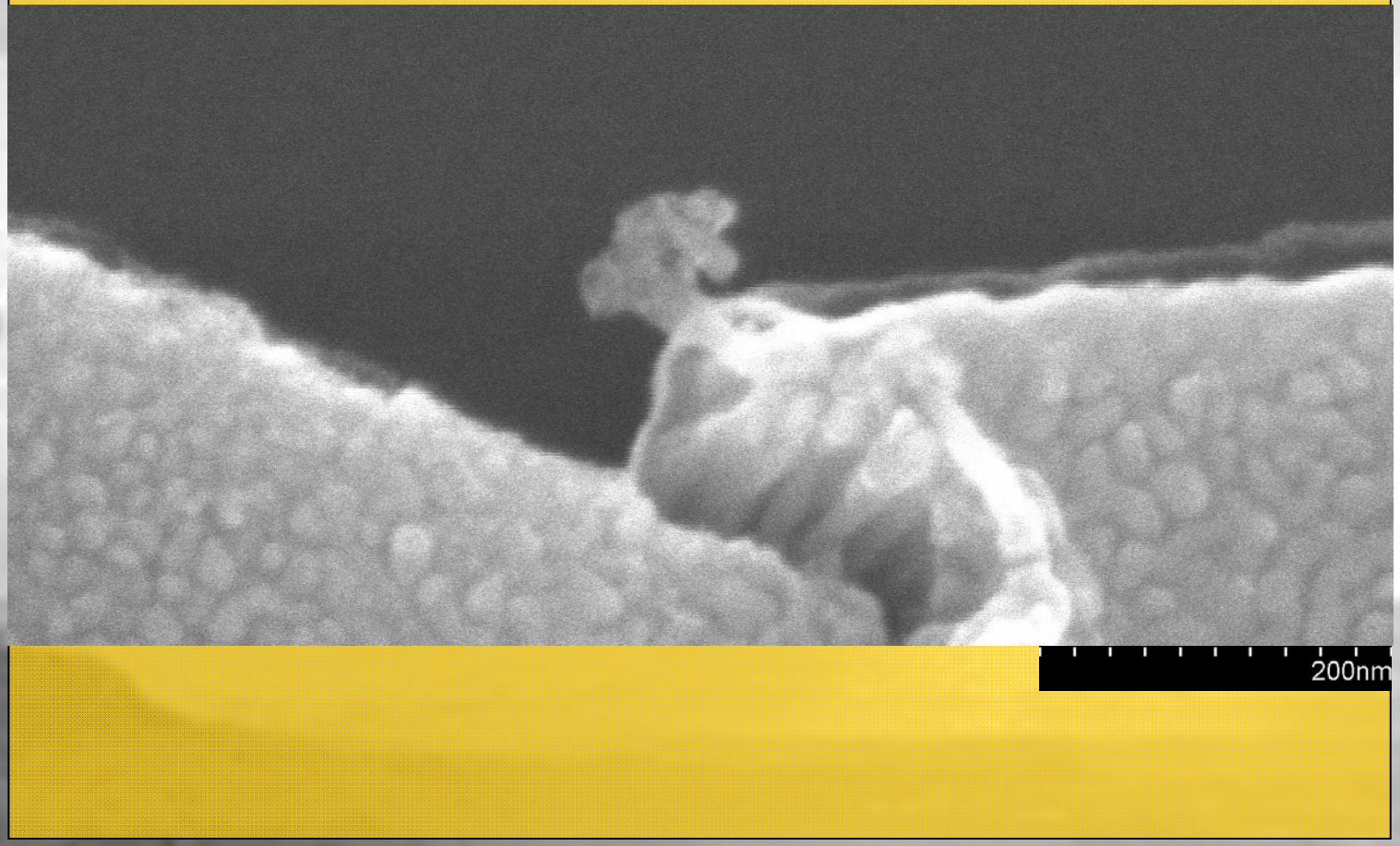
2012 EIPBN MicroGraph Contest

"A lone tree in a parched land under a darkening sky"



