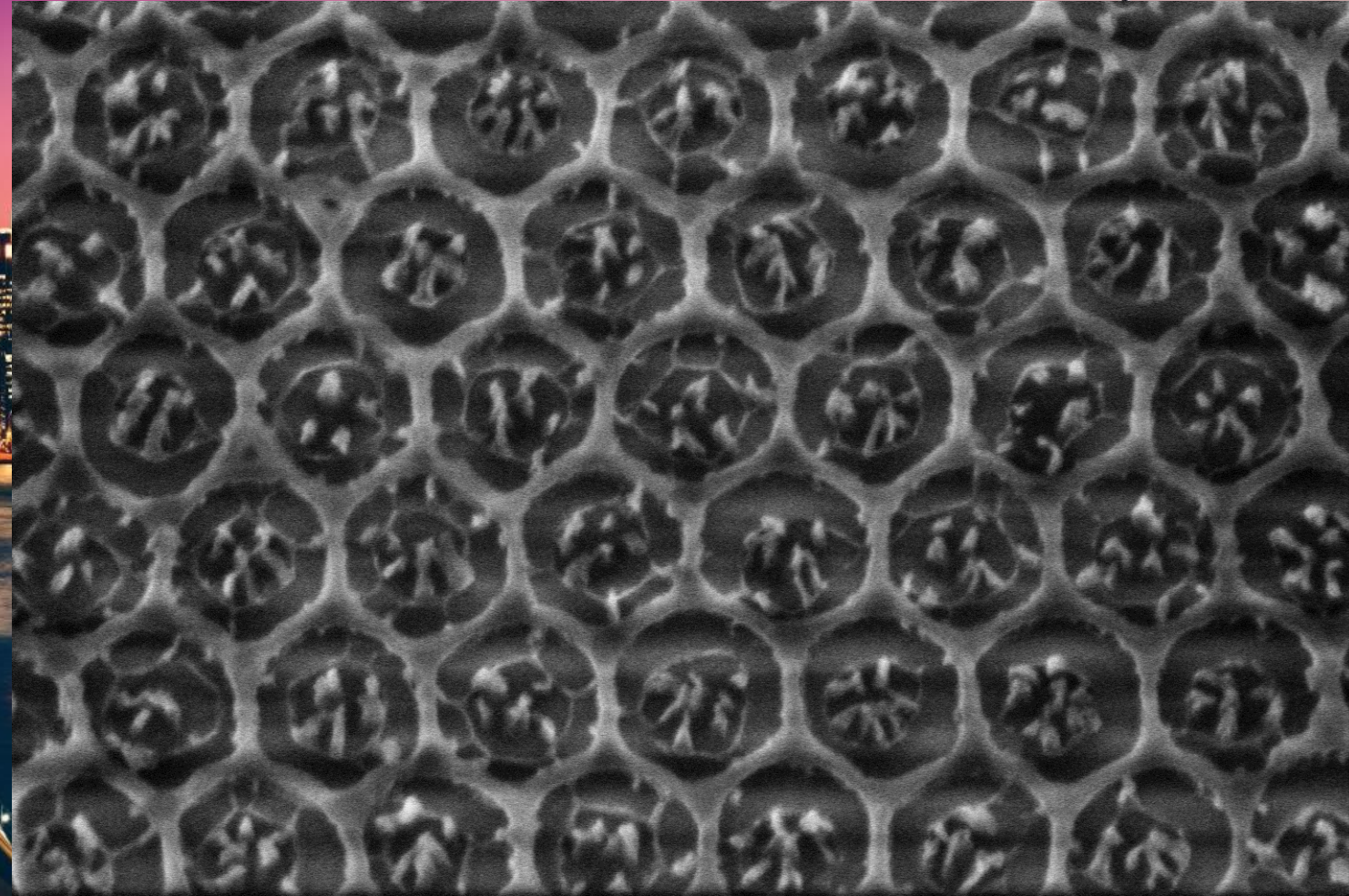
Image Details:

Orig. Mag: (3"x 4" image): **80,002X**

Instrument: : Manufacturer, Type and Model of Microscope **Verios XHR 460L SEM**

Submitted By: **Sivan Tzadka**

Affiliation: **Ben Gurion university**



	HV 3.00 kV	curr 25 pA	det TLD	mode SE	WD 7.0 mm	mag \times 80 002 x	HFW 1.59 μ m	tilt 15 $^{\circ}$	500 nm Verios
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2023 EIPBN MicroGraph Contest



MicroGraph Title: Color Table

Description: Imprinted fields with different pattern sizes shine in colors under white light.

Image Details:

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

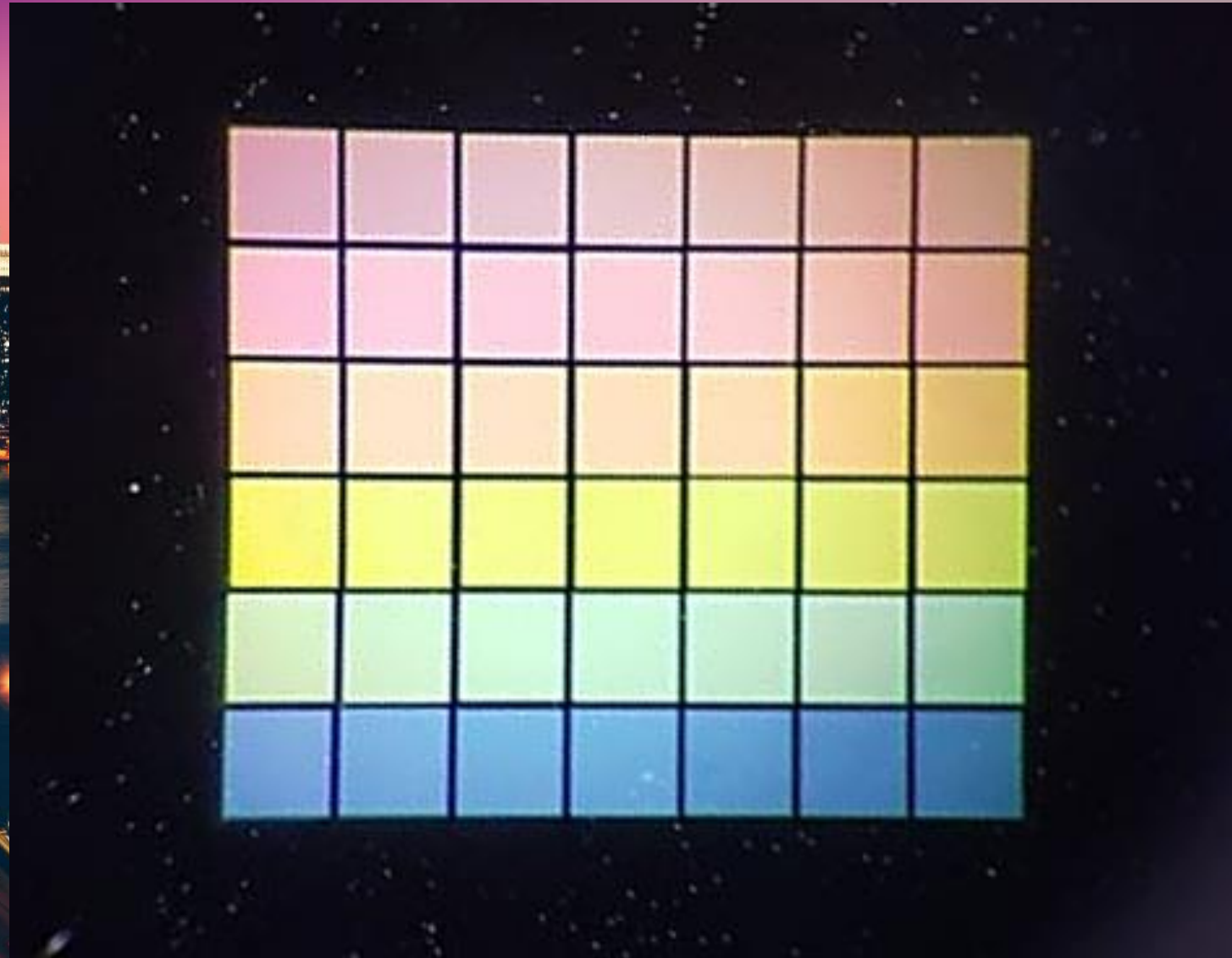
Instrument: : Optical microscope

Manufacturer, Type and

Model of Microscope : Zeiss Axio Scope A1

Submitted By: Sivan Tzadka

Affiliation: Ben Gurion university



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2023 EIPBN MicroGraph Contest



MicroGraph Title: symmetry

Description: Etched nanoparticles on top of silicone pillars

Image Details:

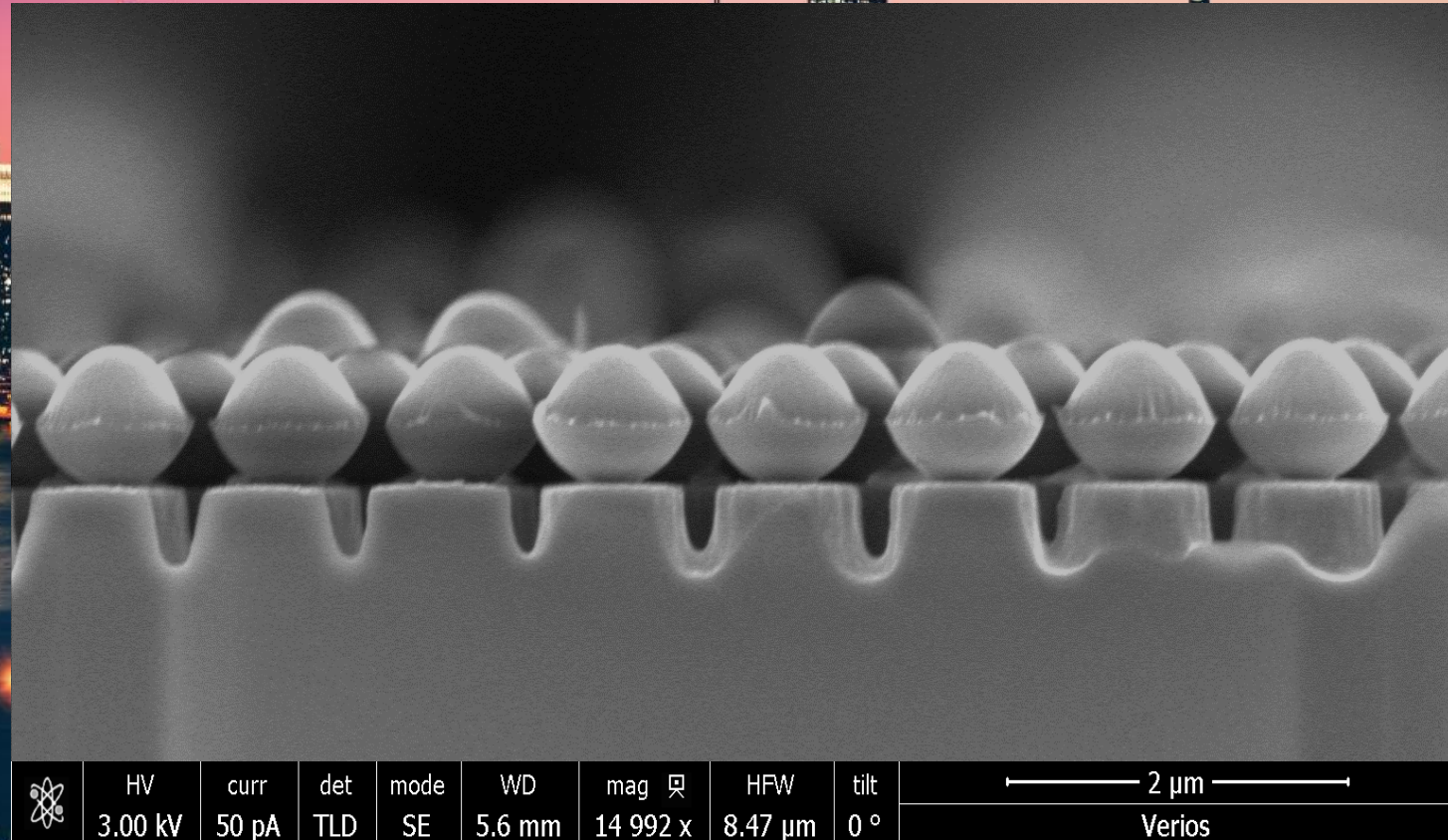
Orig. Mag: (3" x 4" image): 14,992X

Instrument: SEM

Manufacturer, Type and Model of Microscope Verios XHR 460L SEM

Submitted By: Sivan Tzadka

Affiliation: Ben Gurion university



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2023 EIPBN MicroGraph Contest



MicroGraph Title: Corona

Description: Over etched polystyrene nanoparticles

Image Details:

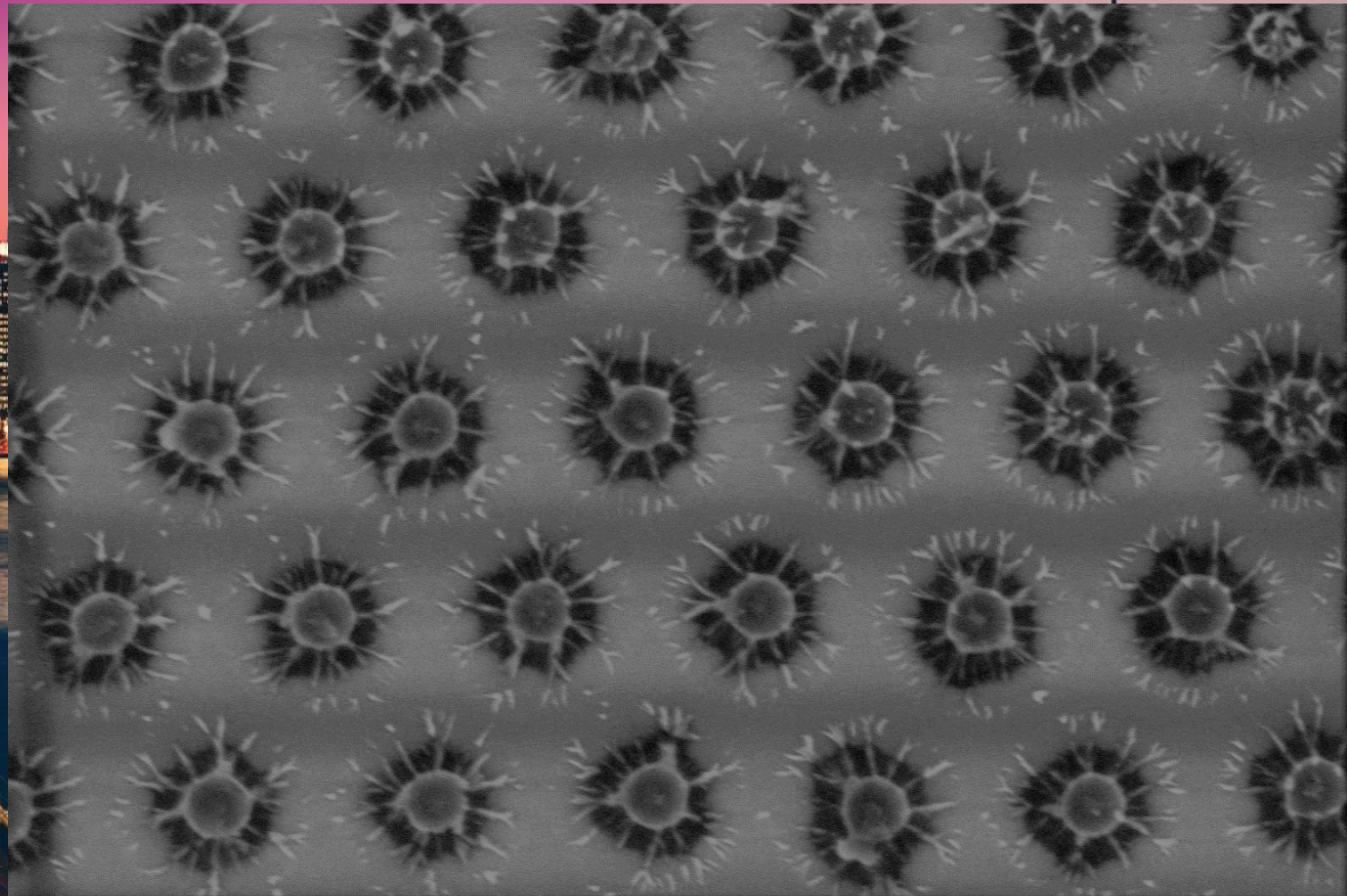
Orig. Mag: (3"x 4" image): 20,011X

Instrument: SEM

Manufacturer, Type and Model of Microscope Verios XHR 460L SEM

Submitted By: Sivan Tzadka

Affiliation: Ben Gurion university



	HV	curr	det	mode	WD	mag	HFV	tilt	2 μm	
	3.00 kV	25 pA	TLD	SE	4.9 mm	20 011 x	6.35 μm	0 °	Verios	

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2023 EIPBN MicroGraph Contest



MicroGraph Title: T cell

Description: T-cell on silicone surface patterned with 250nm gold dots.

Image Details:

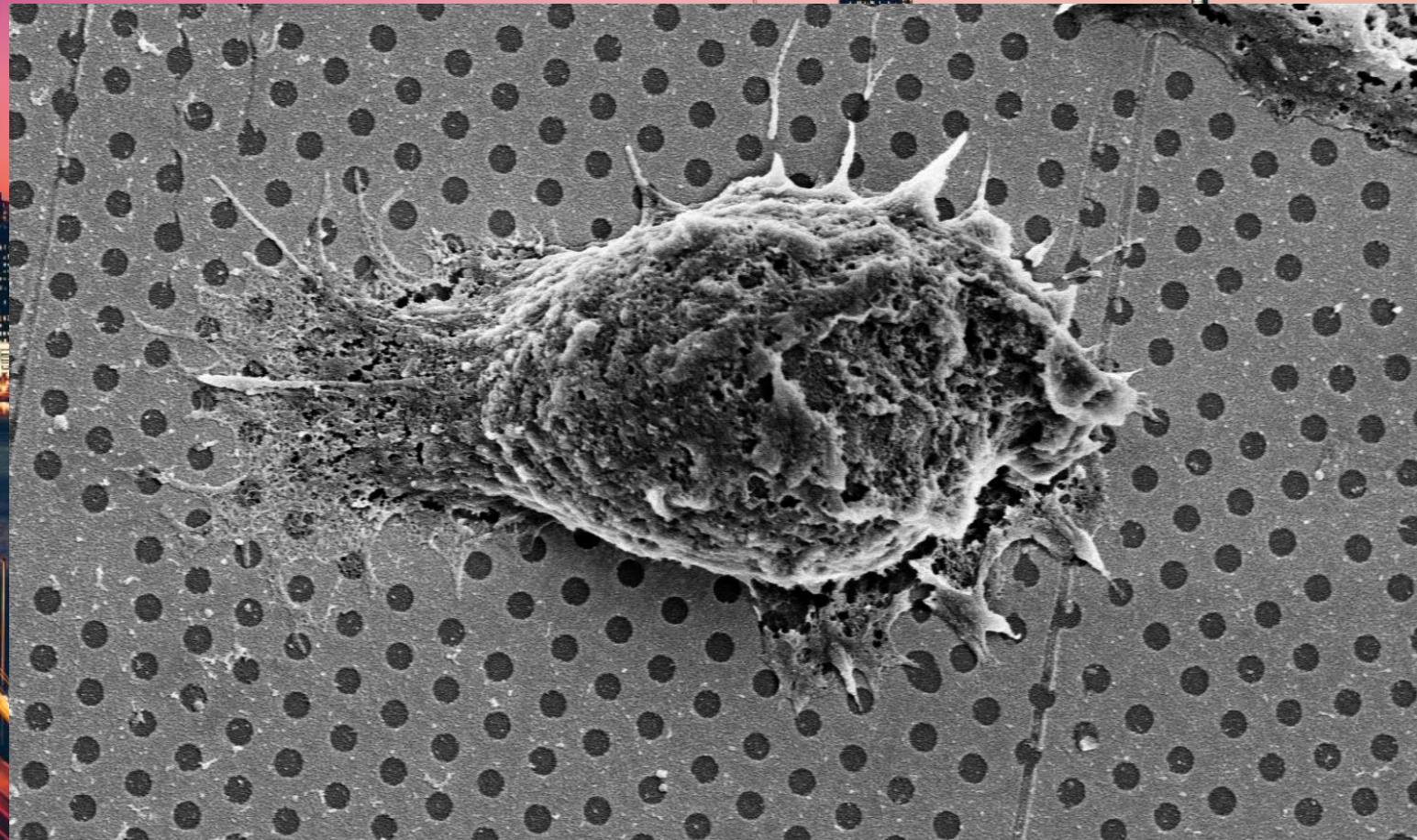
Orig. Mag: (3" x 4" image): **10,000X**

Instrument: :SEM

Manufacturer, Type and Model of Microscope **Verios XHR 460L SEM**

Submitted By: **Sivan Tzadka**

Affiliation: **Ben Gurion university**



	HV	curr	det	mode	WD	mag	HFV	tilt	4 μm	
	3.00 kV	50 pA	TLD	SE	6.5 mm	10 000 x	12.7 μm	10 °	Verios	

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2023 EIPBN MicroGraph Contest



MicroGraph Title: Order

Description: Nanoparticles on top of silicone pillars

Image Details:

Orig. Mag: (3"x 4" image): **25,000X**

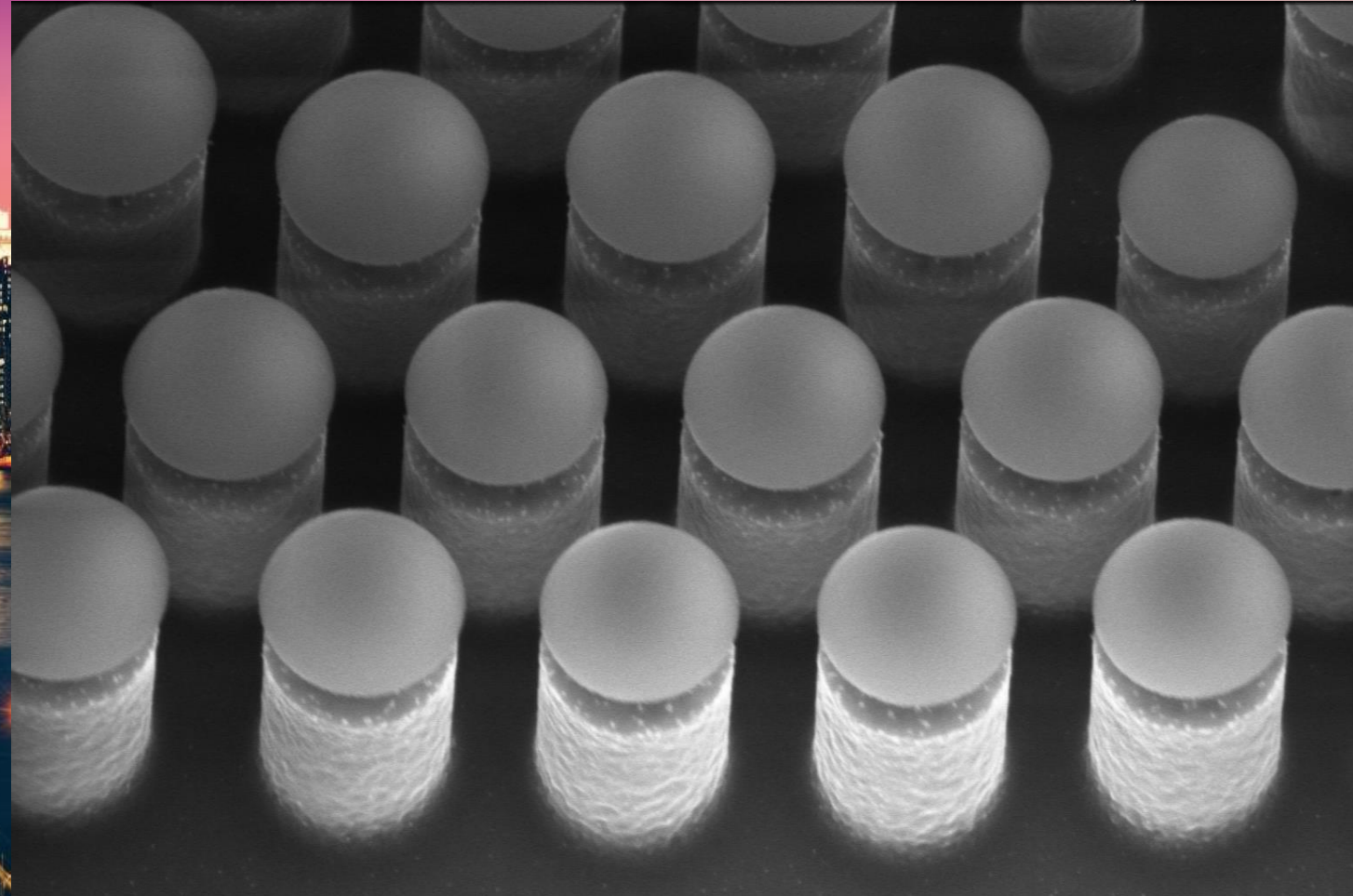
Instrument: : SEM

Manufacturer, Type and

Model of Microscope **Verios XHR 460L SEM**

Submitted By: **Sivan Tzadka**

Affiliation: **Ben Gurion university**



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

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2023 EIPBN MicroGraph Contest



MicroGraph Title: ladies

Description: Nanoparticles on top of long silicone pillars (cross-section)

Image Details:

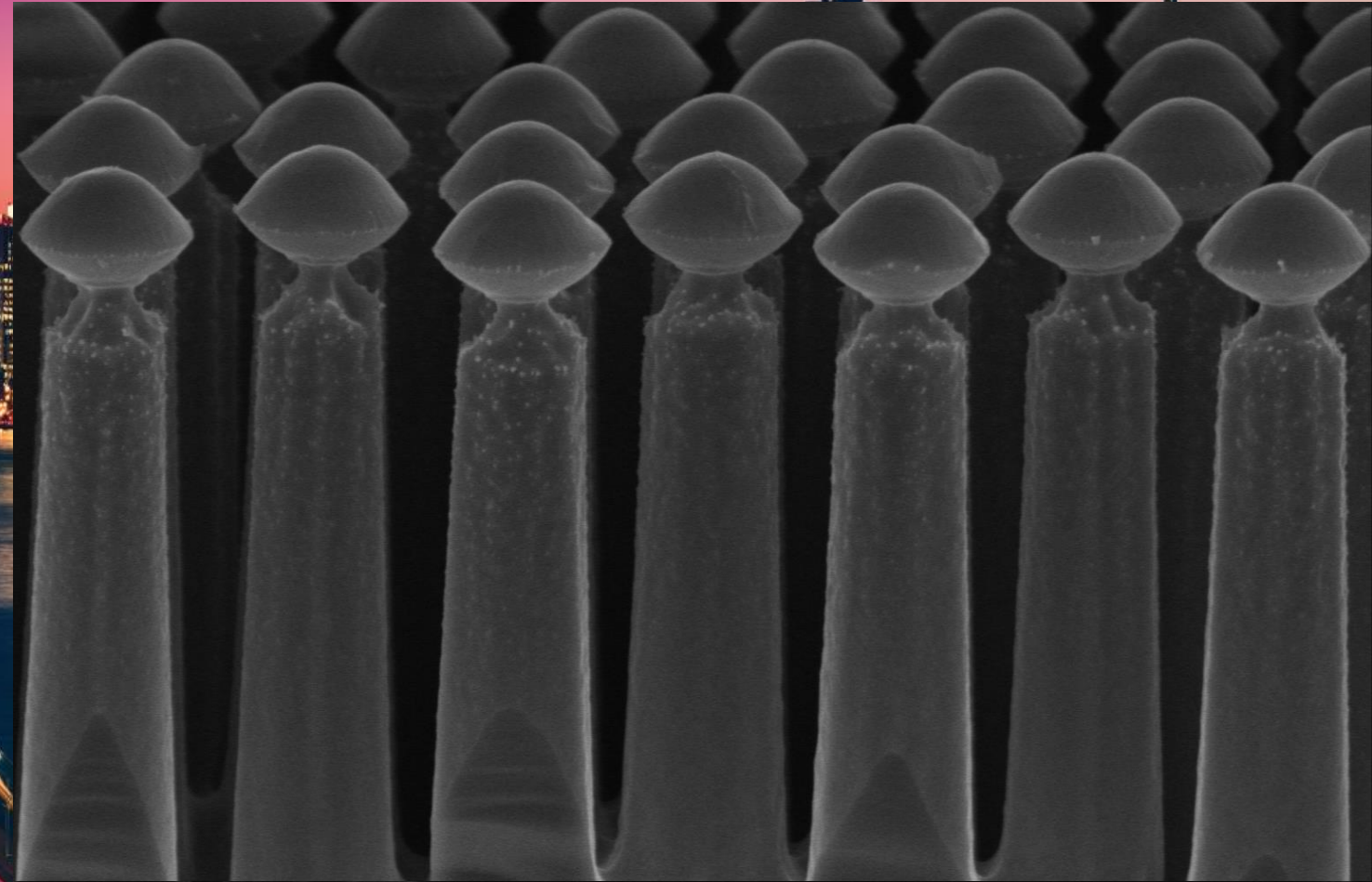
Orig. Mag: (3" x 4" image): 20,002X

Instrument: SEM

Manufacturer, Type and Model of Microscope Verios XHR 460L SEM

Submitted By: Sivan Tzadka

Affiliation: Ben Gurion university



	HV	curr	det	mode	WD	mag	HFV	tilt	 Verios
	3.00 kV	25 pA	TLD	SE	6.3 mm	20 002 x	6.35 μm	15 °	

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2023 EIPBN MicroGraph Contest



MicroGraph Title: Disconnect

Description: PBMA pillars disconnect from the substrate during SEM scan.

Image Details:

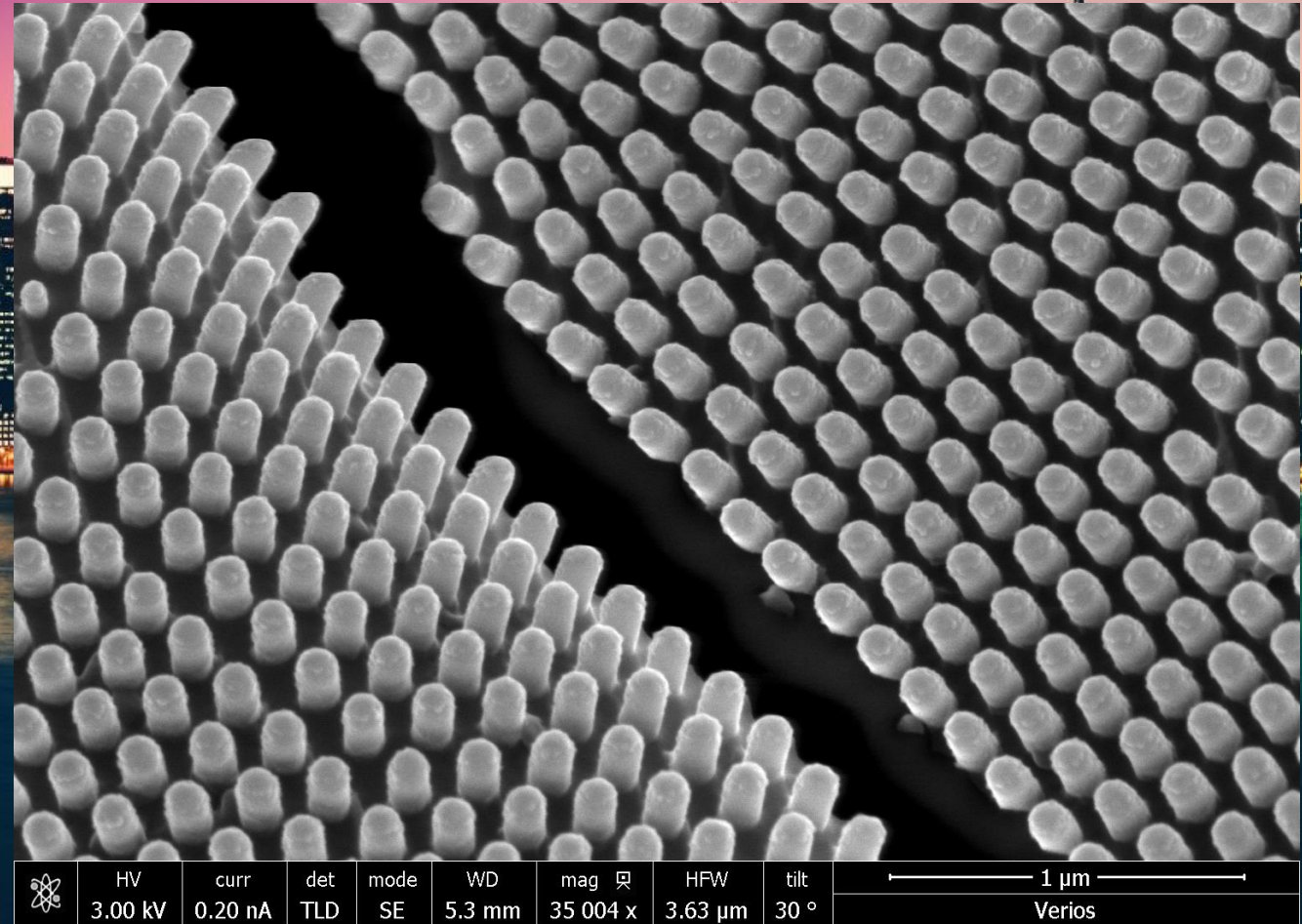
Orig. Mag: (3" x 4" image): **35,000X**

Instrument: :SEM

Manufacturer, Type and Model of Microscope **Verios XHR 460L SEM**

Submitted By: **Sivan Tzadka**

Affiliation: **Ben Gurion university**



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2023 EIPBN MicroGraph Contest



MicroGraph Title: The sword in the stone

Description: arbitrary scratch on patterned surface.

Image Details:

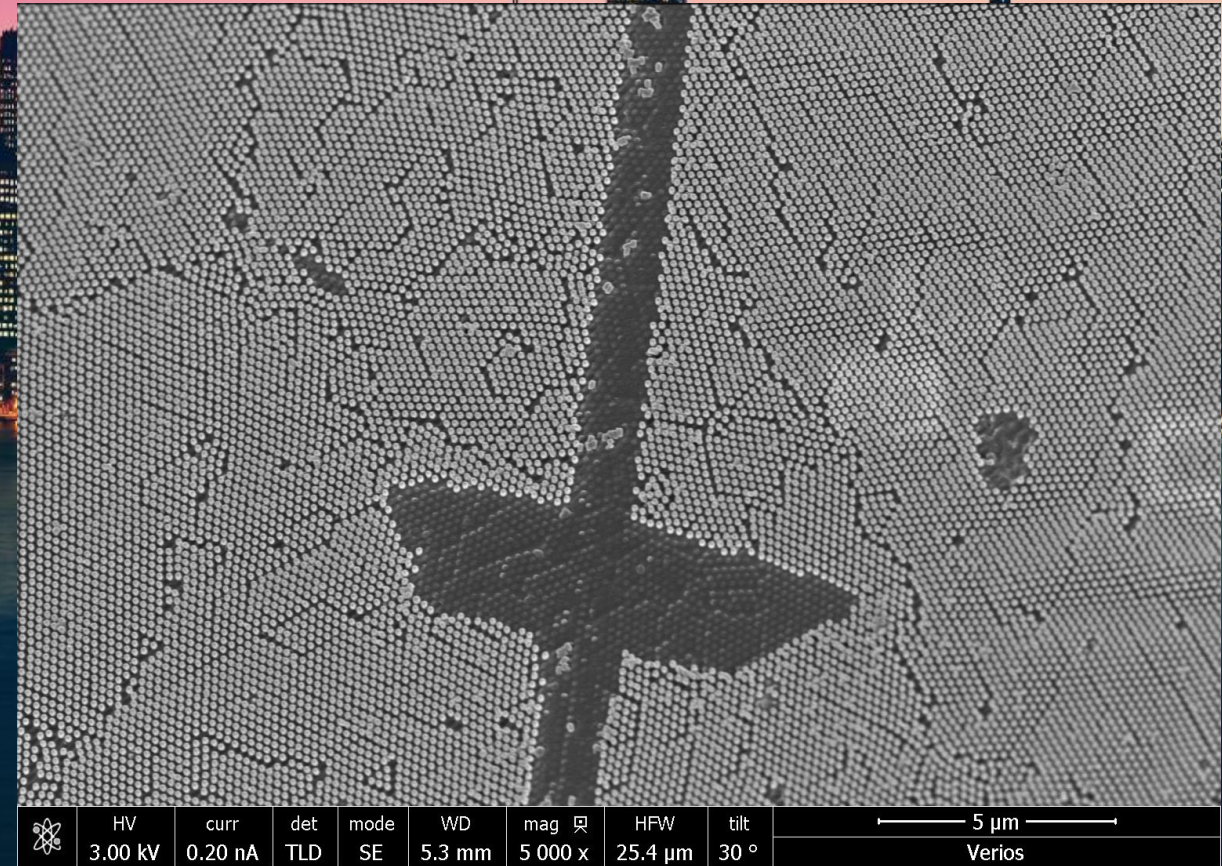
Orig. Mag: (3"x 4" image): 5,000X

Instrument: SEM

Manufacturer, Type and Model of Microscope Verios XHR 460L SEM

Submitted By: Sivan Tzadka

Affiliation: Ben Gurion university



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2023 EIPBN MicroGraph Contest



MicroGraph Title: Musical note

Description: Nanoparticles on top of silicone pillars.

Image Details:

Orig. Mag: (3"x 4" image): **15,012X**

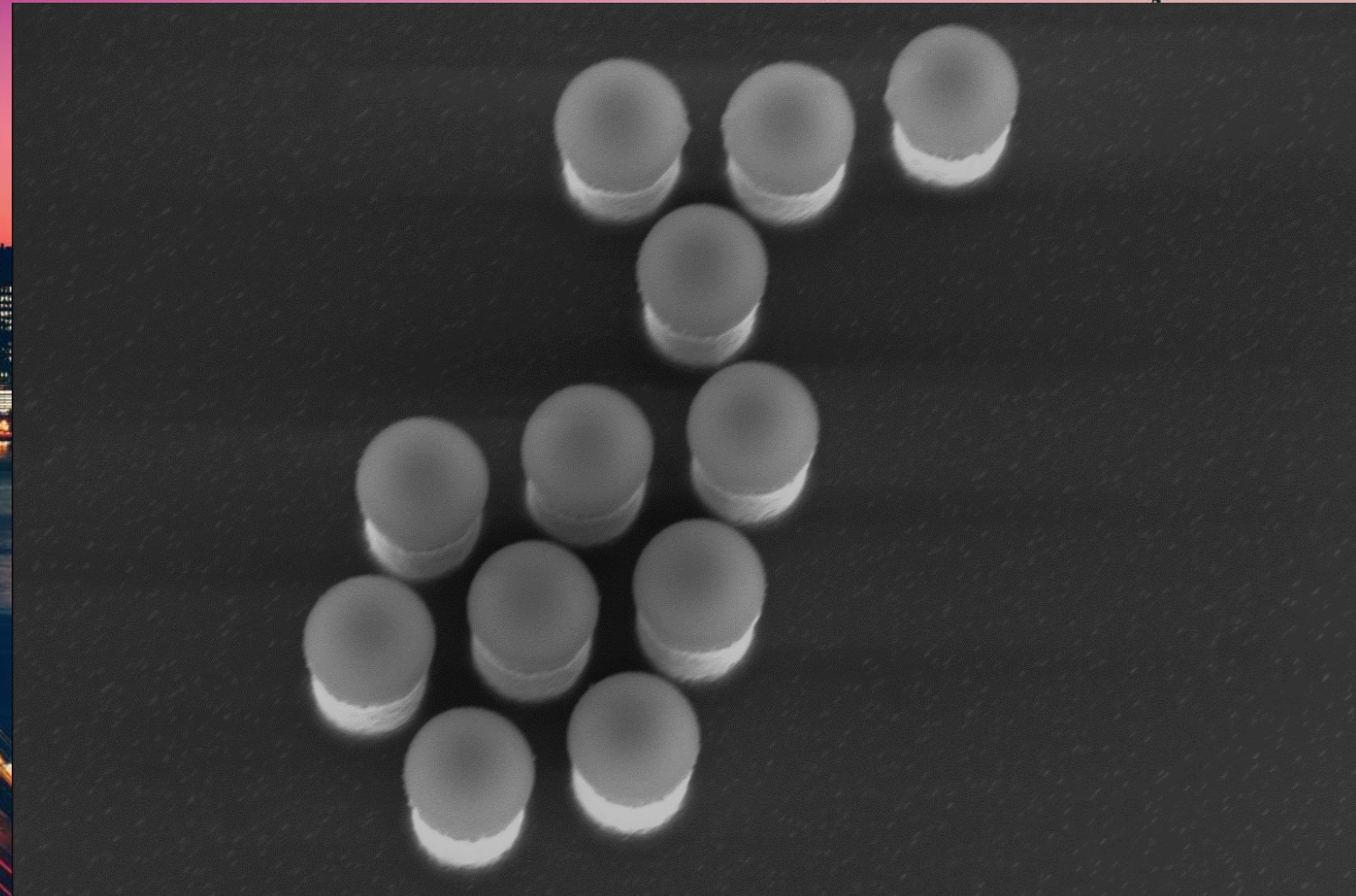
Instrument: : SEM

Manufacturer, Type and

Model of Microscope **Verios XHR 460L SEM**

Submitted By: **Sivan Tzadka**

Affiliation: **Ben Gurion university**



	HV 5.00 kV	curr 0.20 nA	det TLD	mode SE	WD 5.3 mm	mag \times 15 012 x	HFV 8.46 μm	tilt 10 $^\circ$	 2 μm	
									Verios	

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2023 EIPBN MicroGraph Contest



MicroGraph Title: Turtles

Description: Nanoparticles which has been used as a mask for metal deposition

Image Details:

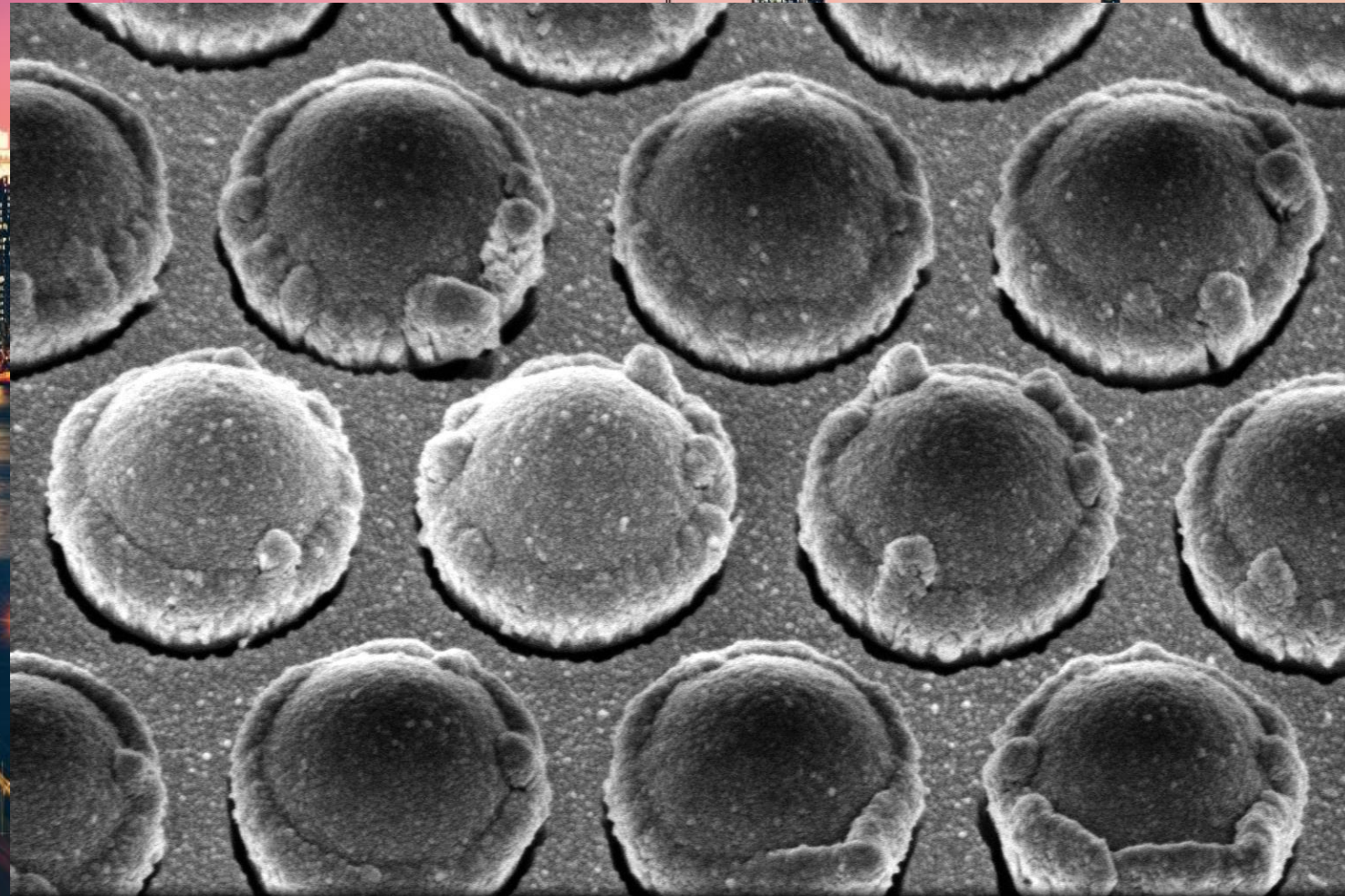
Orig. Mag: (3" x 4" image): 35,000X

Instrument: SEM

Manufacturer, Type and Model of Microscope Verios XHR 460L SEM

Submitted By: Sivan Tzadka

Affiliation: Ben Gurion university



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	HV	curr	det	mode	WD	mag	HFV	tilt	1 μ m	
	3.00 kV	25 pA	TLD	SE	6.5 mm	35 000 x	3.63 μ m	30 °	Verios	

2023 EIPBN MicroGraph Contest



MicroGraph Title: Shifted square

Description: Nanoparticles on silicone pillars. The Nanoparticles were deposited by Langmuir Blodgett process.