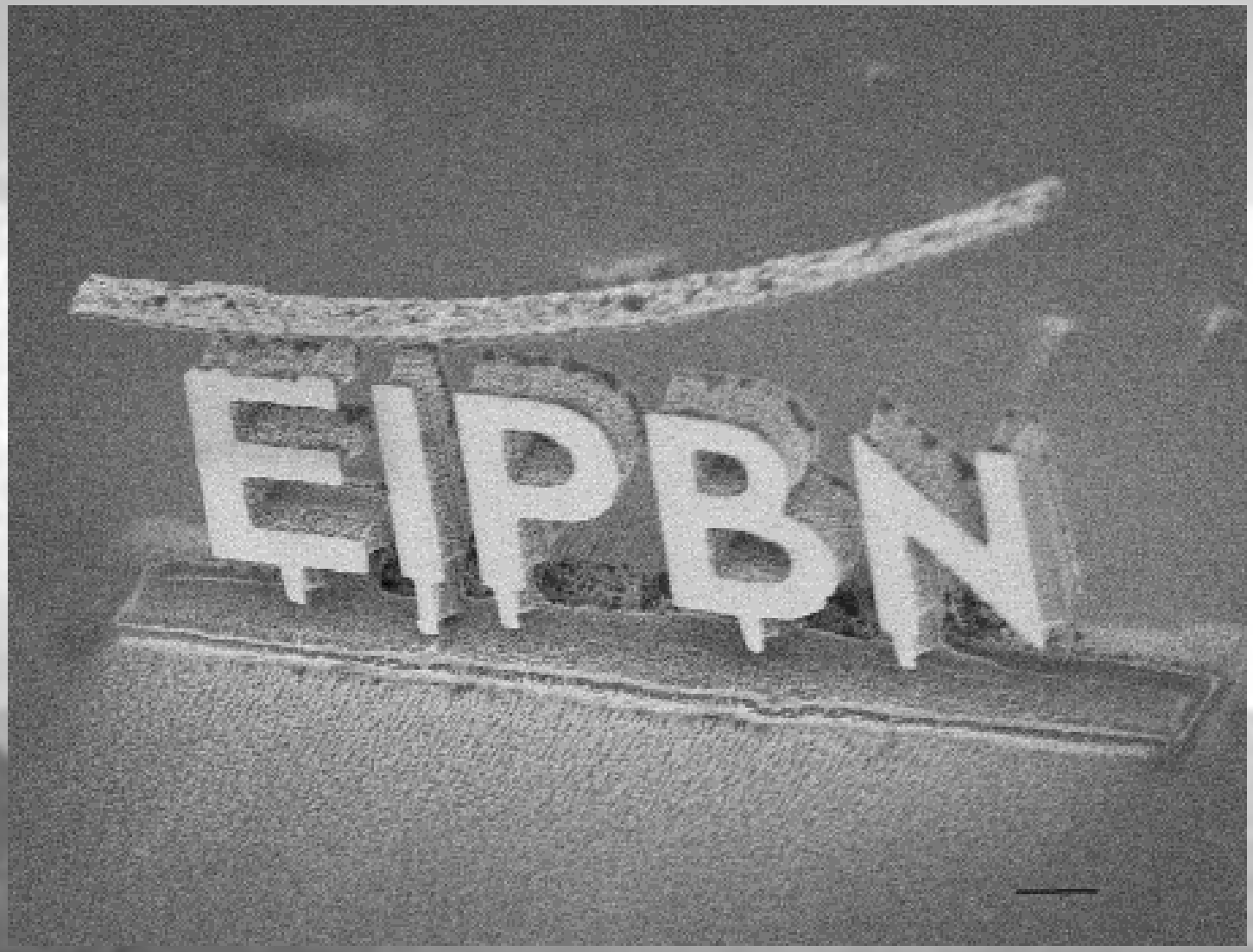
Micrograph Title: "A lone tree in a parched land under a darkening sky"