Image Details:

Orig. Mag: (3"x 4" image): **14,896X**

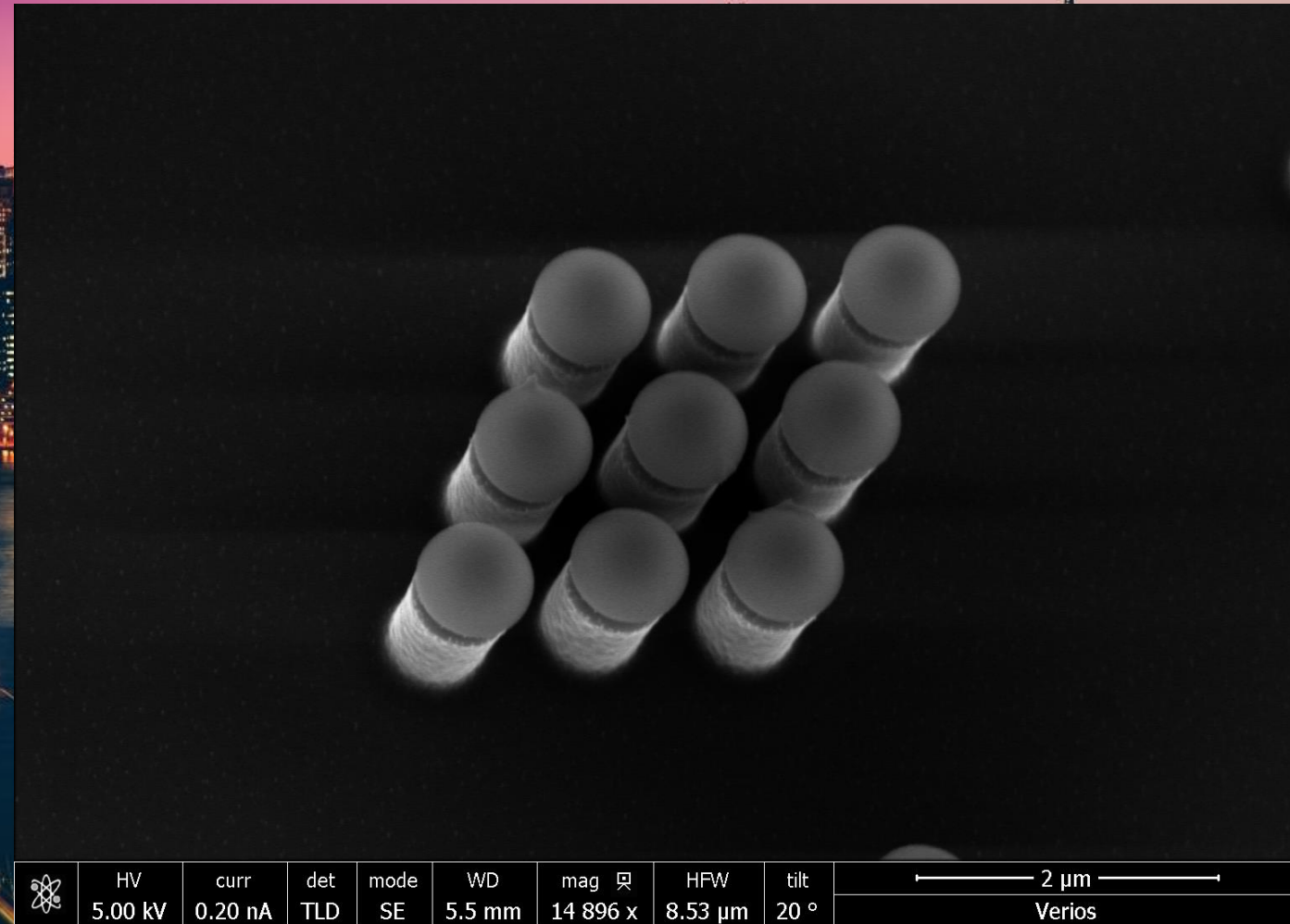
Instrument: : SEM

Manufacturer, Type and

Model of Microscope **Verios XHR 460L SEM**

Submitted By: **Sivan Tzadka**

Affiliation: **Ben Gurion university**



Sponsored by:





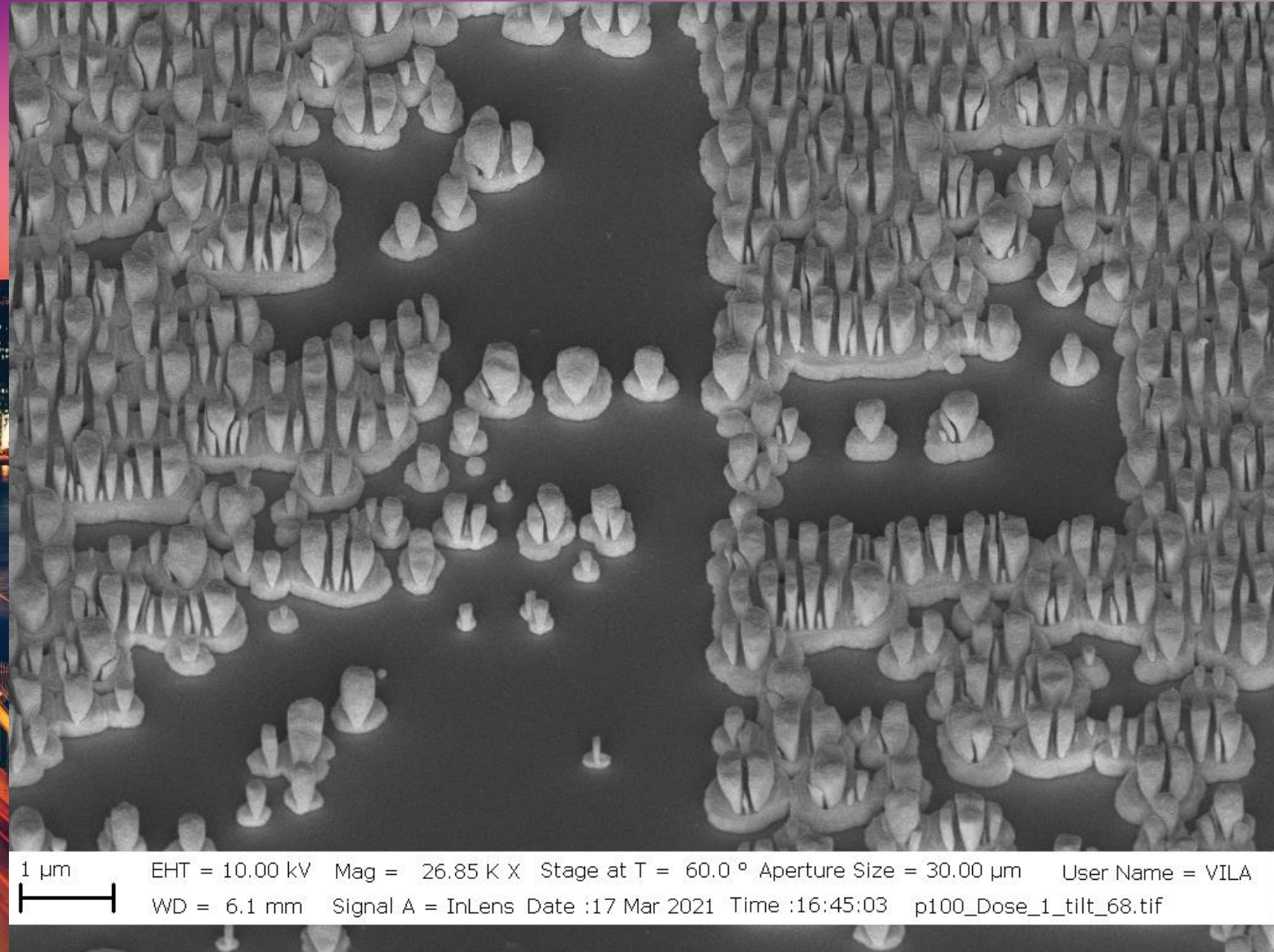
2023 EIPBN MicroGraph Contest

MicroGraph Title: Micro Bay Area

Description: Bad gold electroplated grating in e-beam written PMMA resist mold.

Image Details:

Orig. Mag: (3"x 4" image): 26.85 kX
Instrument: : SEM Zeiss Supra VP55
Submitted By: Joan Vila-Comamala
Affiliation: Paul Scherrer Institut (CH)



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2023 EIPBN MicroGraph Contest



Easter bunnies at work

SiO₂ roughened with a dry etching process. Through a random effect the dot structure is shaped like some Easter bunnies and eggs.

Image Details:

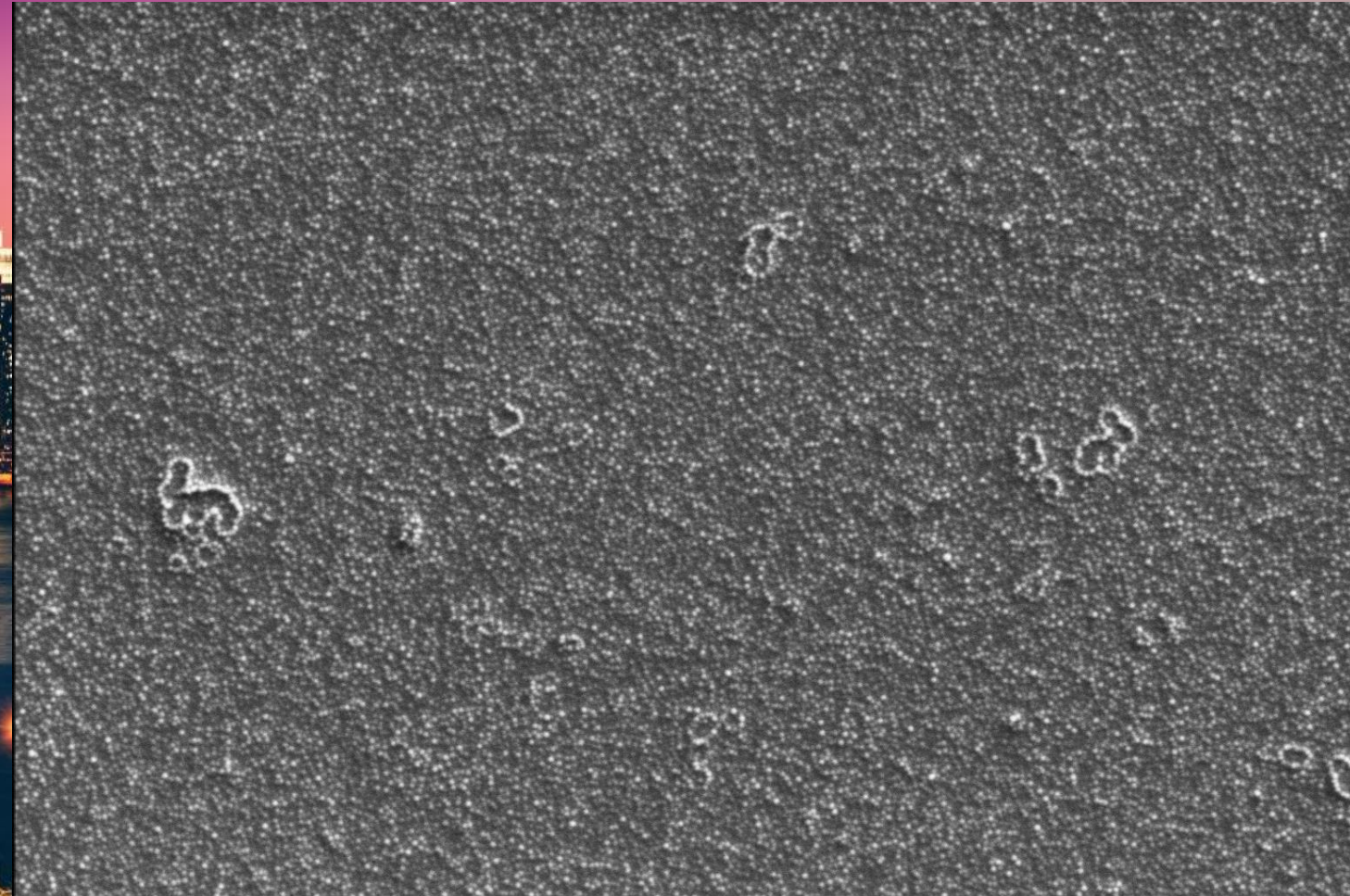
Orig. Mag: (3" x 4" image): 25 kX

Instrument: : ThermoFisher Helios 650

Nanolab

Submitted By: Thomas Loeber

Affiliation: RPTU Kaiserslautern NSC



	HV	curr	dwell	det	mode	WD	tilt	mag		HFW		2 μm
	2.00 kV	0.10 nA	300 ns	ETD	SE	3.8 mm	0 °	25 000 x		8.29 μm		TU Kaiserslautern NSC T. Loeber

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2023 EIPBN MicroGraph Contest

#28



Microwaves

Description of image: Sputtered Aluminum layer on Silicon is partially detaching from the substrate and forms this ripple structure

Image Details:

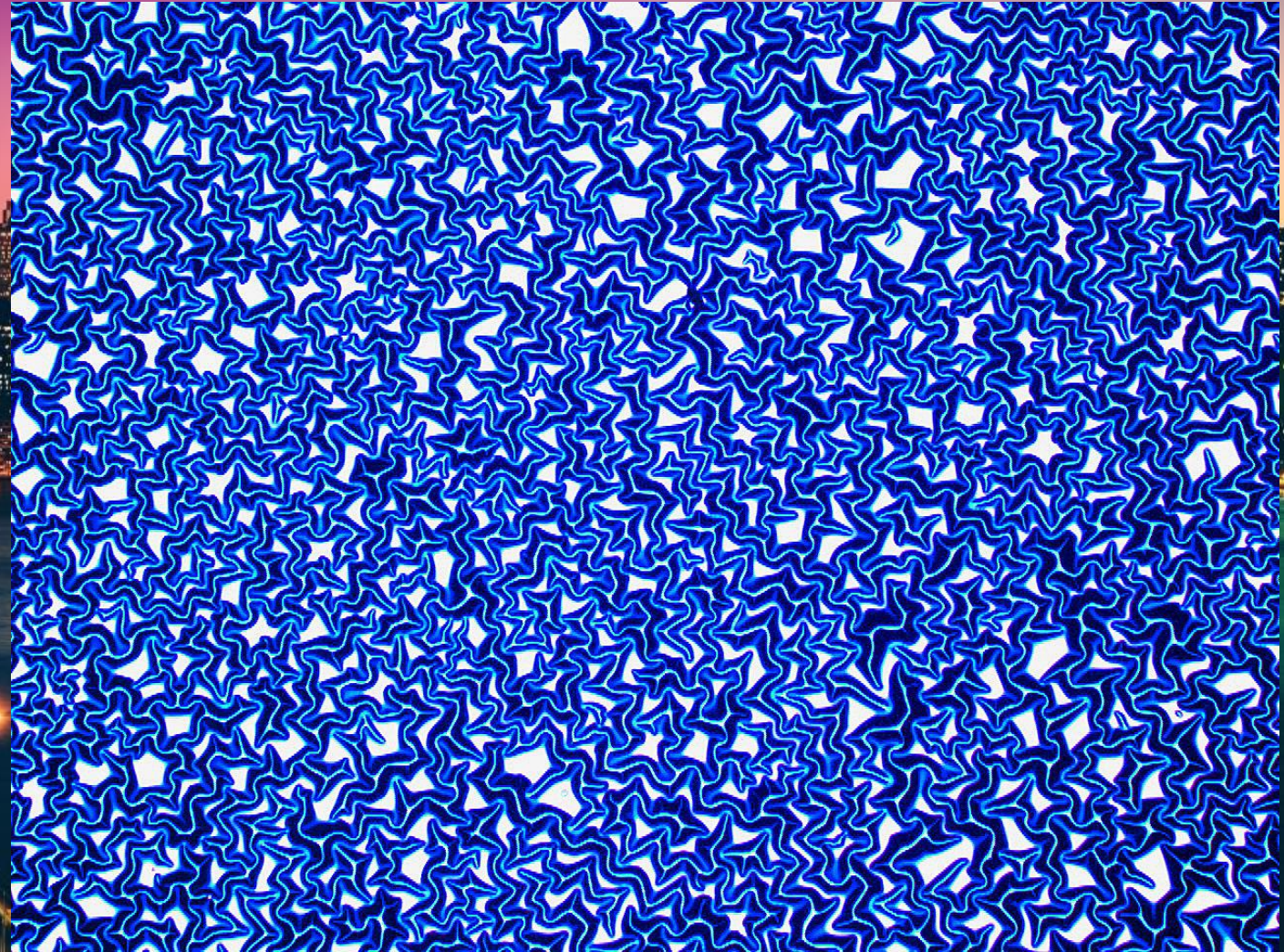
Orig. Mag: (3" x 4" image): 25 kX

Instrument: : ThermoFisher Helios 650

Nanolab

Submitted By: Thomas Loeber

Affiliation: RPTU Kaiserslautern NSC



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2023 EIPBN Micrograph Contest



Title: Focusing through the looking glass

Description: A through-focus video shows the hypnotic optics of a Fresnel lens array. We machine the lens array through a sacrificial film into a glass substrate with an ion beam, and trans-illuminate the lens array with an optical microscope. The sequence of photon micrographs spans a vertical range of 40 μm in 1000 increments of 40 nm. The microscope focal position moves from below the glass surface, through the diffraction patterns and photon beams that the lens array projects, to above the array focal distance of 12 μm , and back in a loop. False color is perceptually uniform and for a beamish effect.

Details:

Magnification: Nominally 50 \times ; image pixel size of 126.8 nm

Instrument: Carl Zeiss Axio Observer 7*

Submitters: Andrew C. Madison, Craig R. Copeland, and Samuel M. Stavis *et al.*

Affiliation: National Institute of Standards and Technology

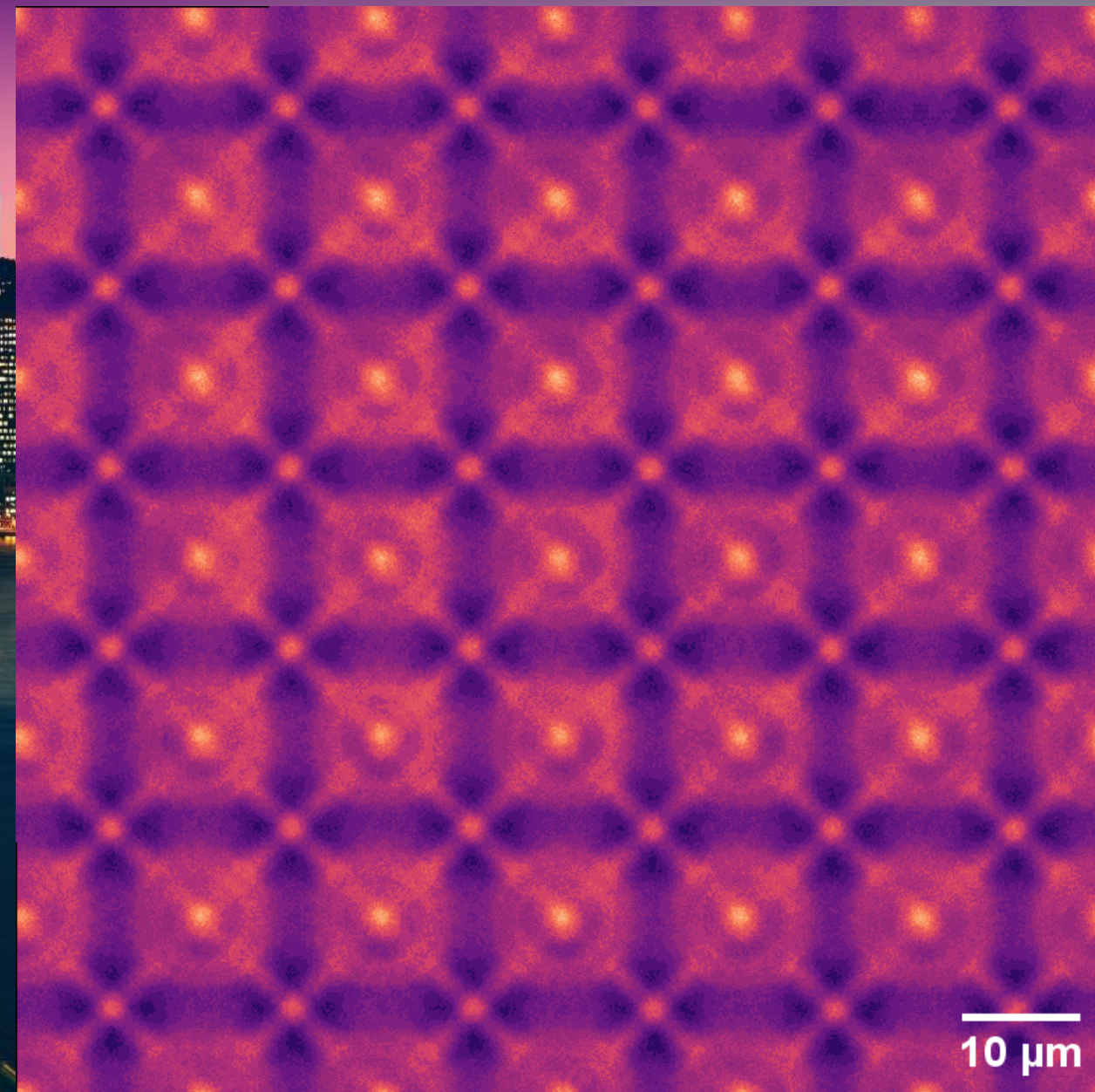
*The identification of a commercial product is for specification only and does not imply recommendation.



NIST

Sponsor:

zyvexTM
LABS





2023 EIPBN MicroGraph Contest

MicroGraph Title: Nebula

Description: Nebular beauty by electrospinning.

Image Details:

Orig. Mag: 800 X

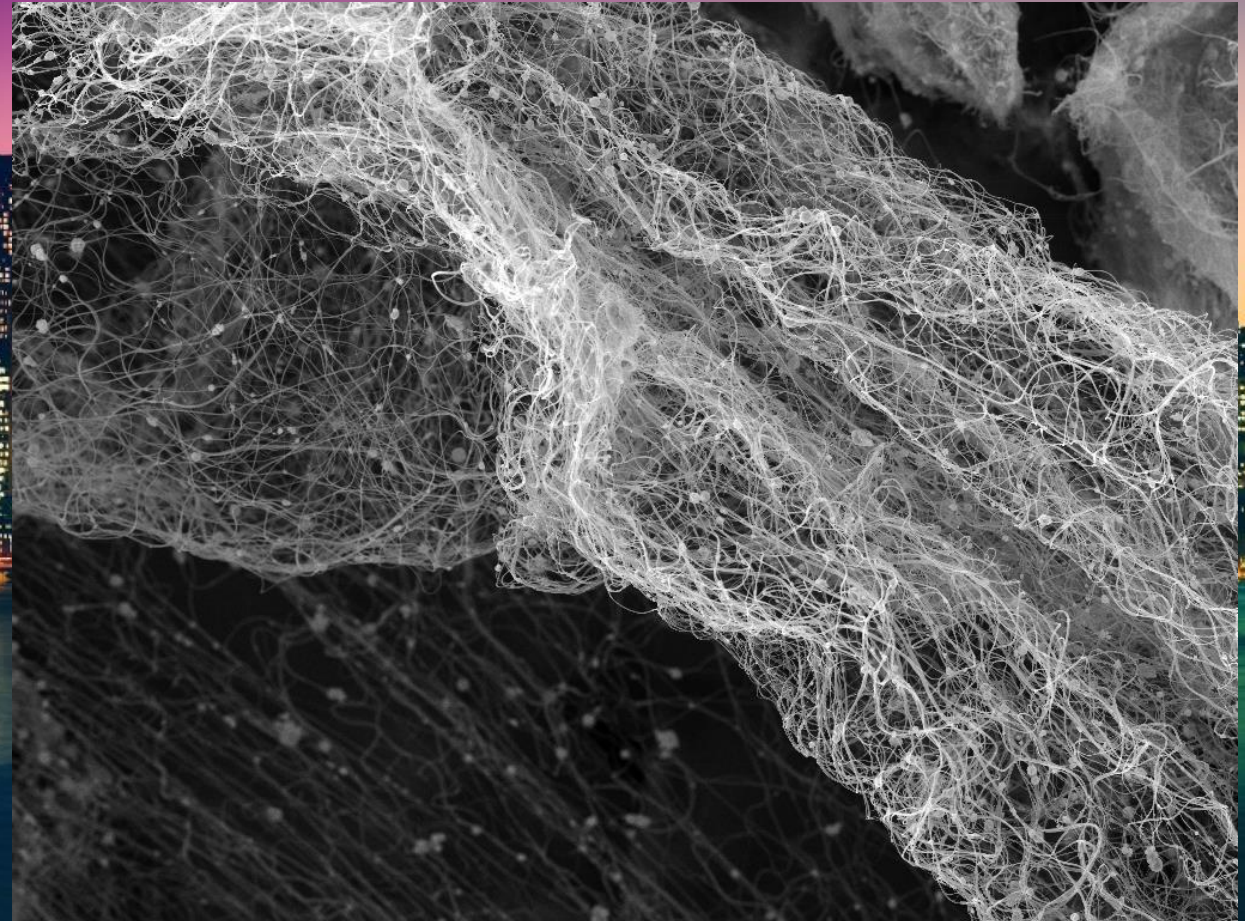
Instrument: Tescan Mira 3

Submitted By: Amos Taiswa

Affiliation: Montana Tech Nanotechnology Laboratory



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SEM HV: 20.0 kV	WD: 13.33 mm	MIRA3 TESCAN
View field: 346 μ m	Det: SE	100 μ m
SEM MAG: 800 x	Date(m/d/y): 05/12/23	

2023 EIPBN MicroGraph Contest



MicroGraph Title: Malcolm

Description: Directed by Spike Lee.

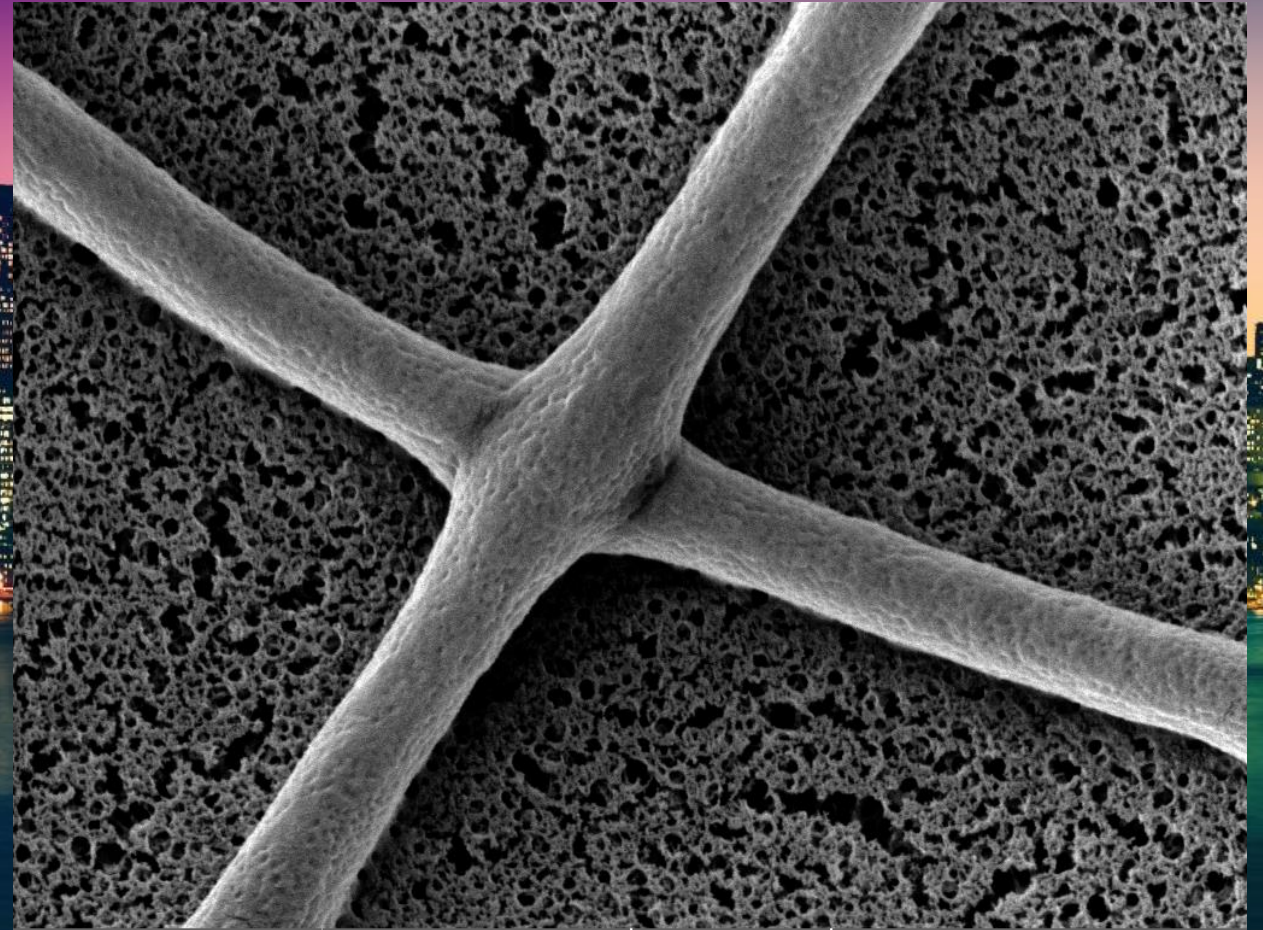
Image Details:

Orig. Mag: 22.4 kX

Instrument: Tescan Mira 3

Submitted By: Amos Taiswa

Affiliation: Montana Tech Nanotechnology Laboratory



SEM HV: 5.0 kV	WD: 15.29 mm		MIRA3 TESCAN
View field: 12.4 μm	Det: SE		
SEM MAG: 22.4 kx	Date(m/d/y): 10/10/22		

Sponsored by:





2023 EIPBN MicroGraph Contest

MicroGraph Title: Coronal Ejections

Description: High energy spurts off the sun.

Image Details:

Orig. Mag: 26 kX

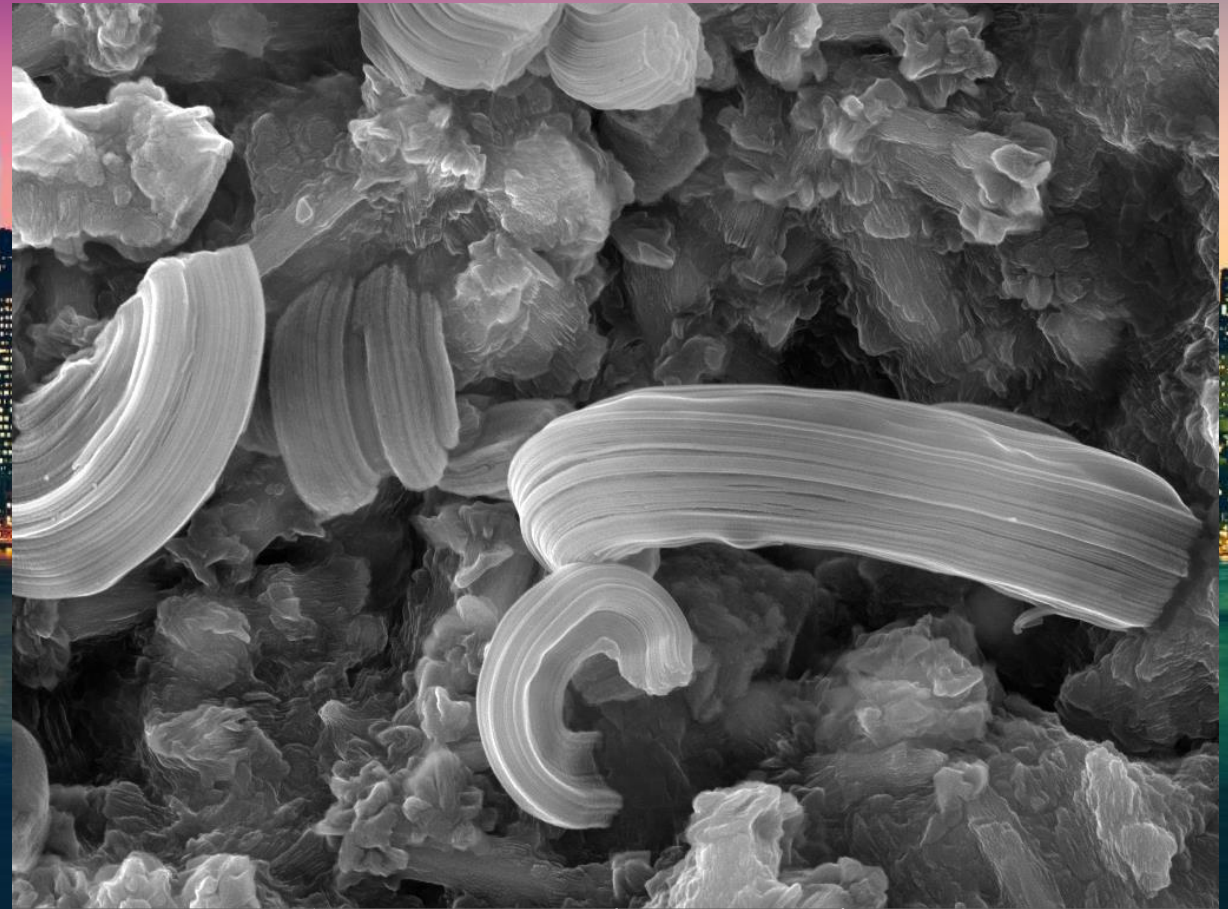
Instrument: Tescan Mira 3

Submitted By: Amos Taiswa

Affiliation: Montana Tech Nanotechnology Laboratory



Sponsored by:



SEM HV: 20.0 kV	WD: 15.51 mm		MIRA3 TESCAN
View field: 10.7 μm	Det: SE	2 μm	
SEM MAG: 26.0 kx	Date(m/d/y): 05/05/23		

2023 EIPBN MicroGraph Contest



MicroGraph Title: Pumpkin

Description: Pumpkin yard

Image Details:

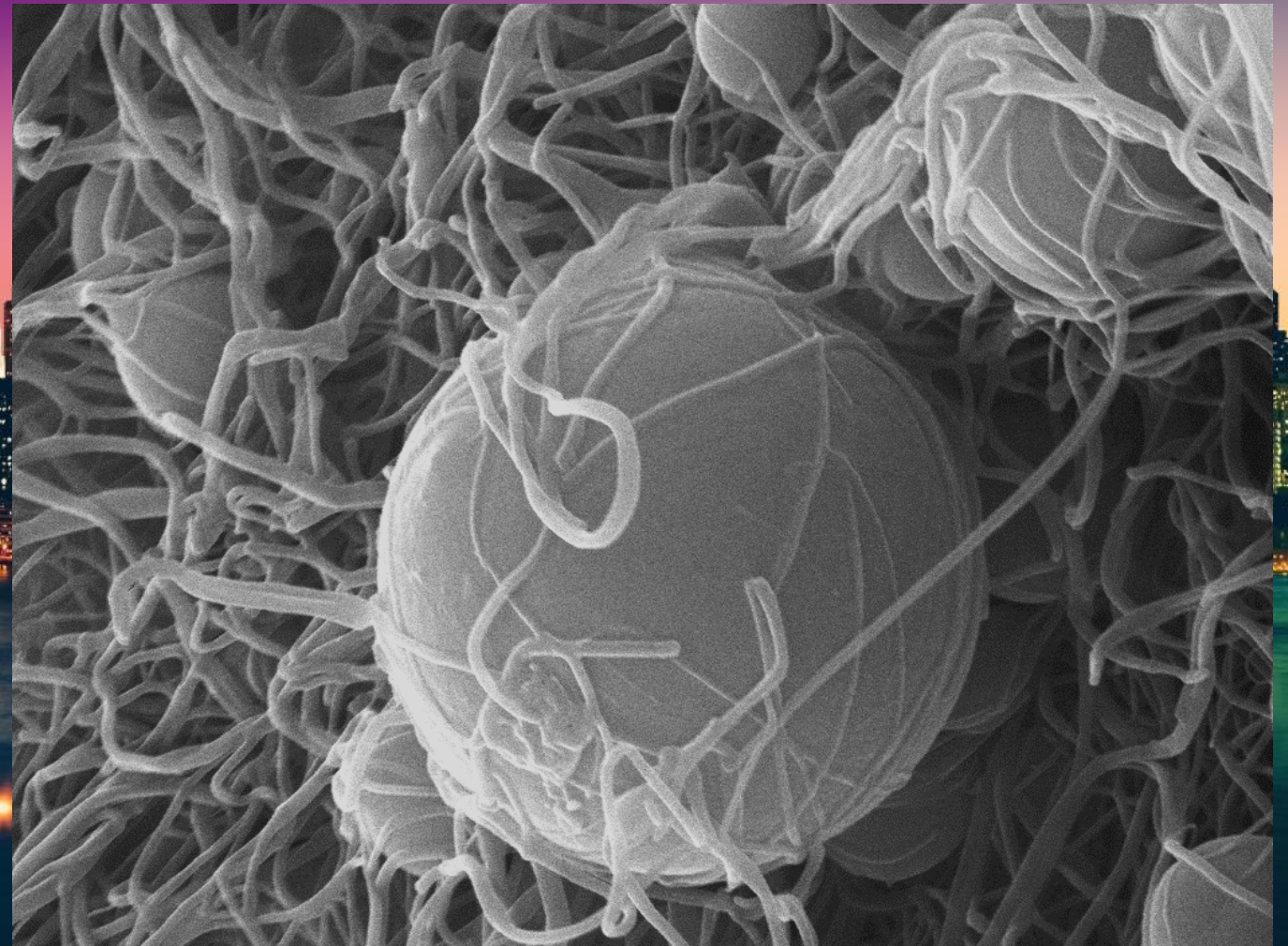
Orig. Mag: 35 kX

Instrument: Tescan Mira 3

Submitted By: Amos Taiswa

Affiliation: Montana Tech Nanotechnology
Laboratory

Sponsored by:



SEM HV: 20.0 kV

WD: 13.59 mm

MIRA3 TESCAN

View field: 7.90 μm

Det: SE

2 μm

SEM MAG: 35.0 kx

Date(m/d/y): 05/23/23

2023 EIPBN MicroGraph Contest



MicroGraph Title: Waiting in line

Description: Array of silicon nanopillars obtained via HBr plasma etching and image reversal of nanoholes patterned with NanoFrazor thermal scanning <https://www.zyvexlabs.com/contests/2023-2/>

Image Details:

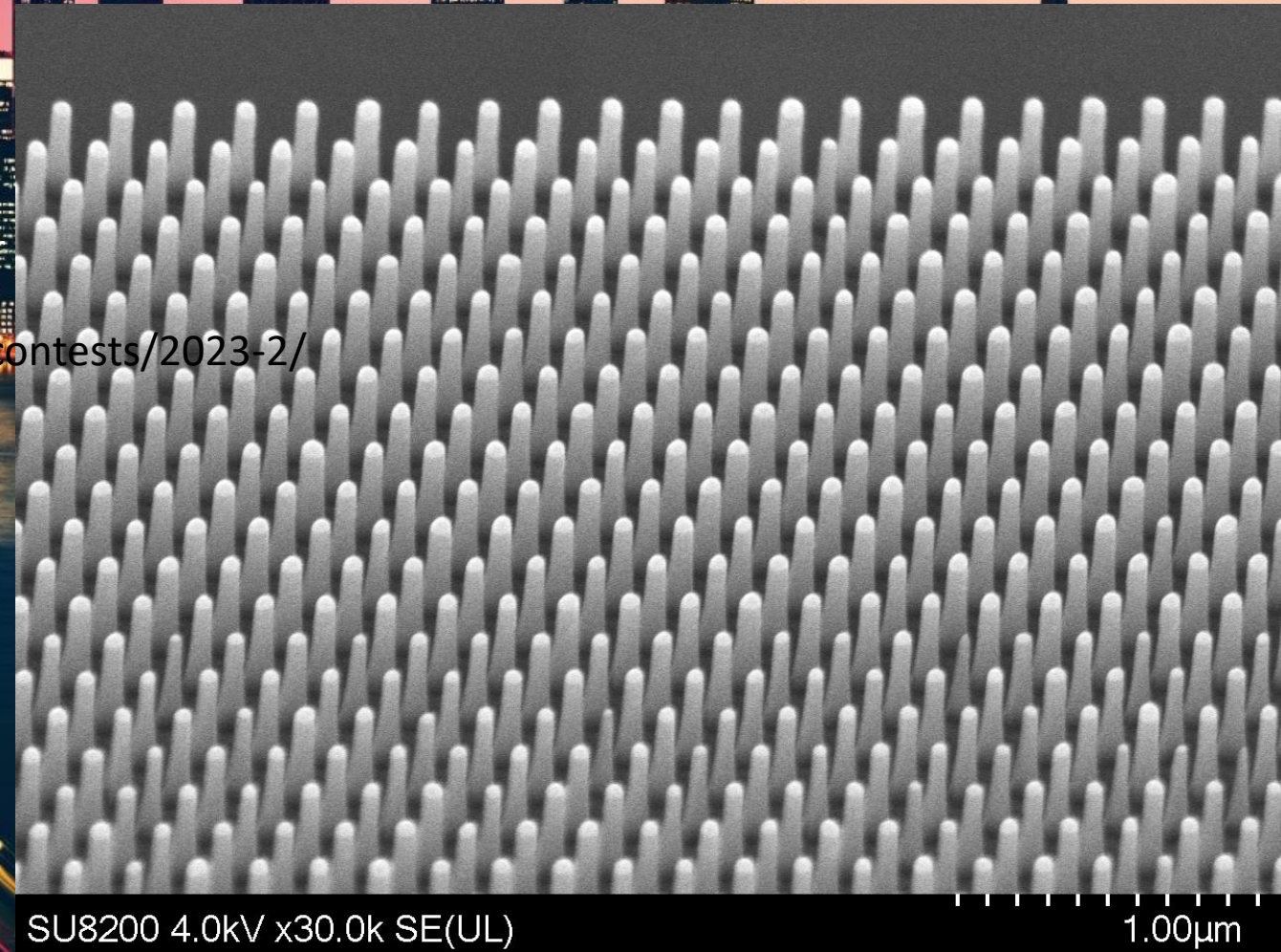
Orig. Mag: (3" x 4" image): 30.0 kX

Instrument: : SEM, Hitachi SU8230

Submitted By: Jana Chaaban

Affiliation: Heidelberg Instruments Nano AG

Sponsored by:



2023 EIPBN MicroGraph Contest



MicroGraph Title: Nanobar of silicon

Description: Rectangular design written with NanoFrazor thermal scanning probe lithography and etched into Silicon with HBr plasma.

Image Details:

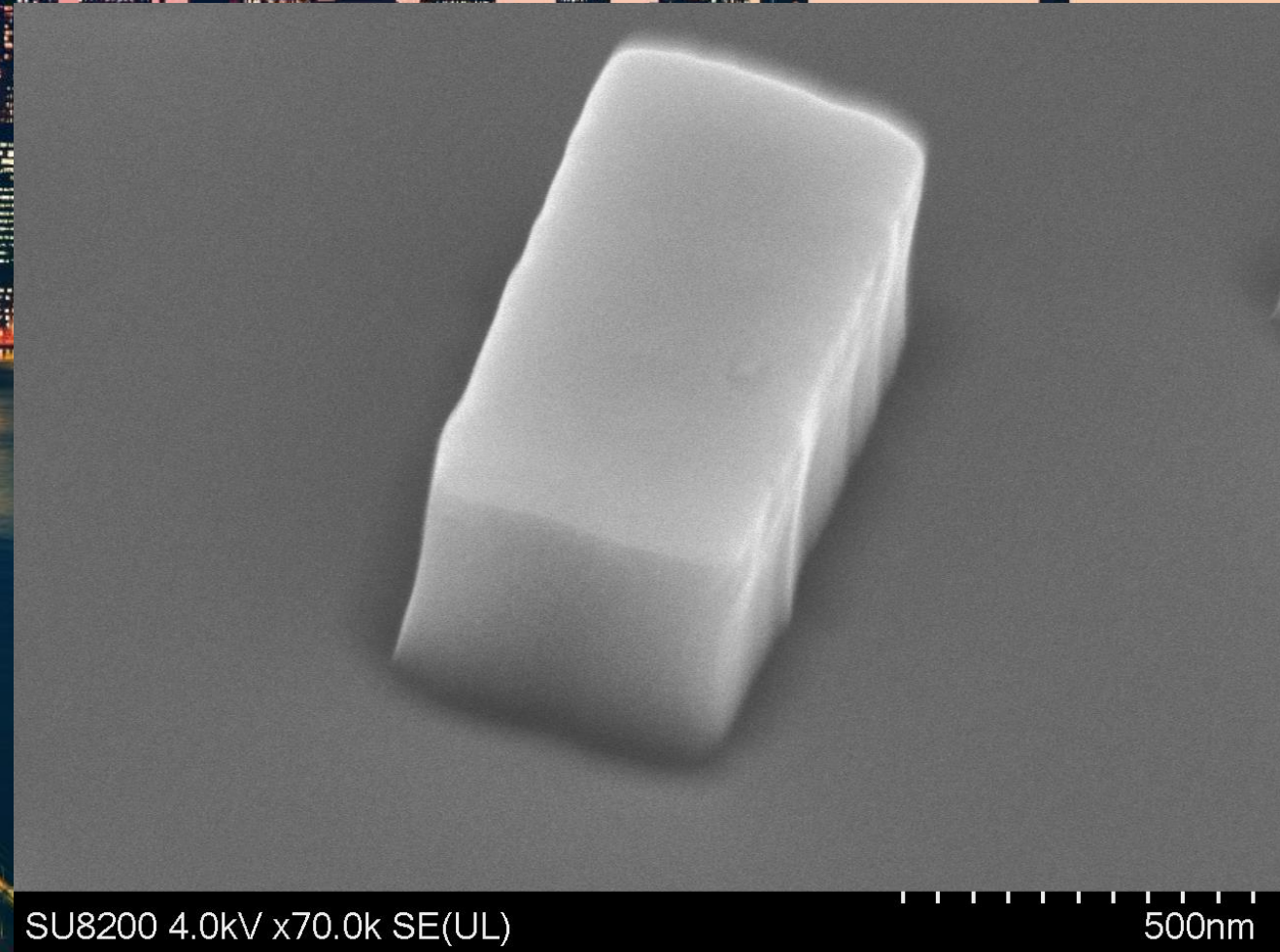
Orig. Mag: (3" x 4" image): 70.0 kX

Instrument: : SEM, Hitachi SU8230

Submitted By: Jana Chaaban

Affiliation: Heidelberg Instruments Nano AG

Sponsored by:



2023 EIPBN MicroGraph Contest



MicroGraph Title: Nanoblocks

Description: Rectangular designs written with NanoFrazor thermal scanning probe lithography and etched into Silicon with HBr plasma.