Description: Ni-NiOx-Ni Field Emission Junctions

Magnification (3"x4" image): 250k
Submitted by: Filiz Yesilkoy

Instrument : Hitachi SU-70 SEM
Affiliation: University of Maryland

2012 EIPBN MicroGraph Contest



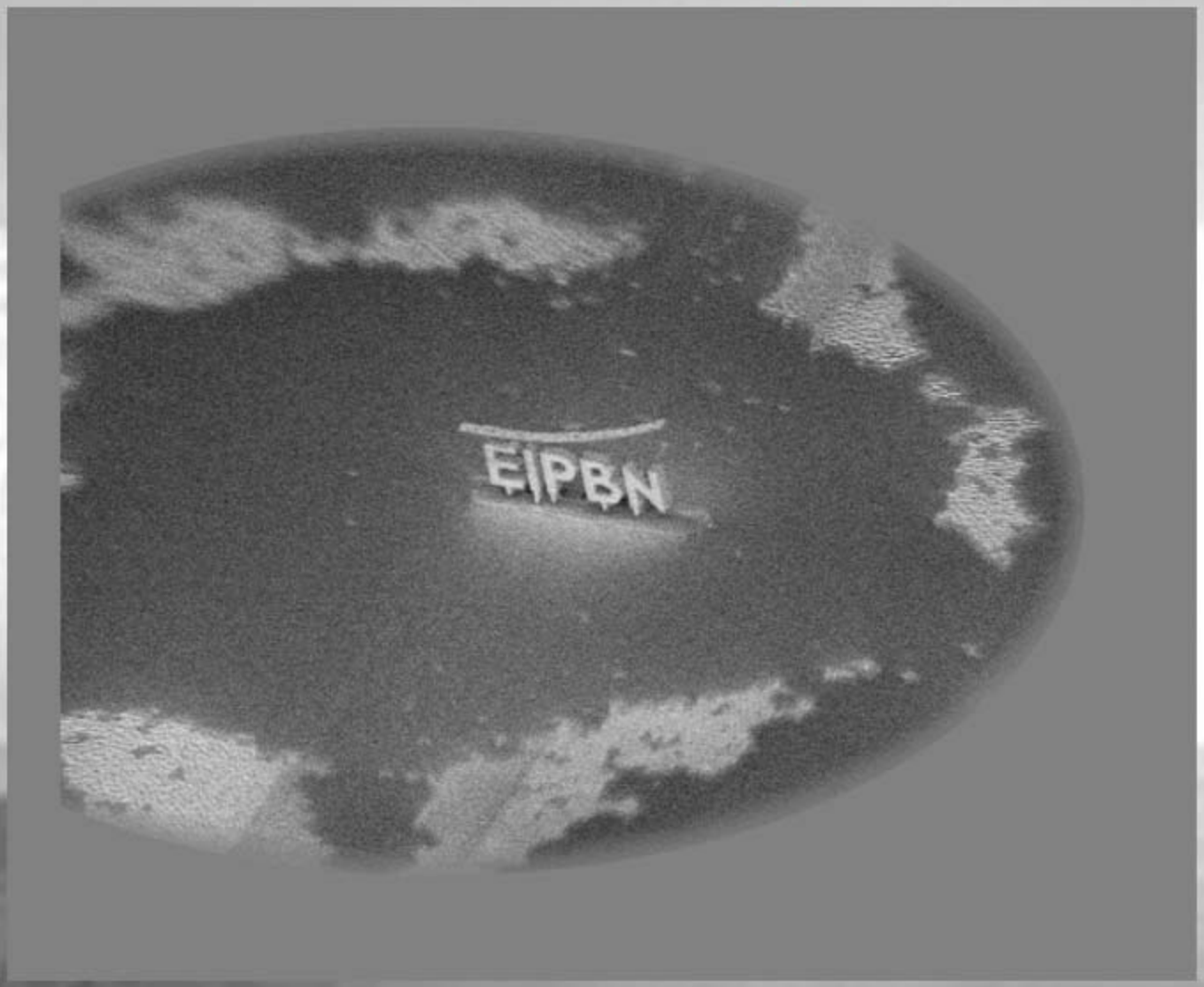
Micrograph Title: EIPBN with upward prominence

Description: This is the 3D Si structure we made as the first demonstration of our new 3D nanofabrication technique.

Magnification (3"x4" image): 6500 x **Instrument (Make and Model): Hitachi S-7800H**

Submitted by: K. Yamazaki, H Yamaguchi **Affiliation: NTT Basic Research Labs.**

2012 EIPBN MicroGraph Contest



Micrograph Title: Birthday cake for my 56 year old grandma

Description: This may be too simple as a birthday cake but it looks very sweet, doesn't it?