Image Details:

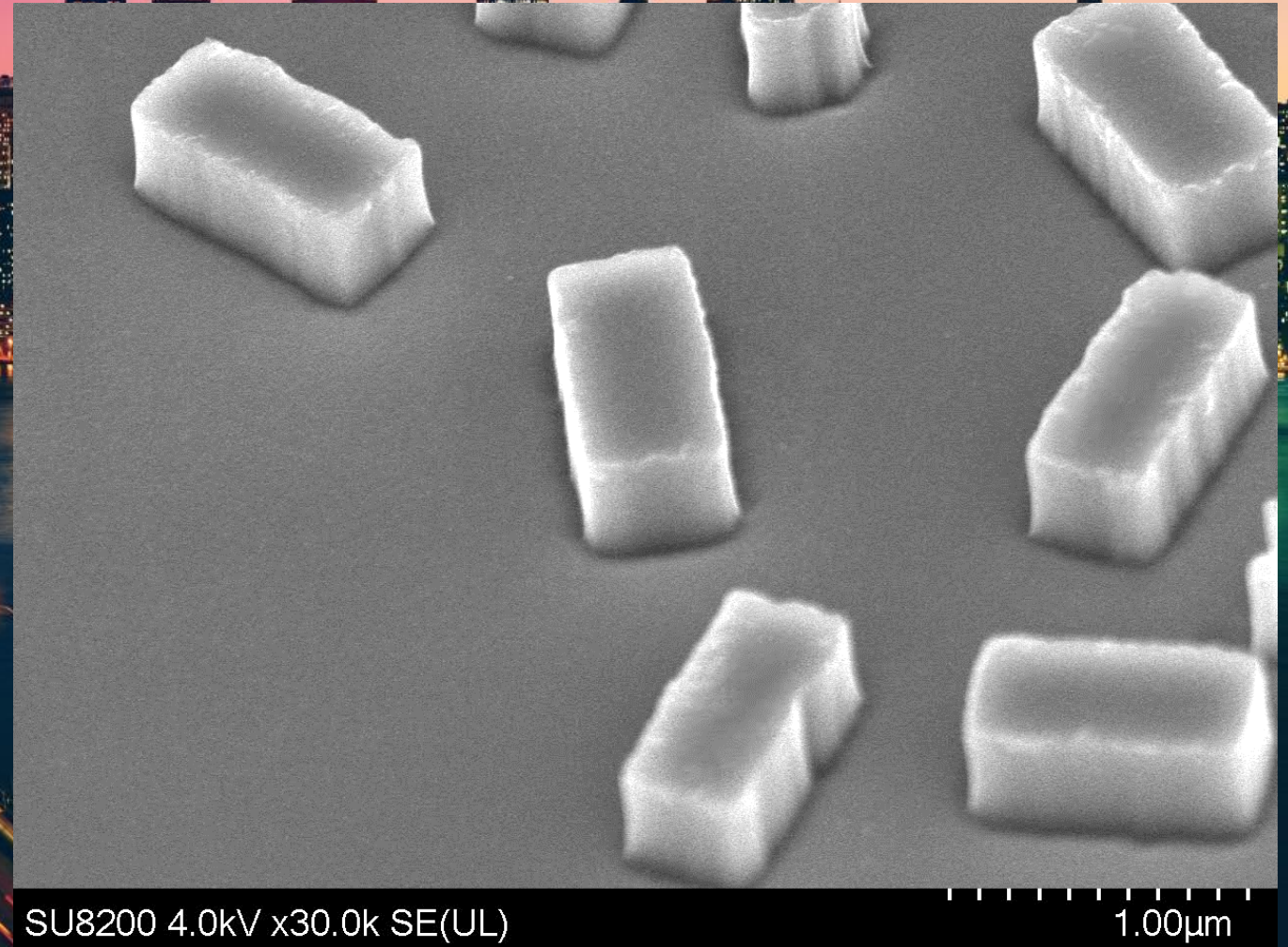
Orig. Mag: (3" x 4" image): 30.0 kX

Instrument: : SEM, Hitachi SU8230

Submitted By: Jana Chaaban

Affiliation: Heidelberg Instruments Nano AG

Sponsored by:



2023 EIPBN MicroGraph Contest



MicroGraph Title: Do you like pineapple on pizza?

Description: Design written with NanoFrazor thermal scanning probe lithography and etched into Silicon with HBr plasma.

Image Details:

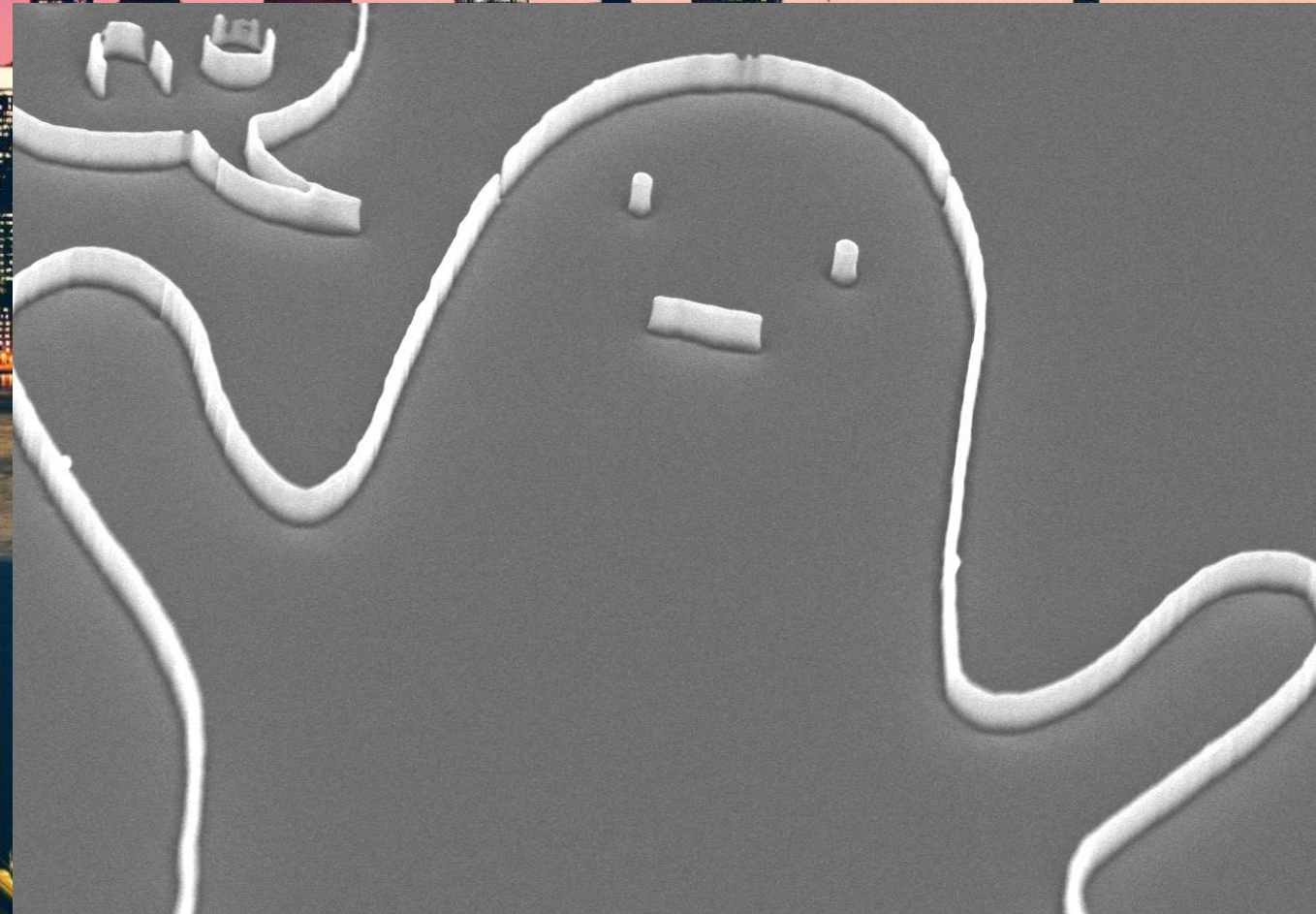
Orig. Mag: (3" x 4" image): 11.0 kX

Instrument: : SEM, Hitachi SU8230

Submitted By: Jana Chaaban

Affiliation: Heidelberg Instruments Nano AG

Sponsored by:



SU8200 4.0kV x11.0k SE(UL)

5.00µm

2023 EIPBN MicroGraph Contest



MicroGraph Title: Waves in the Bay Area

Description: Design written with NanoFrazor thermal scanning probe lithography and etched into Silicon with HBr plasma. Here, the etch was not fully successful.

Image Details:

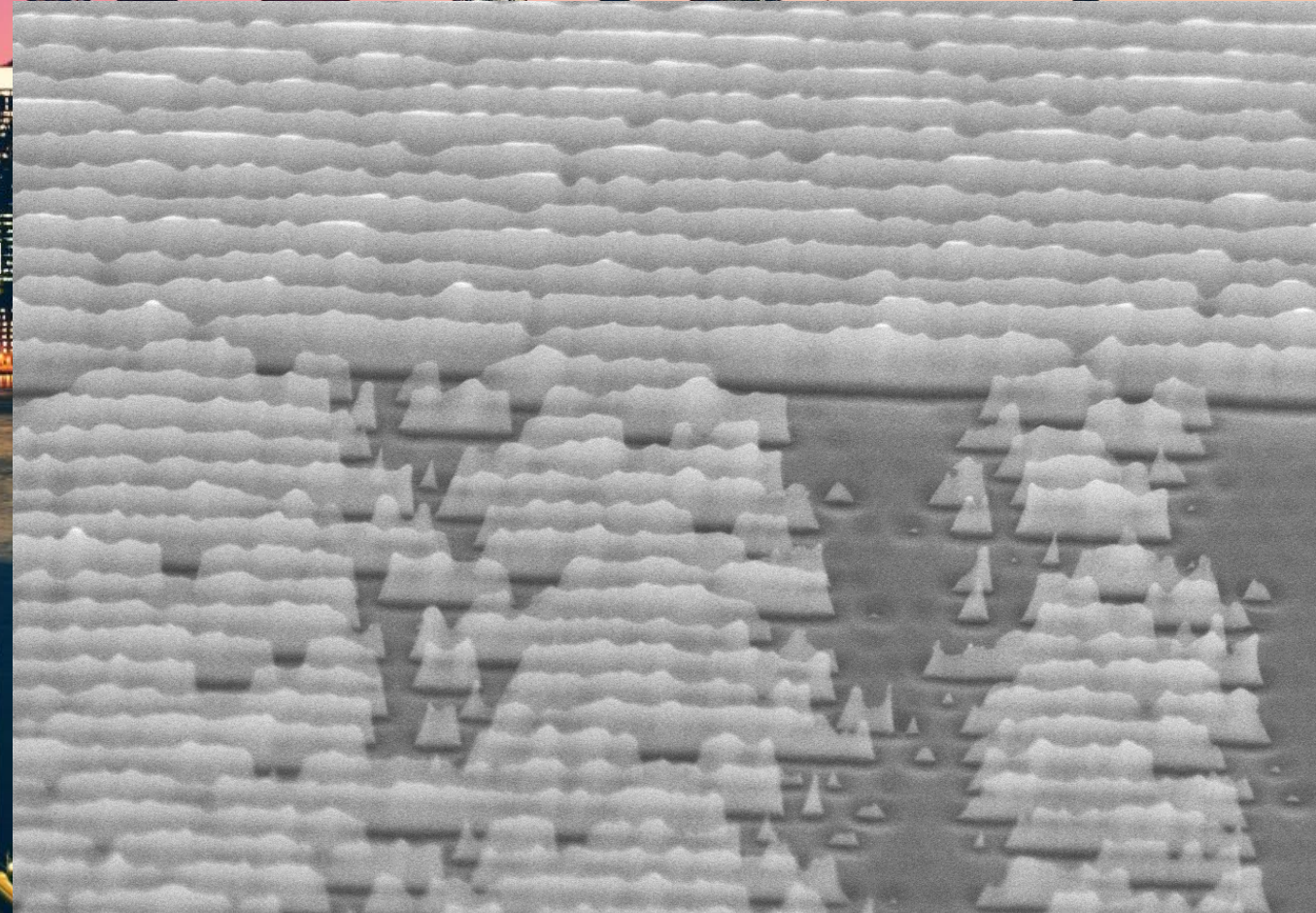
Orig. Mag: (3" x 4" image): 22.0 kX

Instrument: : SEM, Hitachi SU8230

Submitted By: Jana Chaaban

Affiliation: Heidelberg Instruments Nano AG

Sponsored by:



SU8200 4.0kV x22.0k SE(UL)

2.00 μm

2023 EIPBN MicroGraph Contest



MicroGraph Title: Piece of cake

Description: e-beam irradiated Polystyrene coated Glass during TEM sample preparation

Image Details:

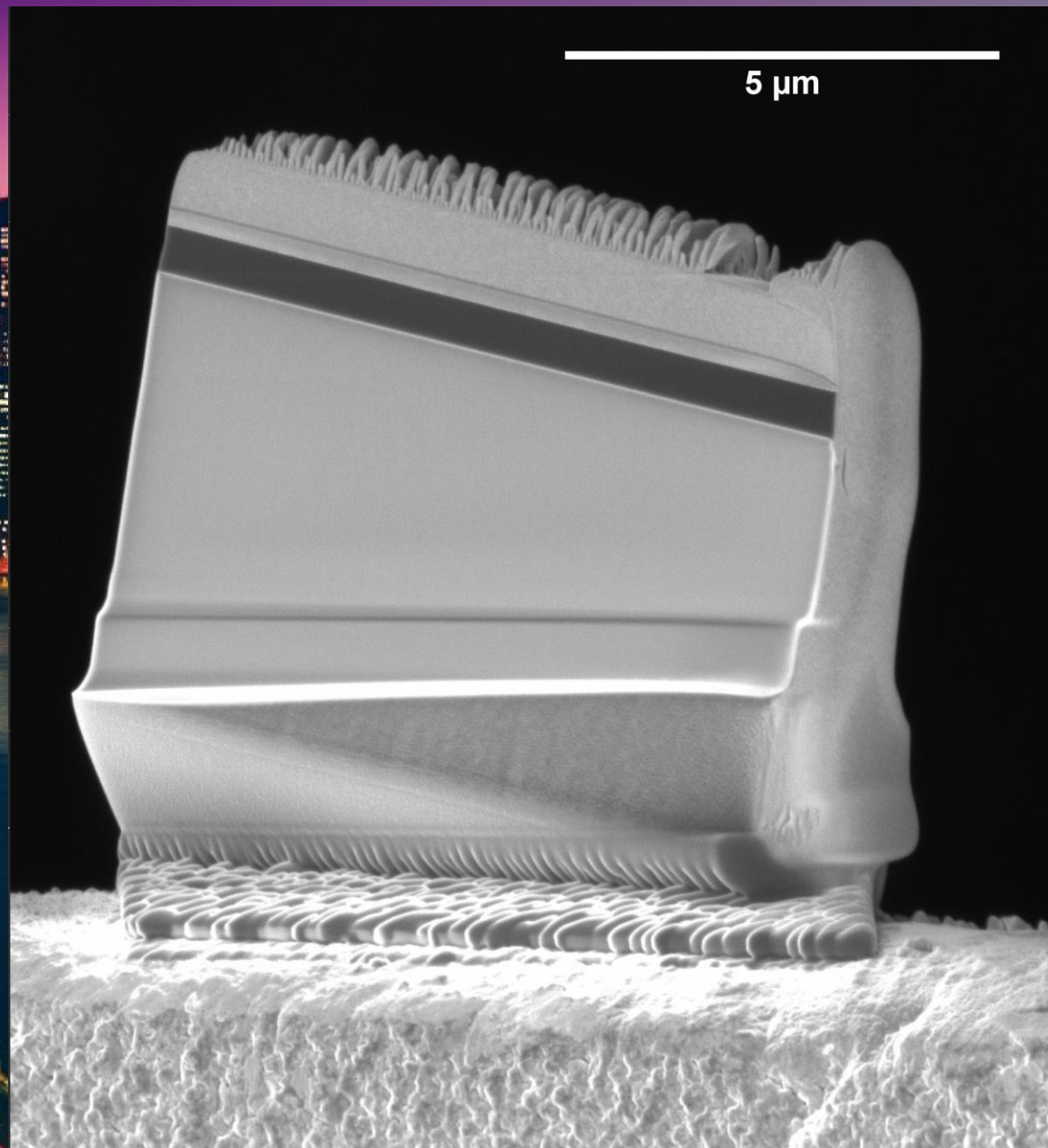
Orig. Mag: (3" x 4" image): 7kX

Instrument: : FEI Helios Nanolab 660

Submitted By: Deepak Kumar

Affiliation: University of Kentucky

Sponsored by:



2023 EIPBN MicroGraph Contest



MicroGraph Title: Peaky nanotubes

Description: Titania nanotubes pore bottom which usually are closed because of the presence of thin barrier layer

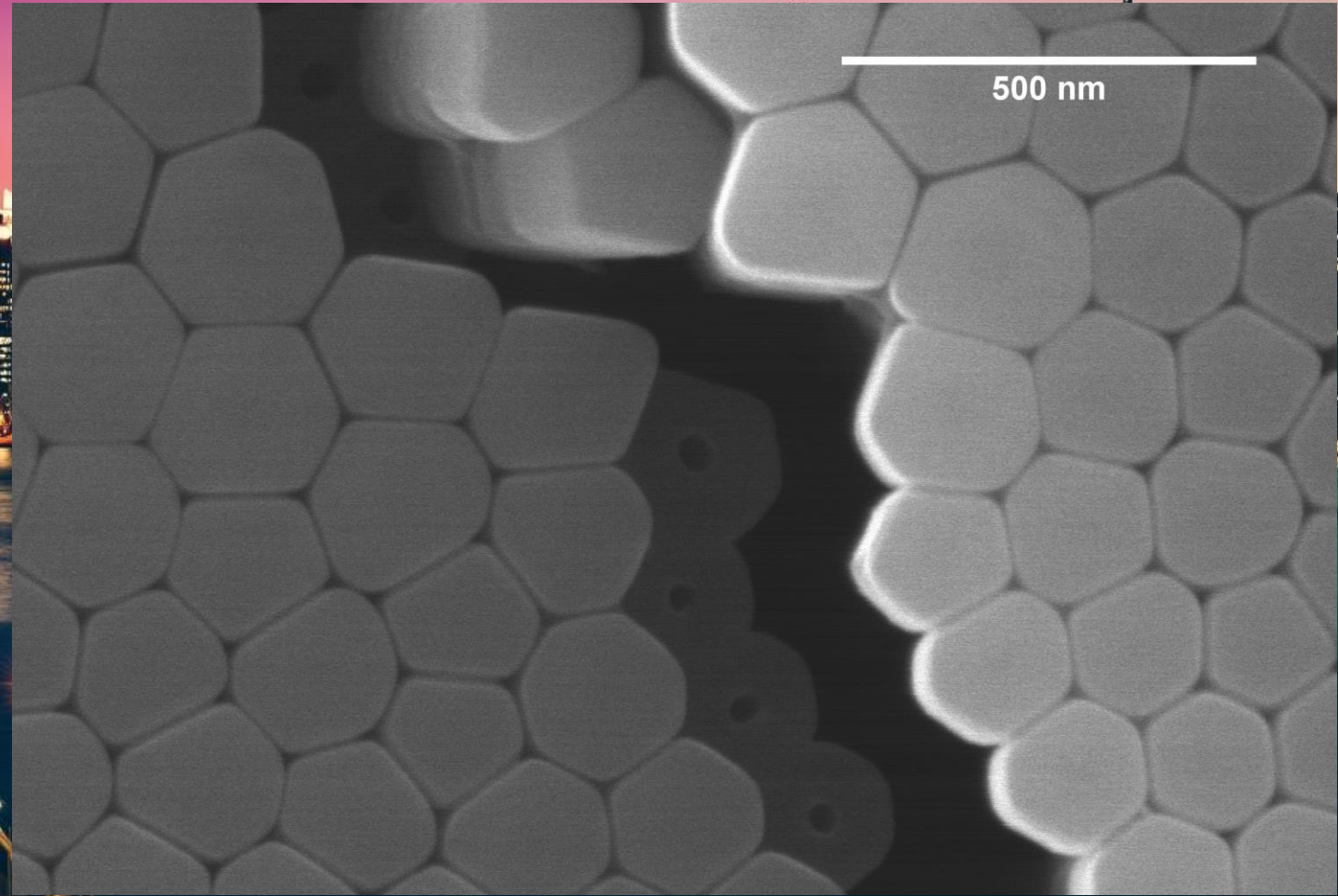
Image Details:

Orig. Mag: (3" x 4" image): 80kX

Instrument: : Hitachi S-4300

Submitted By: Deepak Kumar

Affiliation: University of Kentucky



Sponsored by:



2023 EIPBN MicroGraph Contest



MicroGraph Title: nano penne pasta

Description: Titania nanotubes formed anodization

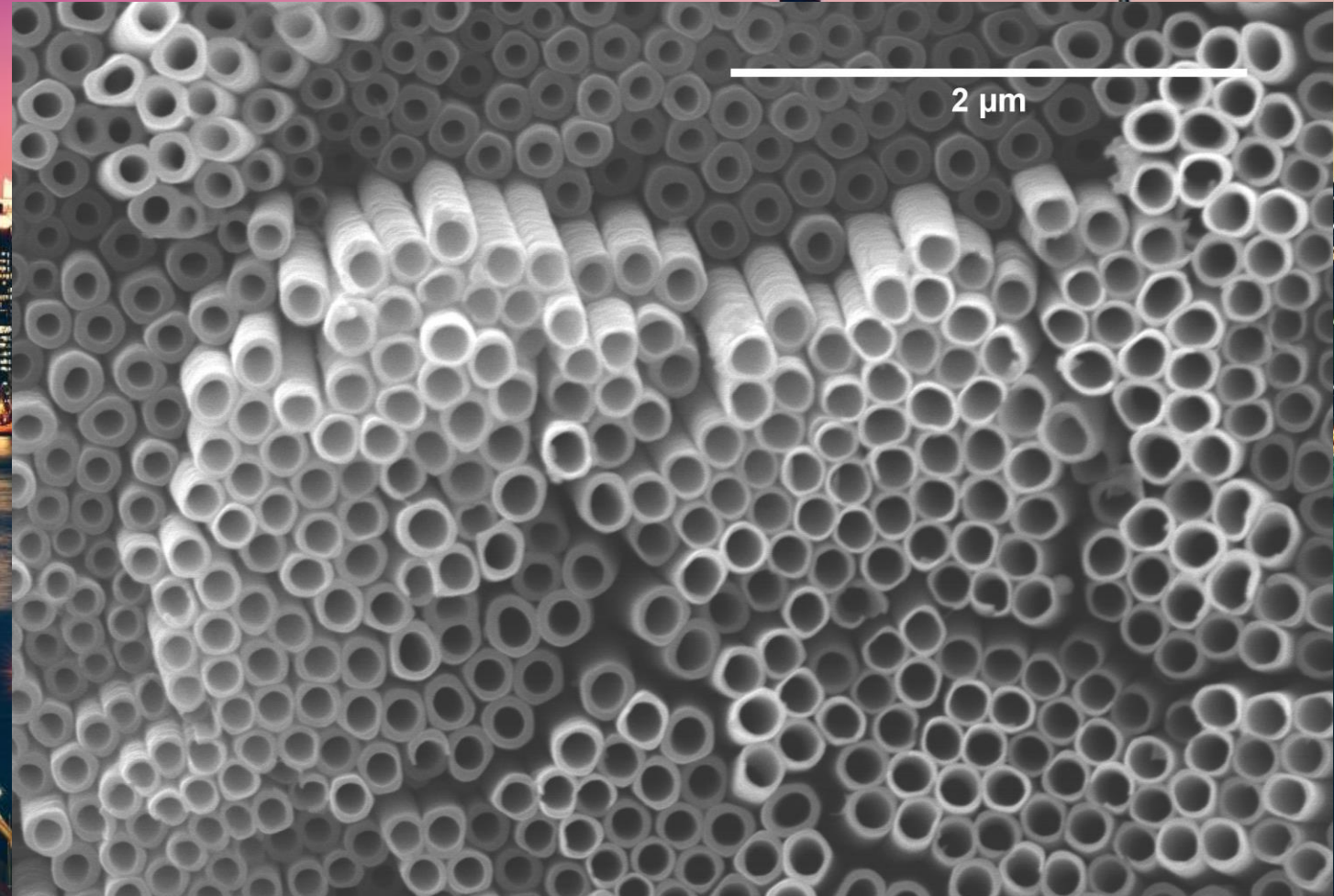
Image Details:

Orig. Mag: (3" x 4" image): 25kX

Instrument: : FEI Quanta 250

Submitted By: Deepak Kumar

Affiliation: University of Kentucky



Sponsored by:



2023 EIPBN MicroGraph Contest



MicroGraph Title: In a world of circuits and chips, a wavy cake's creation took flips!

Description: This is an SEM image of a 8-cycle Bosch-etched Silicon disc patterned using SU8, captured by the class of MEMS5611 for their micro/nanofab course that I teach at Washington university in St. Louis

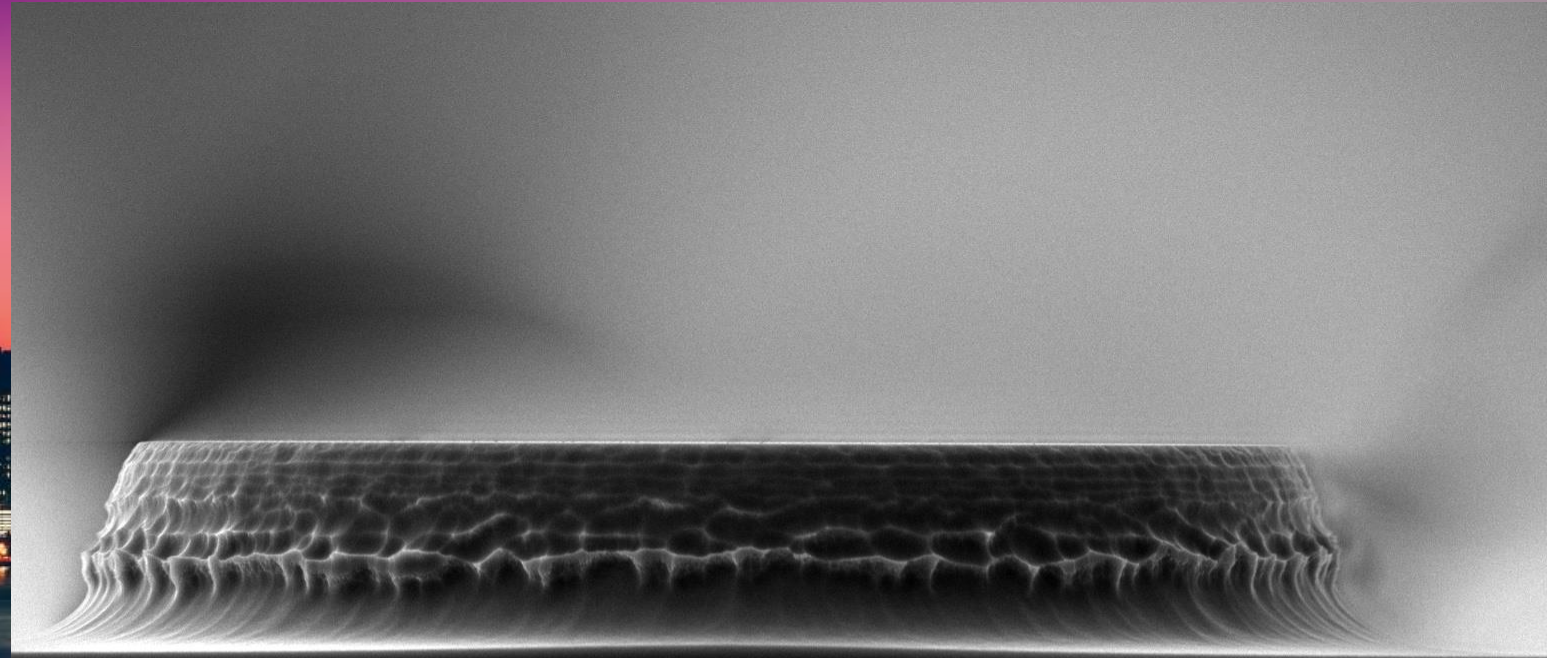
Image Details:

Orig. Mag: (3" x 4" image): 8000X

Instrument: : Quattro, Thermofisher

Submitted By: Kashif Awan and MEMS5611 class from Washington University

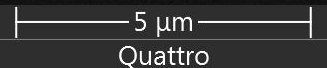
Affiliation: Washington University in St Louis



Sponsored by:



det	pressure	WD	mode	spot	mag	HV	HFW
ETD	1.00E-3 Pa	11.0 mm	SE	3.0	8 000 x	5.00 kV	25.9 μm



2023 EIPBN MicroGraph Contest



MicroGraph Title: The Network

Description: Semiconducting network you don't want to catch you.

Image Details:

Orig. Mag: 1.9 kX

Instrument: Tescan Mira 3

Submitted By: Jessica Andriolo

Affiliation: Montana Tech Nanotechnology Laboratory

Sponsored by:



2023 EIPBN MicroGraph Contest



MicroGraph Title: Roots

Description: Nasty roots on the floor of the Fire Swamp.

Image Details:

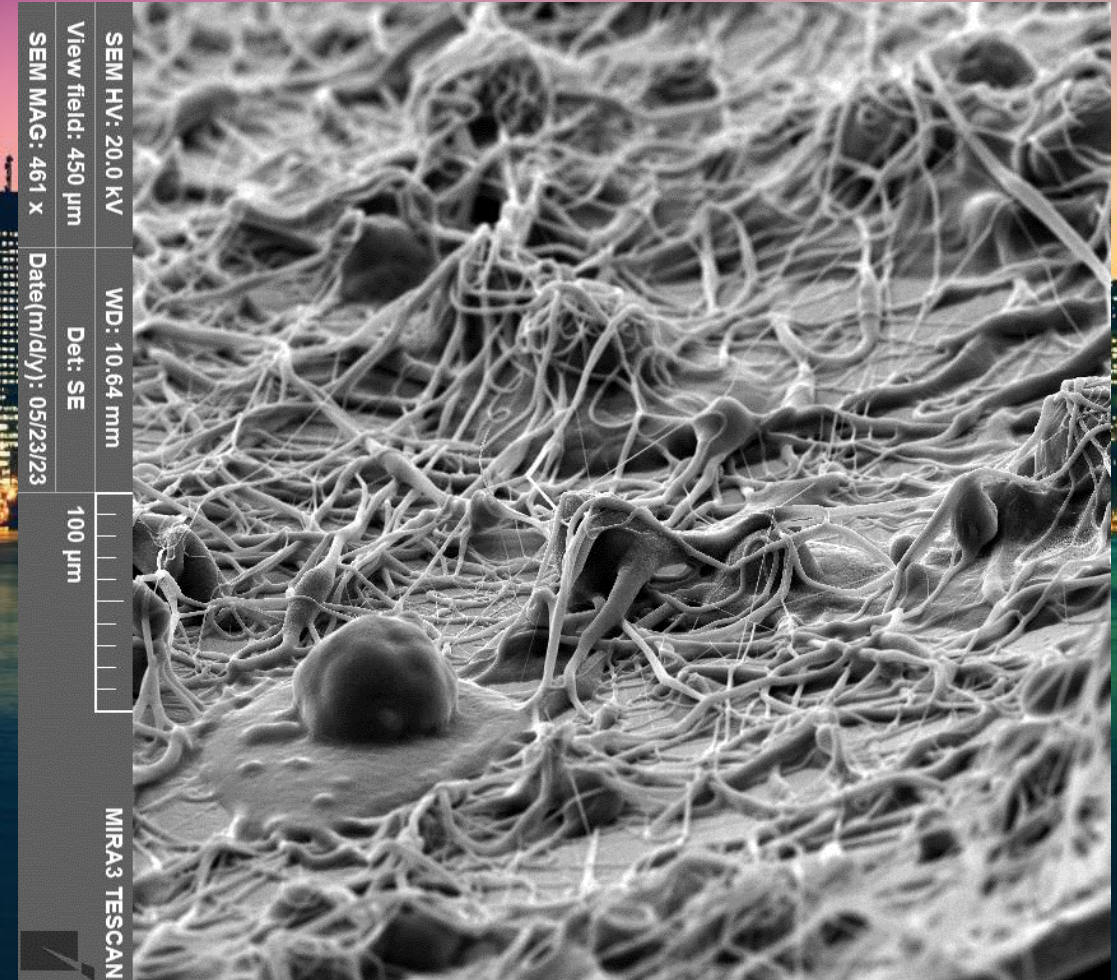
Orig. Mag: 461 X

Instrument: Tescan Mira 3

Submitted By: Jessica Andriolo

Affiliation: Montana Tech Nanotechnology Laboratory

Sponsored by:



2023 EIPBN MicroGraph Contest



MicroGraph Title: Dirty Harry?

Description: Semiconducting, catalytic fiber for photocatalytic denitrification.

Image Details:

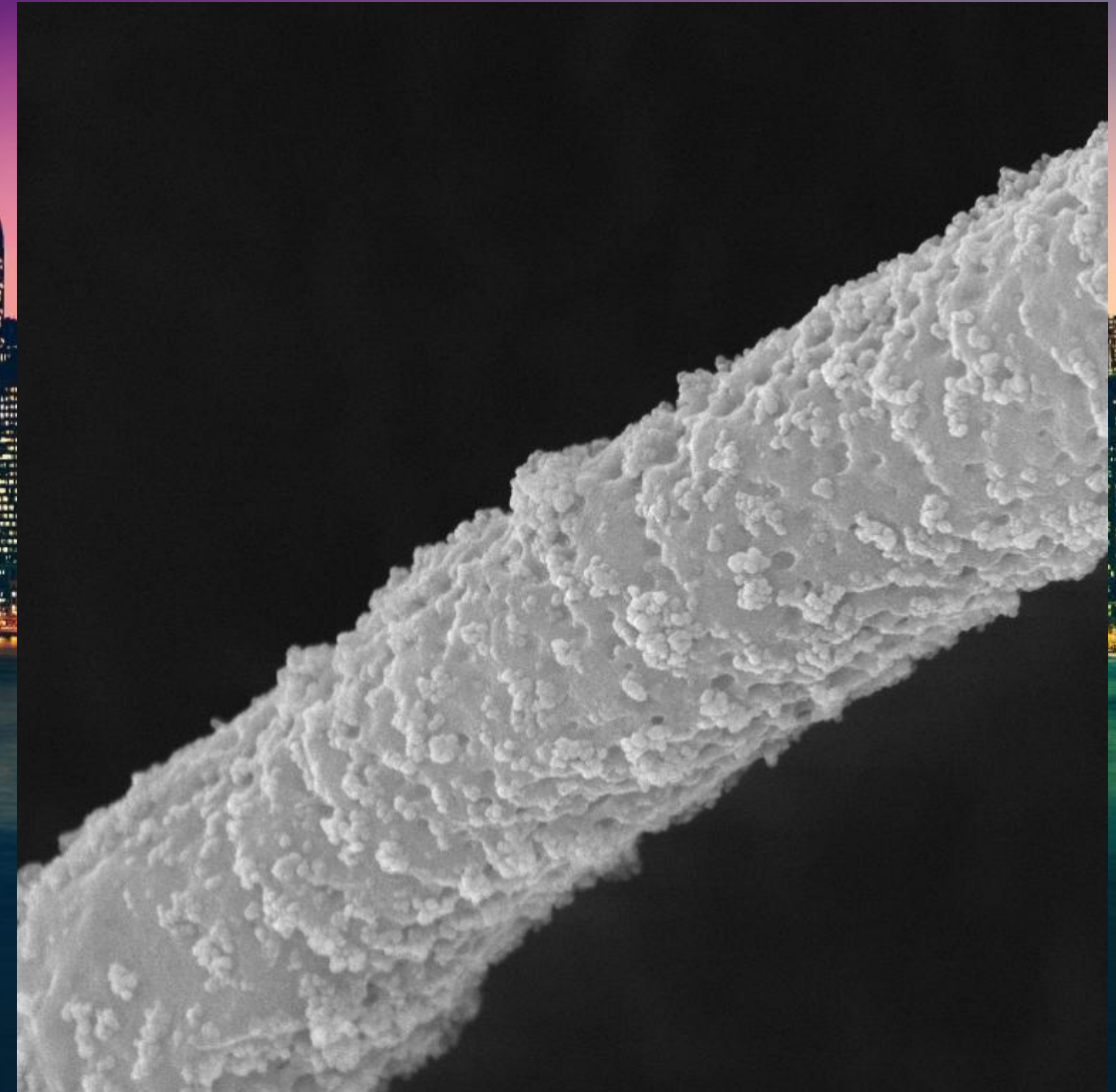
Orig. Mag: 50.7 kX

Instrument: Tescan Mira 3

Submitted By: Jessica Andriolo

Affiliation: Montana Tech Nanotechnology Laboratory

Sponsored by:



SEM HV: 20.0 kV	WD: 9.23 mm	1 μ m	MIRA3 TESCAN
View field: 4.10 μ m	Det: SE		
SEM MAG: 50.7 kx	Date(m/d/y): 05/22/23		

2023 EIPBN MicroGraph Contest



MicroGraph Title: Wave Front

Description: When one bad synthesis crashes into beautiful cubic perfection.

Image Details:

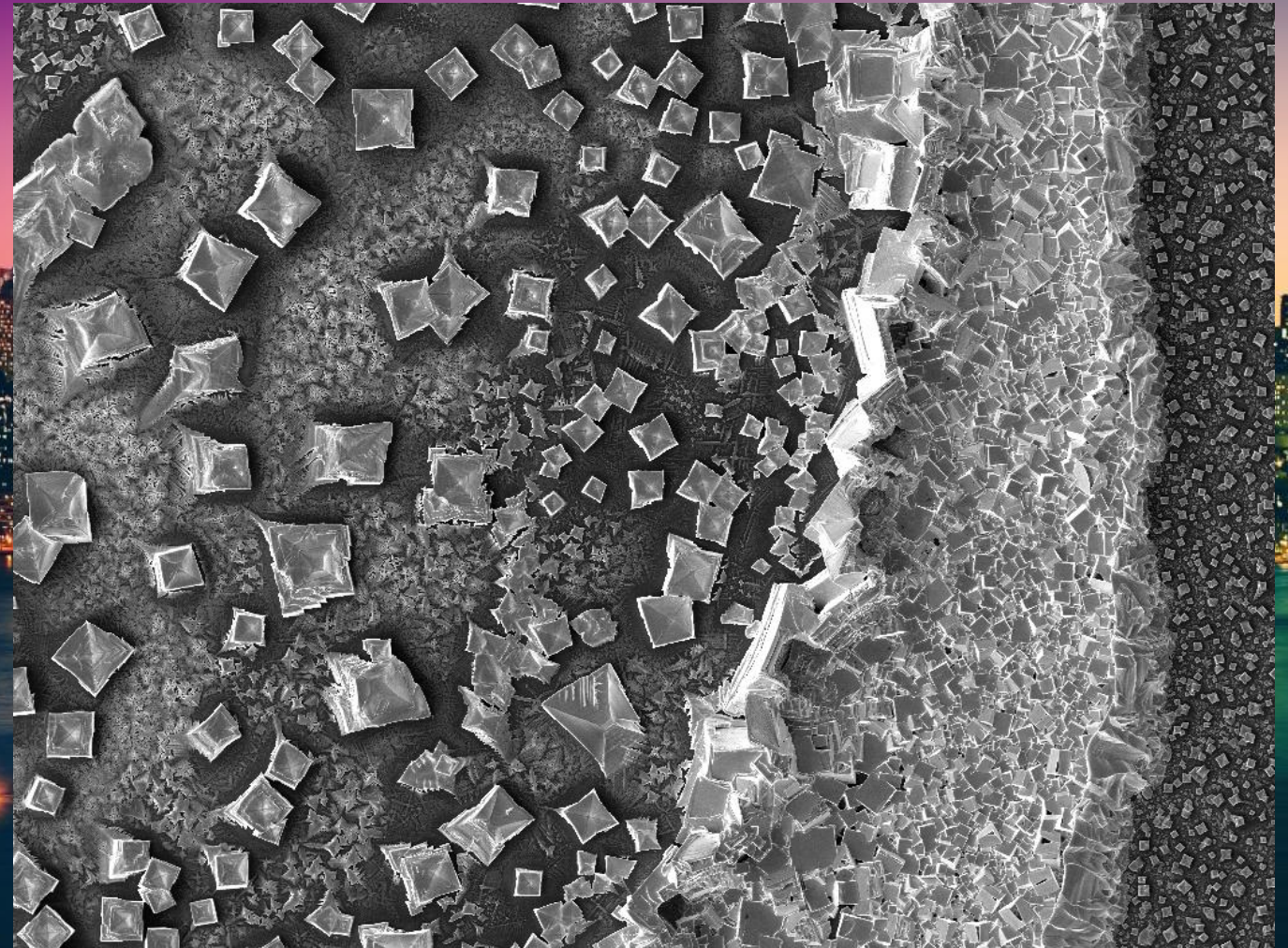
Orig. Mag: 172 X

Instrument: Tescan Mira 3

Submitted By: Xavier Vorhies

Affiliation: Montana Tech Nanotechnology Laboratory

Sponsored by:



SEM HV: 20.0 kV

WD: 14.90 mm

MIRA3 TESCAN

View field: 1.61 mm

Det: SE

500 μ m

SEM MAG: 172 x

Date(m/d/y): 04/21/23

2023 EIPBN MicroGraph Contest



MicroGraph Title: Shooting Stars

Description: In Montana, we see shooting stars.

Image Details:

Orig. Mag: 588 X

Instrument: Tescan Mira 3

Submitted By: Xavier Vorhies

Affiliation: Montana Tech Nanotechnology Laboratory

Sponsored by:



SEM HV: 20.0 kV

WD: 15.01 mm

View field: 471 μm

Det: SE

SEM MAG: 588 x

Date(m/d/y): 04/21/23

100 μm

MIRA3 TESCAN

2023 EIPBN MicroGraph Contest



MicroGraph Title: Frosty

Description: Perovskites crawl on silicon wafers.

Image Details:

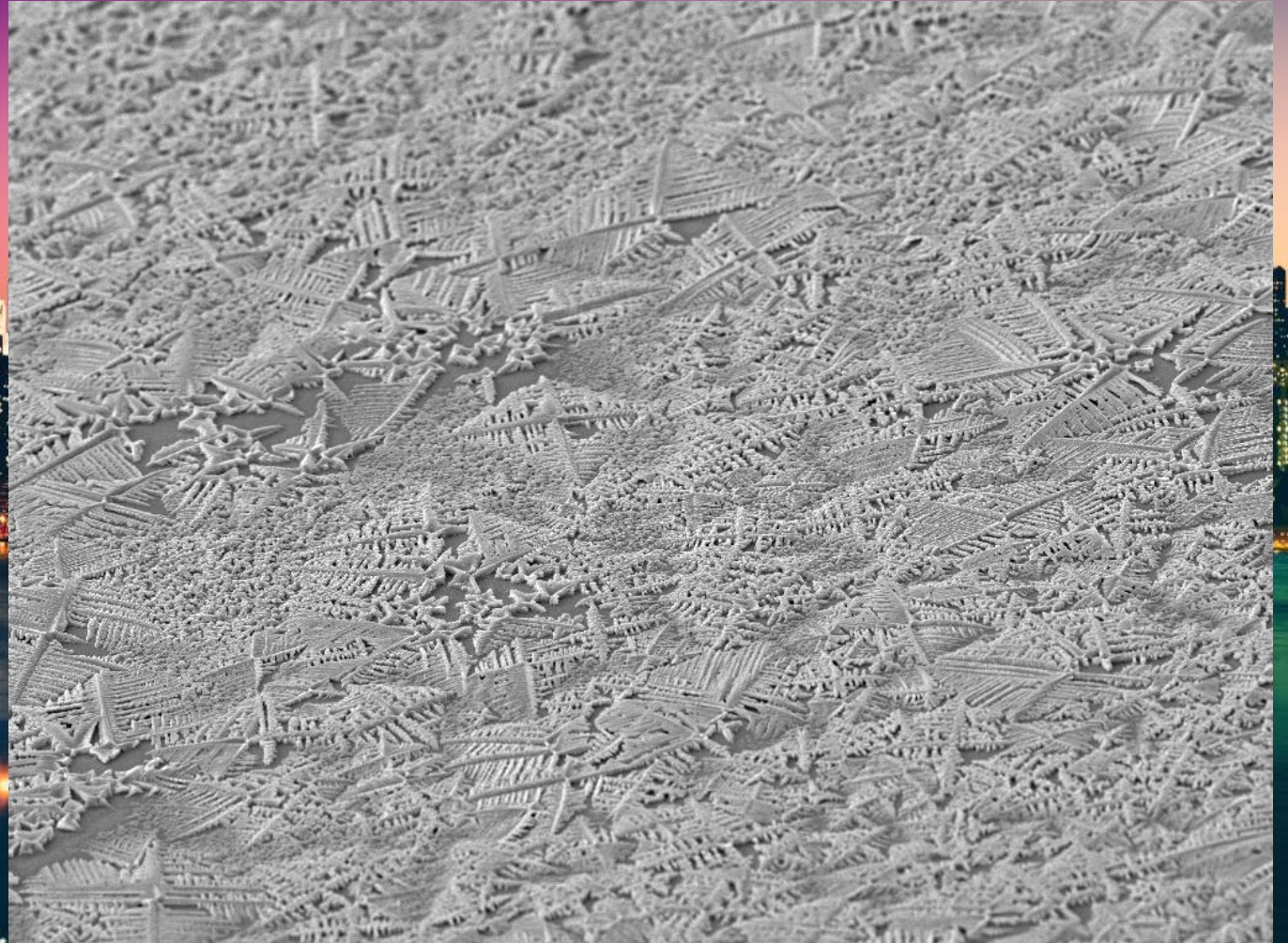
Orig. Mag: 848 X

Instrument: Tescan Mira 3

Submitted By: Xavier Vorhies

Affiliation: Montana Tech Nanotechnology Laboratory

Sponsored by:



SEM HV: 20.0 kV

WD: 18.85 mm

MIRA3 TESCAN

View field: 327 μ m

Det: SE

100 μ m

SEM MAG: 848 x

Date(m/d/y): 04/19/23



2023 EIPBN MicroGraph Contest

MicroGraph Title: Cubism

Description: It's a form of art.

Image Details:

Orig. Mag: 4.5 kX

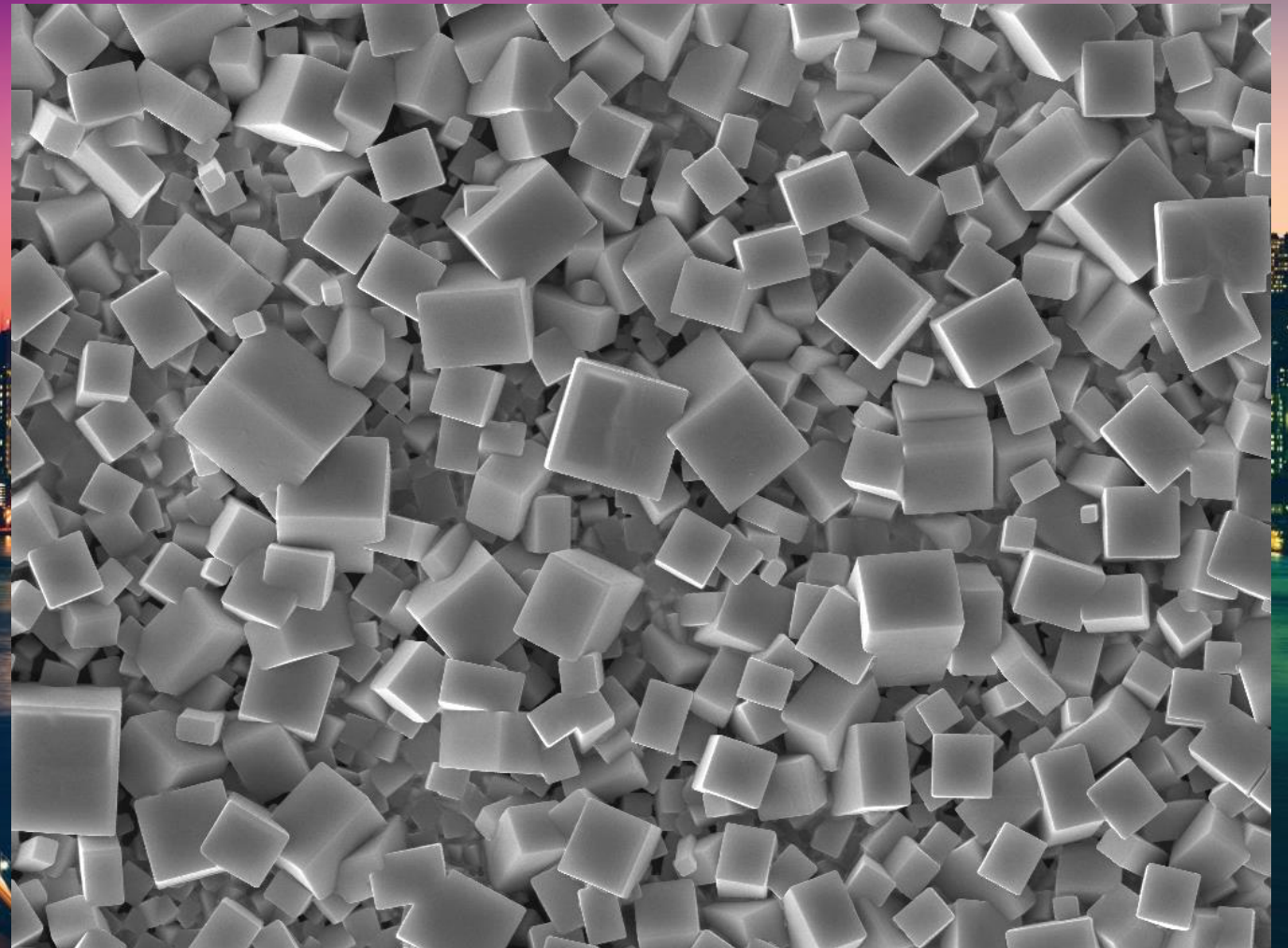
Instrument: Tescan Mira 3

Submitted By: Xavier Vorhies

Affiliation: Montana Tech Nanotechnology Laboratory



Sponsored by:



SEM HV: 20.0 kV	WD: 15.05 mm		MIRA3 TESCAN
View field: 61.6 μm	Det: SE		10 μm
SEM MAG: 4.50 kx	Date(m/d/y): 04/21/23		

2023 EIPBN MicroGraph Contest



MicroGraph Title: Black Hole Sun

Description: Soundgarden inspired drop cast polycaprolactone ring.

Image Details:

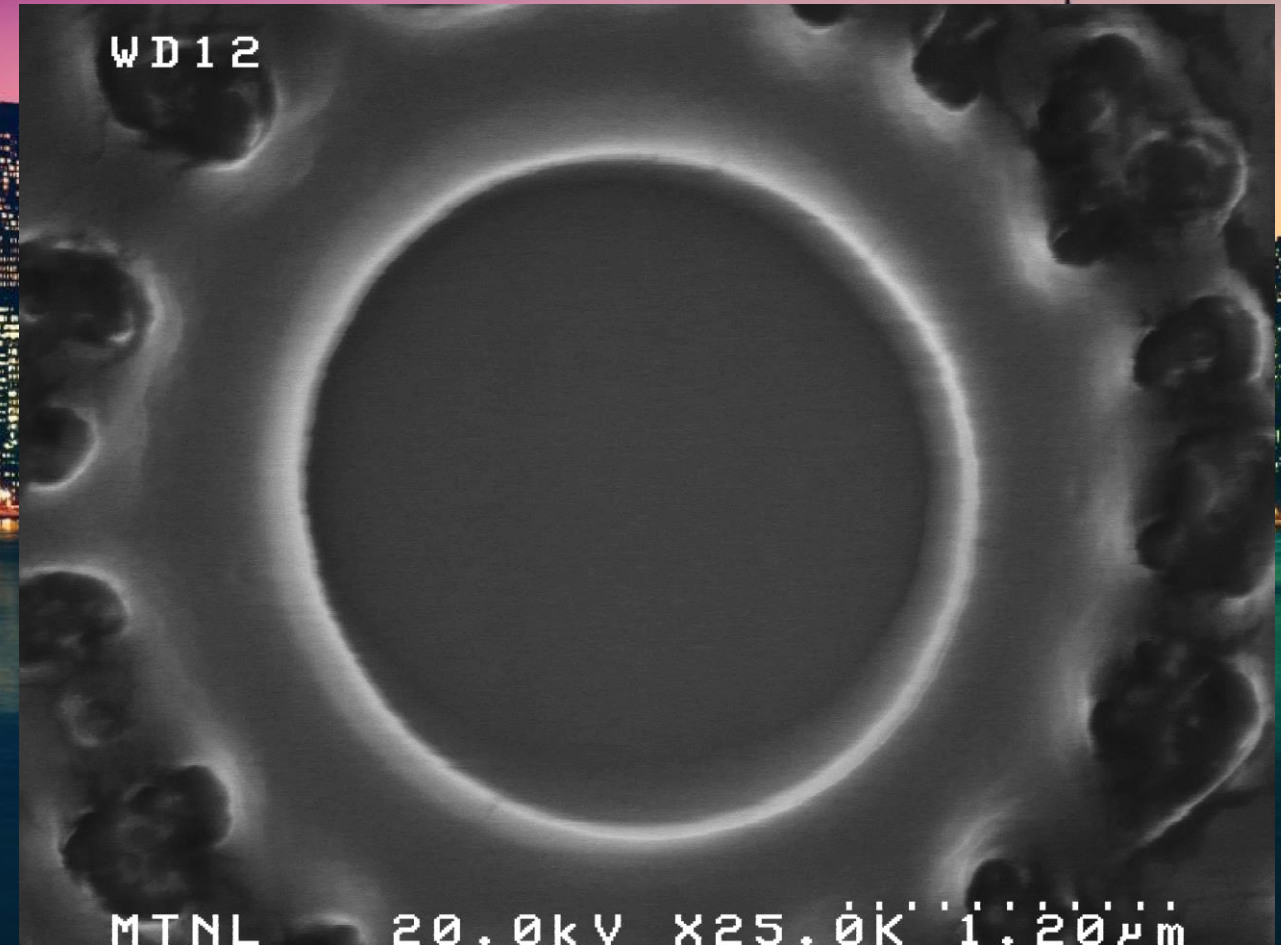
Orig. Mag: 25.0 kX

Instrument: Hitachi S-4500 SEM

Submitted By: Luke Sutley

Affiliation: Montana Tech Nanotechnology Laboratory

Sponsored by:



2023 EIPBN MicroGraph Contest



MicroGraph Title: Who Framed Roger Rabbit?

Description: Luke Suttey did. Unknown substance surrounded by drop cast polycaprolactone.

Image Details:

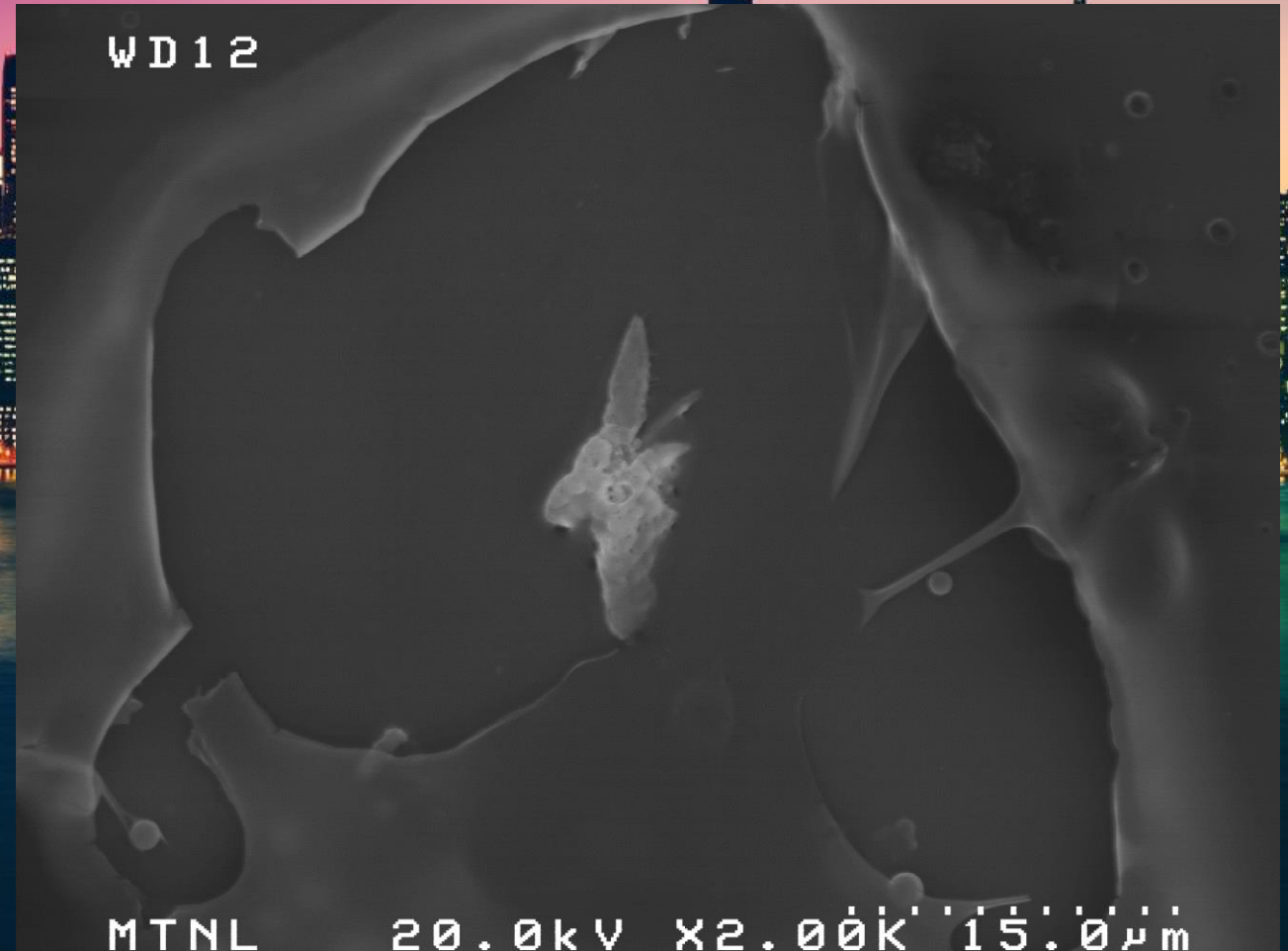
Orig. Mag: 2.00 kX

Instrument: Hitachi S-4500 SEM

Submitted By: Luke Suttey (Evan Griffiths)

Affiliation: Montana Tech Nanotechnology Laboratory

Sponsored by:



2023 EIPBN MicroGraph Contest



MicroGraph Title: “We have food at home”

Description: Nanohybrid Shish Kebabs
(Periodic Crystallization of Polymer on
Carbon Nanotubes)

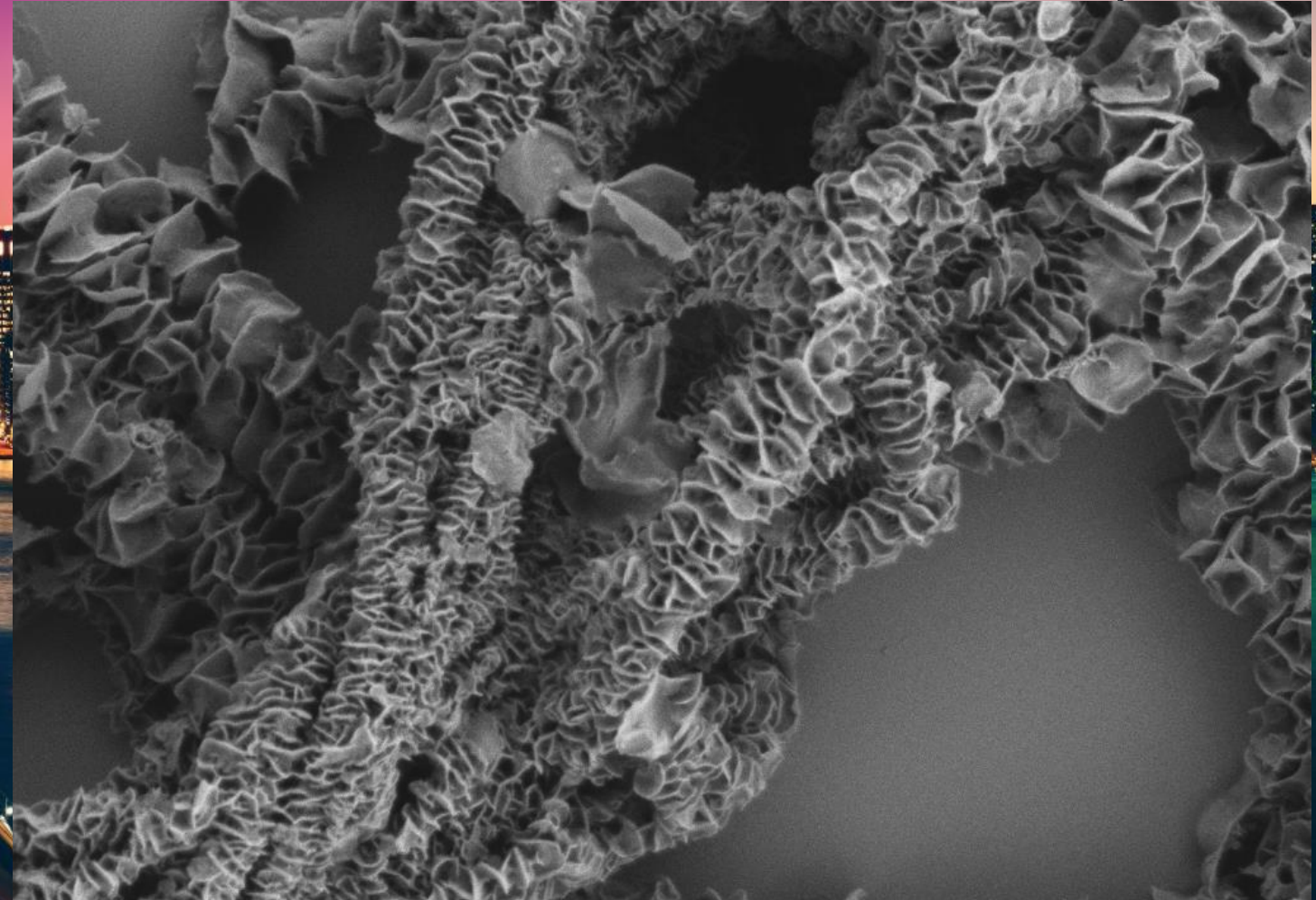
Image Details:

Orig. Mag: (3" x 4" image): 10.4kX

Instrument: : Zeiss Supra 50VP

Submitted By: Edward Gadasu

Affiliation: Drexel University



Sponsored by:



Drexel MCF
Zeiss Supra 50VP

EHT = 1.00 kV
Mag = 10.40 K X

1 μ m WD = 7.1 mm

Vacuum Mode = High Vacuum
Detector = SE2

File Name = 042223_1_04.tif
Date :24 Apr 2023 Time :12:04:34 MAC

2023 EIPBN MicroGraph Contest



MicroGraph Title: Poked and Prodded

Description: Bubbles forming during adhesive bonding of glass and Si wafers

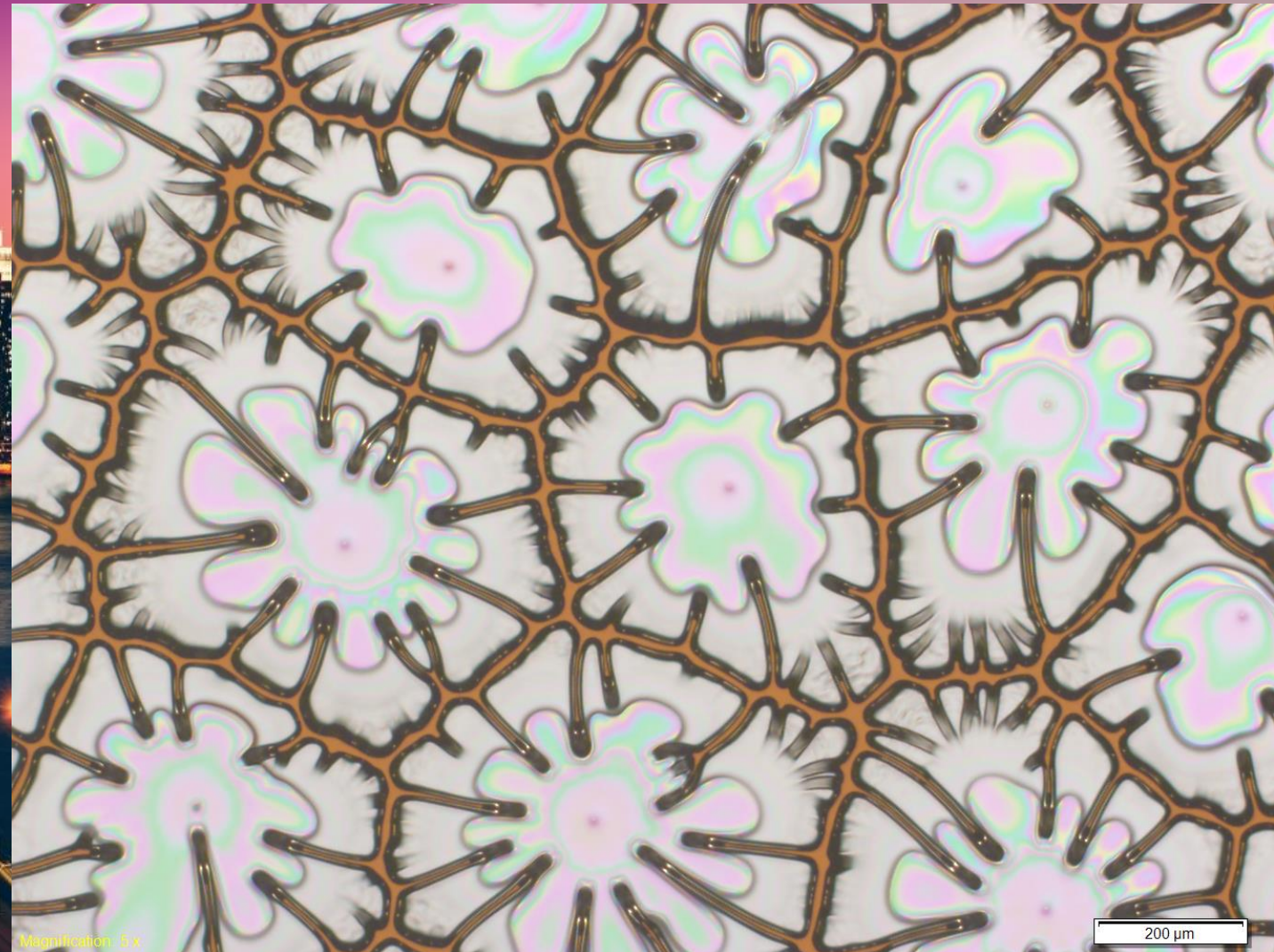
Image Details:

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

Instrument: : Olympus MX61

Submitted By: Greg Holloway, Lino Eugene

Affiliation: QNFCF, University of Waterloo



Sponsored by:



2023 EIPBN MicroGraph Contest

#54



MicroGraph Title: Big Mouth

Description: Nanoparticles that melted on the surface of other particles

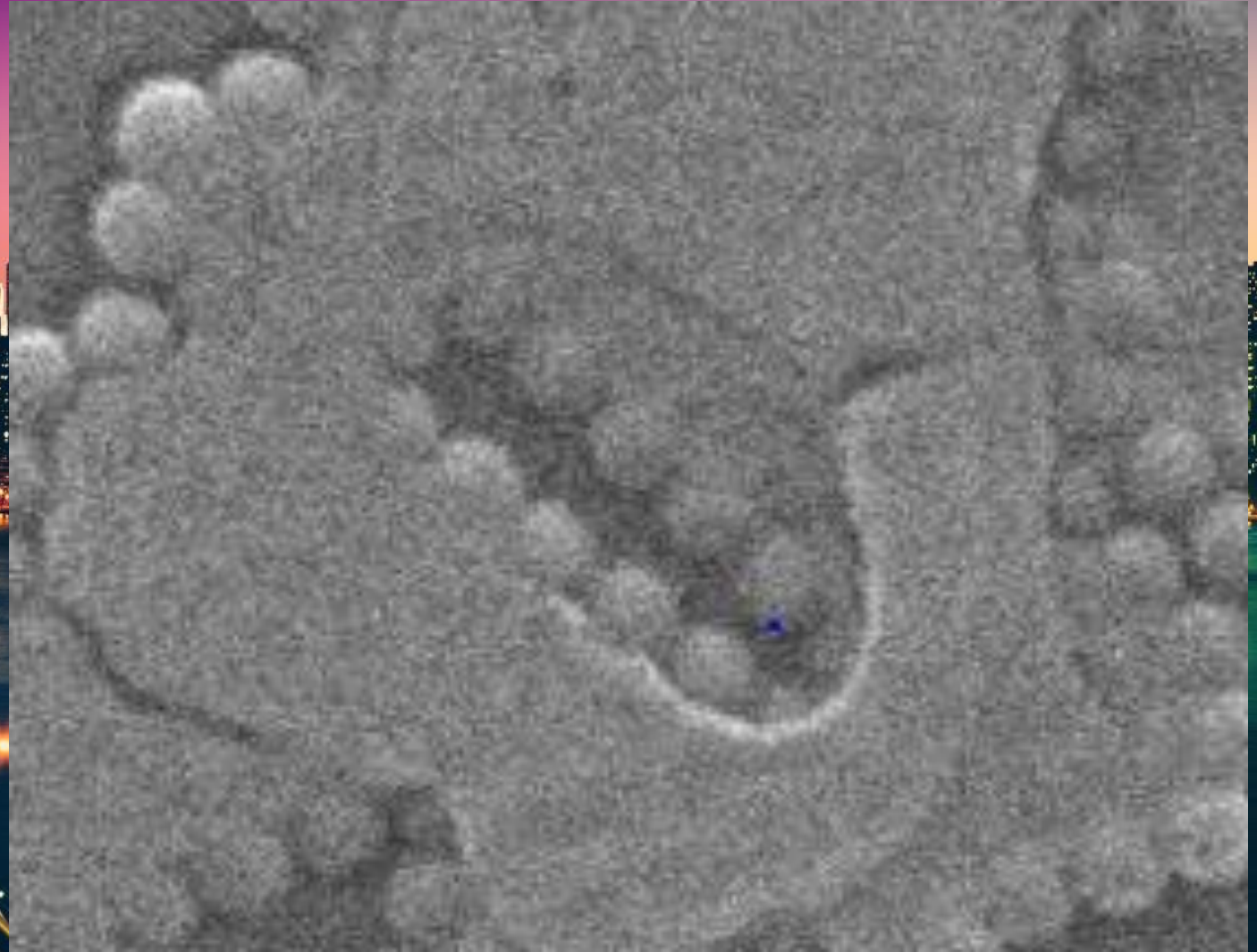
Image Details:

Orig. Mag: (3" x 4" image): 32,500 X

Instrument: Thermo Fisher Apreo 2 SEM

Submitted By: Ethan Flores

Affiliation: University of Texas at Austin



Sponsored by:



2023 EIPBN MicroGraph Contest



MicroGraph Title: The Lonely Particle

Description: After dispersing particles, one particle randomly flew away from the others on the silicon surface

Image Details:

Orig. Mag: (3" x 4" image): 80,000 X

Instrument: Thermo Fisher Apreo 2 SEM

Submitted By: Ethan Flores

Affiliation: University of Texas at Austin



Sponsored by:



2023 EIPBN MicroGraph Contest



MicroGraph Title: Particle Island

Description: After spin coating two sizes of nano particles, they created a mini island

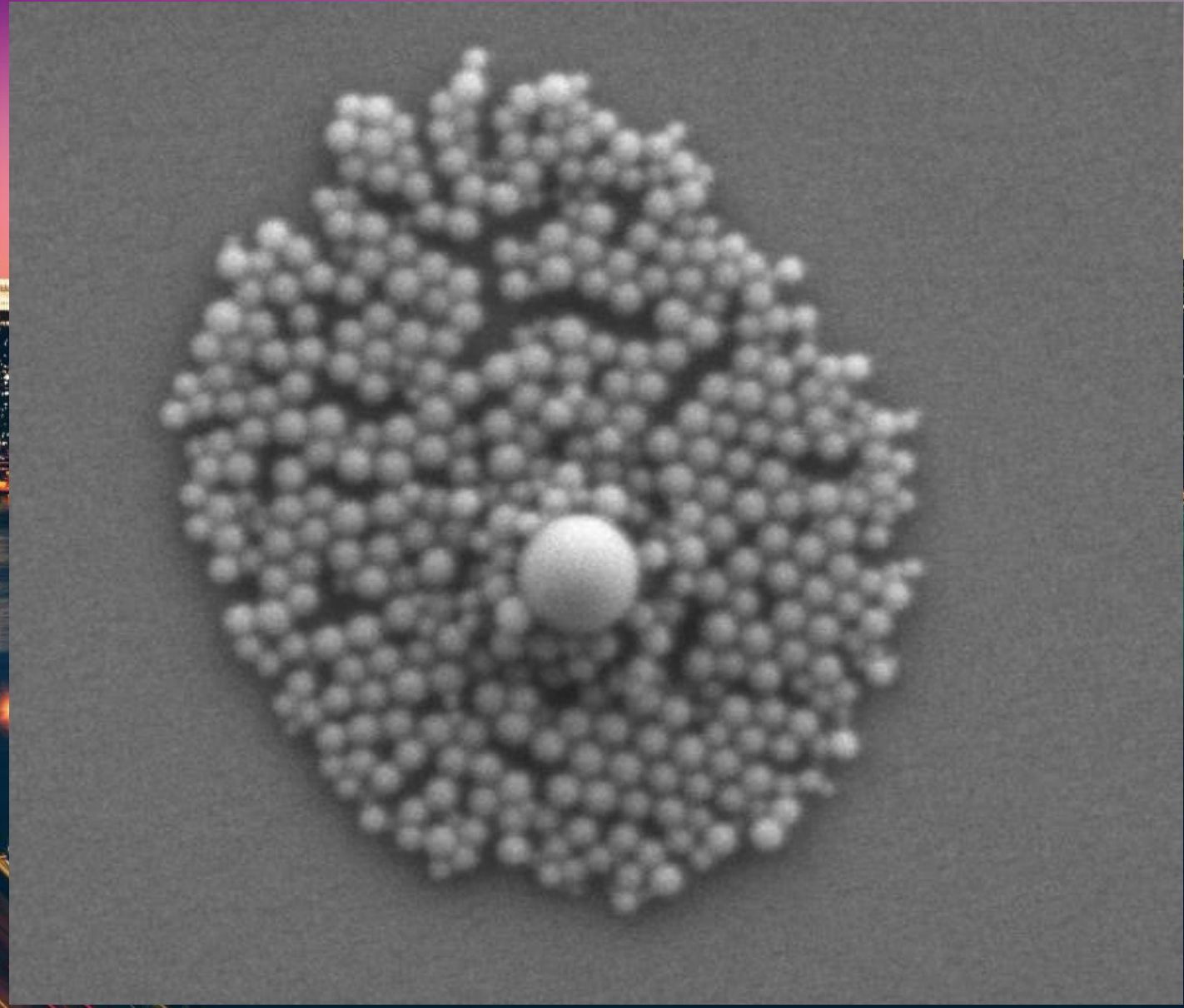
Image Details:

Orig. Mag: (3" x 4" image): 80,000 X

Instrument: Thermo Fisher Apreo 2 SEM

Submitted By: Ethan Flores

Affiliation: University of Texas at Austin



Sponsored by:



2023 EIPBN MicroGraph Contest

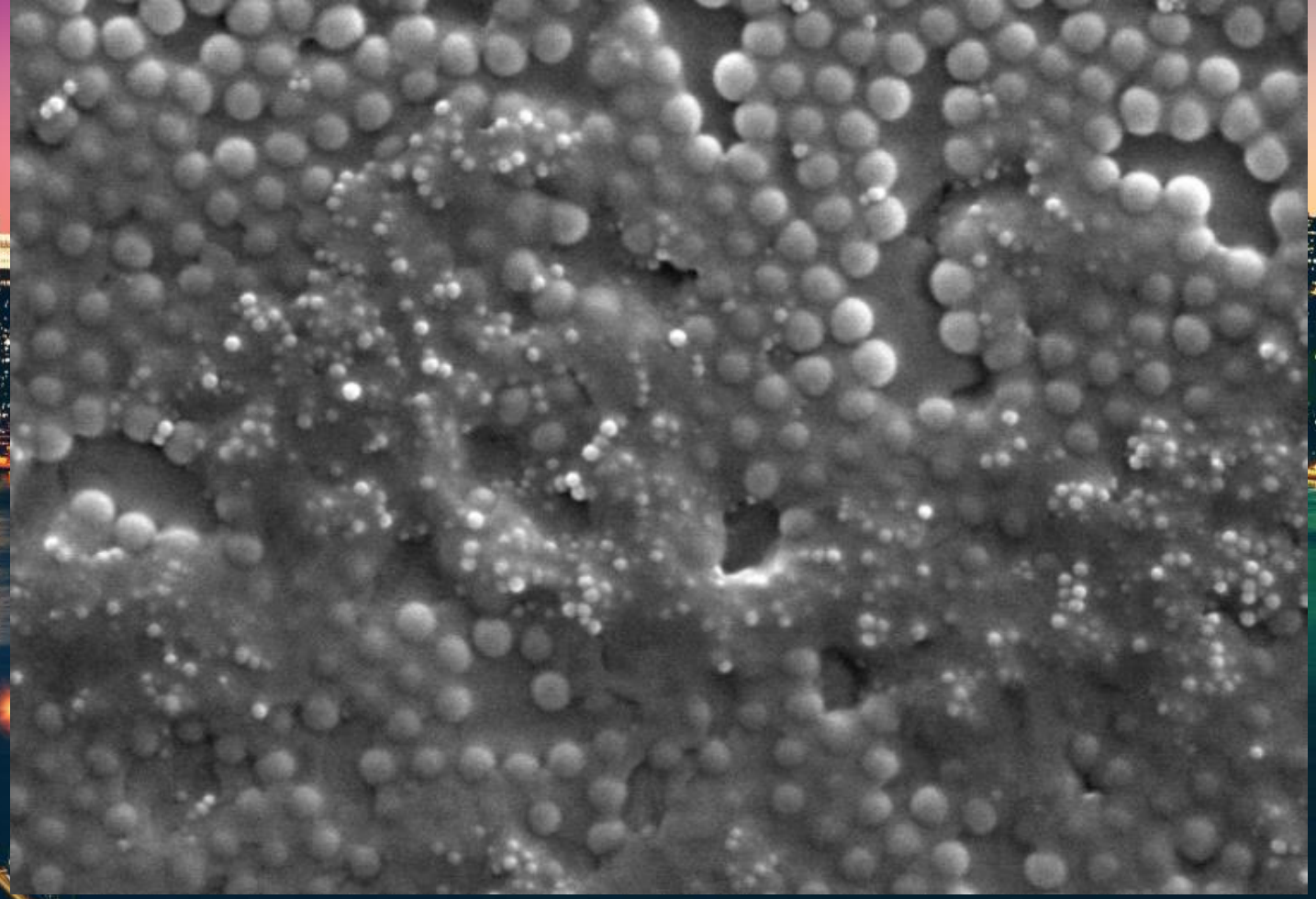


MicroGraph Title: Particle Candy Bar

Description: After a set of experiments, due to outside conditions the top layer of nanoparticle melted

Image Details:

Orig. Mag: (3" x 4" image): 35,000 X
Instrument: Thermo Fisher Apreo 2 SEM
Submitted By: Ethan Flores
Affiliation: University of Texas at Austin



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2023 EIPBN MicroGraph Contest



MicroGraph Title: Particle Ice Cream

Description: Through some experiments nanoparticles combined together to create a very interesting structure

Image Details:

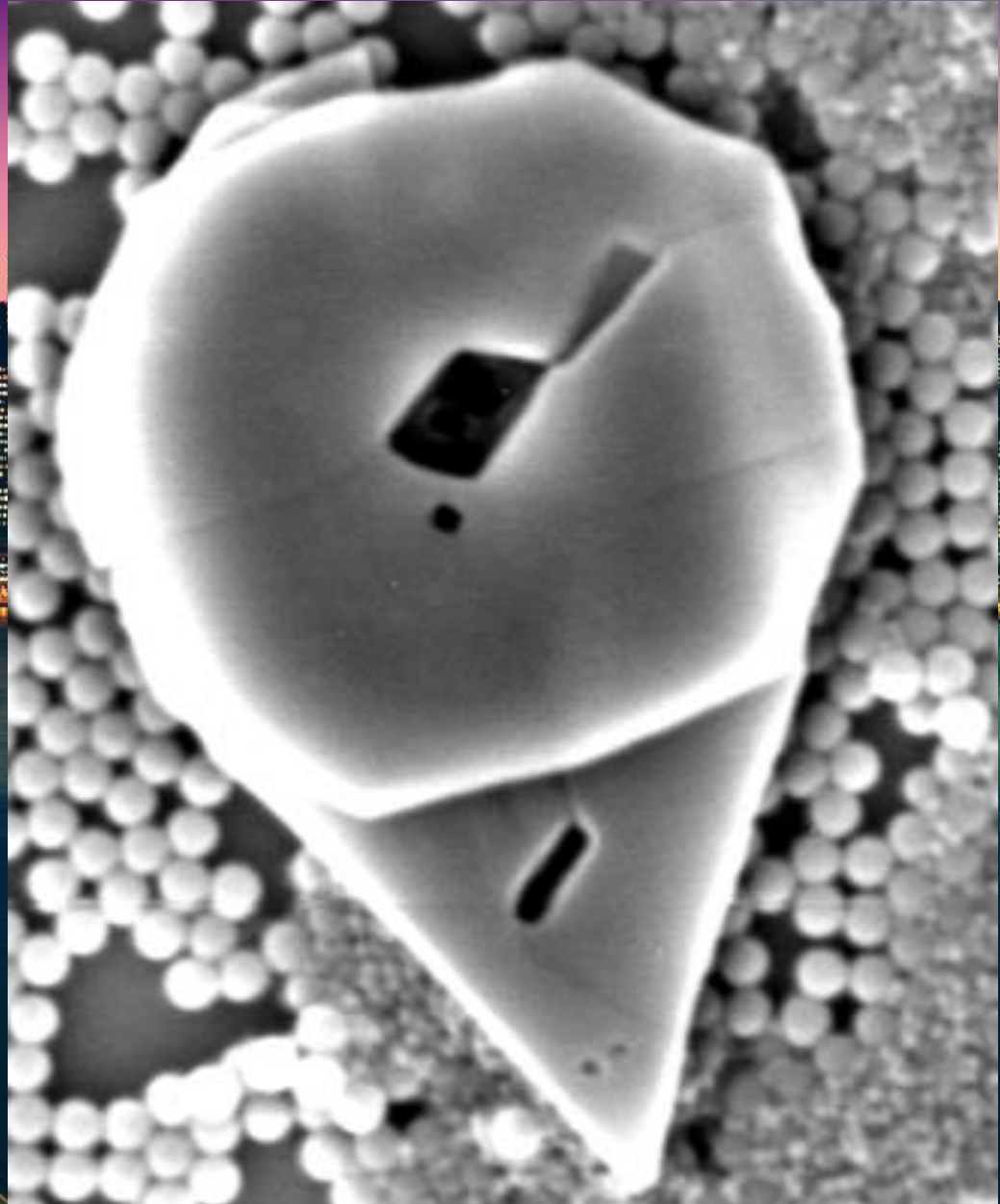
Orig. Mag: (3" x 4" image): 20,000 X

Instrument: Thermo Fisher Apreo 2 SEM

Submitted By: Ethan Flores

Affiliation: University of Texas at Austin

Sponsored by:



2023 EIPBN MicroGraph Contest

#59



MicroGraph Title: The Island Effect

Description: Dispersed nanoparticles randomly creating voids and different shapes after spin coating

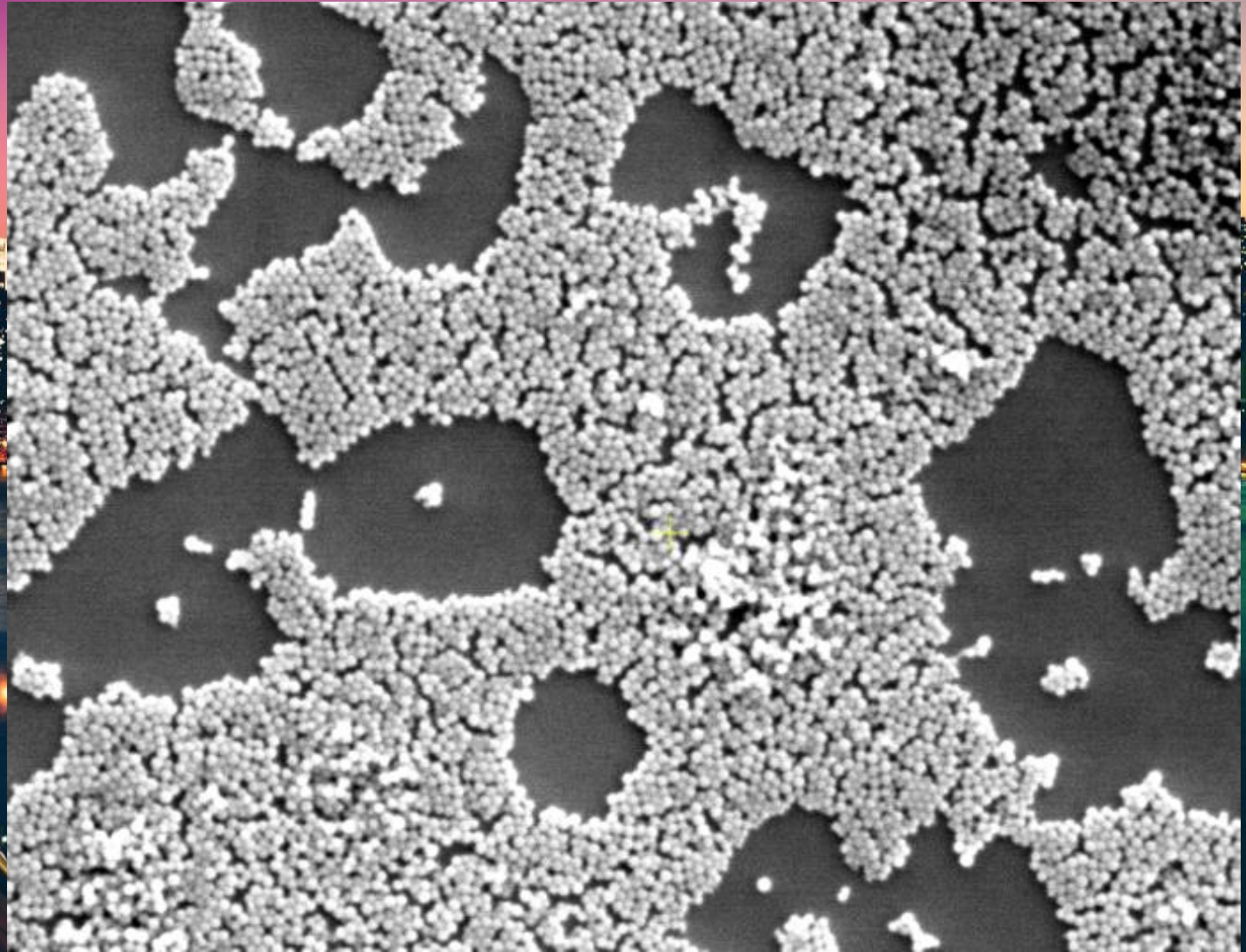
Image Details:

Orig. Mag: (3" x 4" image): 25,000 X

Instrument: Thermo Fisher Apreo 2 SEM

Submitted By: Ethan Flores

Affiliation: University of Texas at Austin



Sponsored by:



2023 EIPBN MicroGraph Contest



MicroGraph Title: The Pan Handle

Description: Random shape after placing two sets of nanoparticle sizes

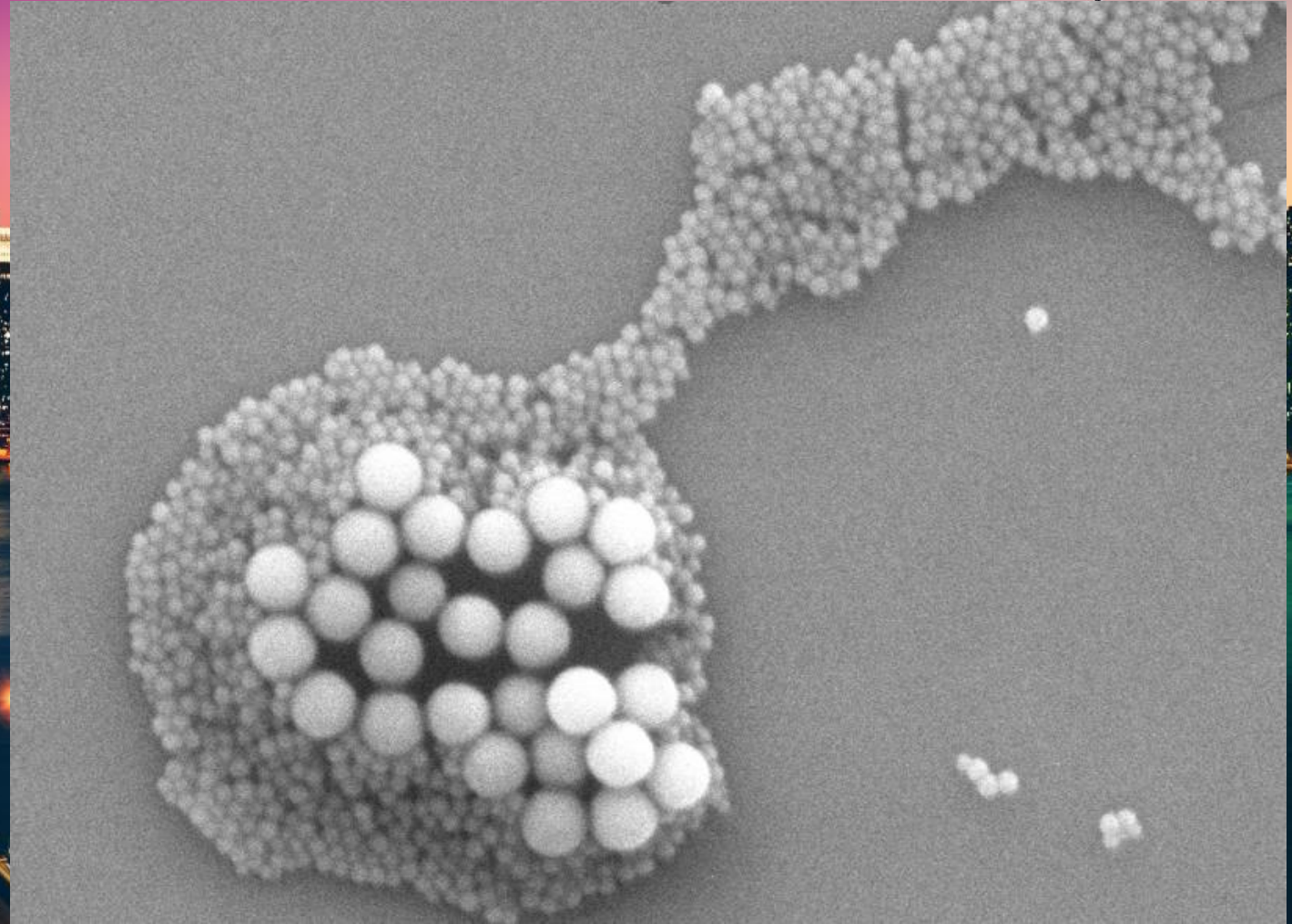
Image Details:

Orig. Mag: (3" x 4" image): 35,000 X

Instrument: Thermo Fisher Apreo2 SEM

Submitted By: Ethan Flores

Affiliation: University of Texas at Austin



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2023 EIPBN MicroGraph Contest



MicroGraph Title: Diatoms lie around lazily while being hit by focused lithium ion beams

Description: Lithium-ion beam image of diatoms

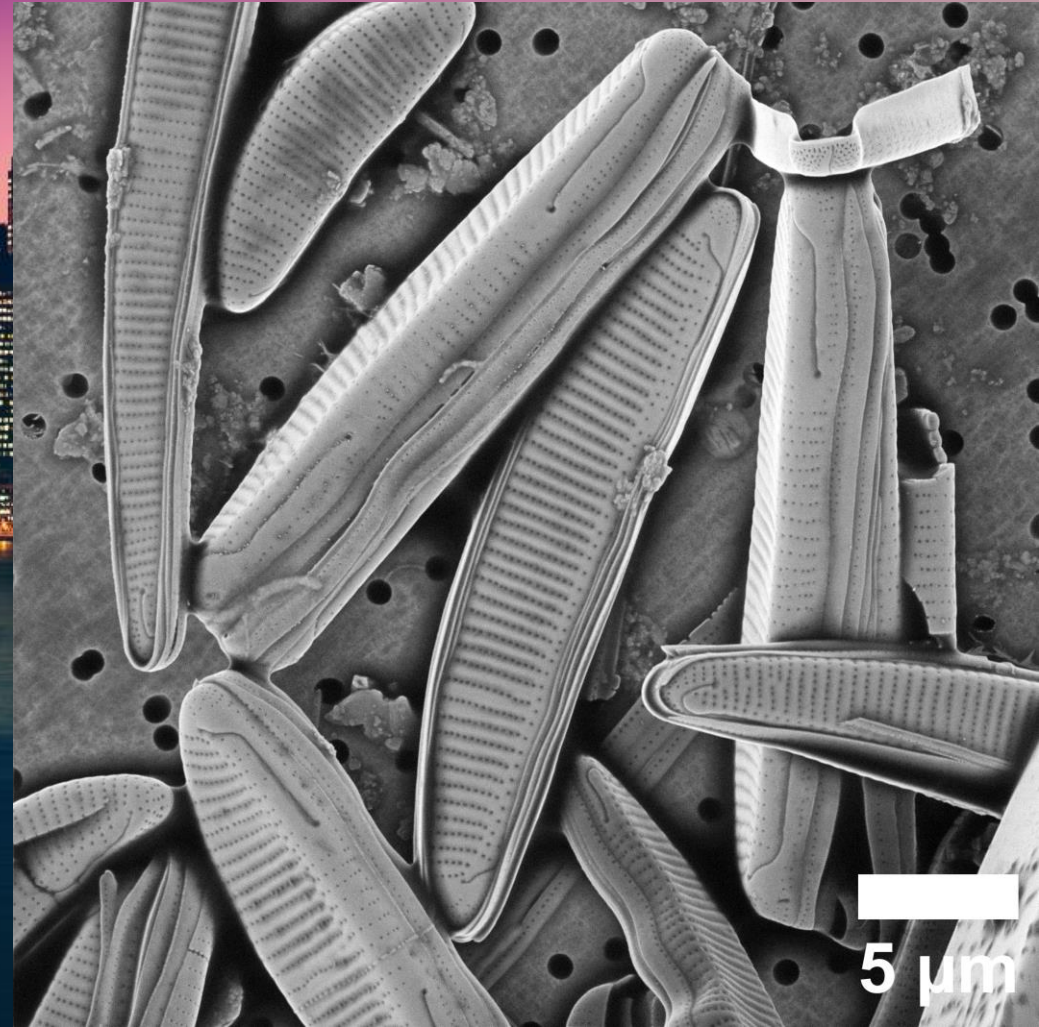
Image Details:

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

Instrument: : VELION FIB-SEM equipped with GaBiLi ion source

Submitted By: Torsten Richter, Alexander Ost

Affiliation: Raith GmbH, Germany



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