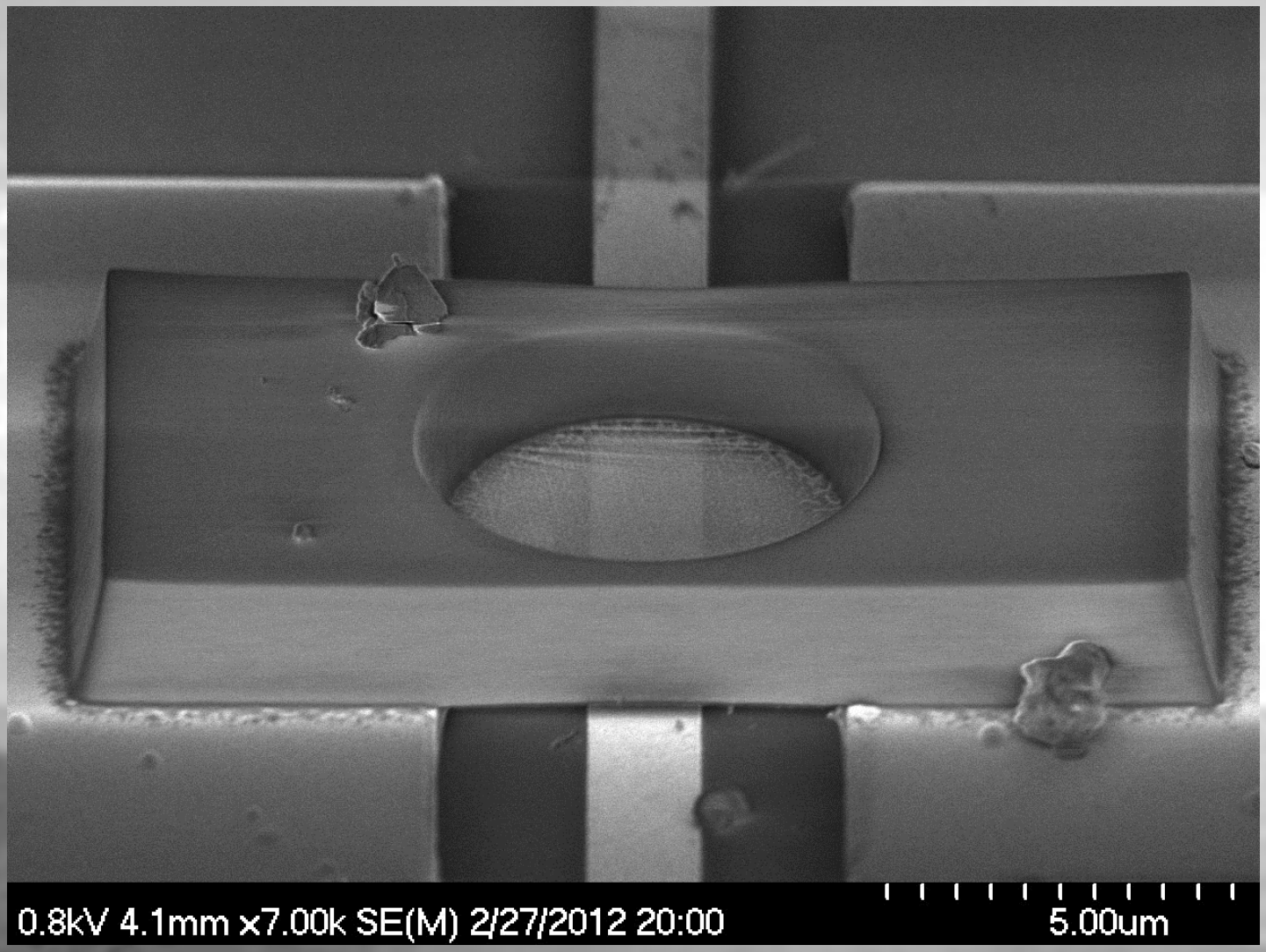
Magnification (3"x4" image): 1300 x **Instrument (Make and Model): Hitachi S-7800H**

Submitted by: Kenji Yamazaki, Hiroshi Yamaguchi Affiliation: NTT Basic Research Labs.

2012 EIPBN MicroGraph Contest

Micrograph Title: SU-8 Brick on Graphene

Description: SU-8 brick is clamping down on graphene to make NEMS drum resonator



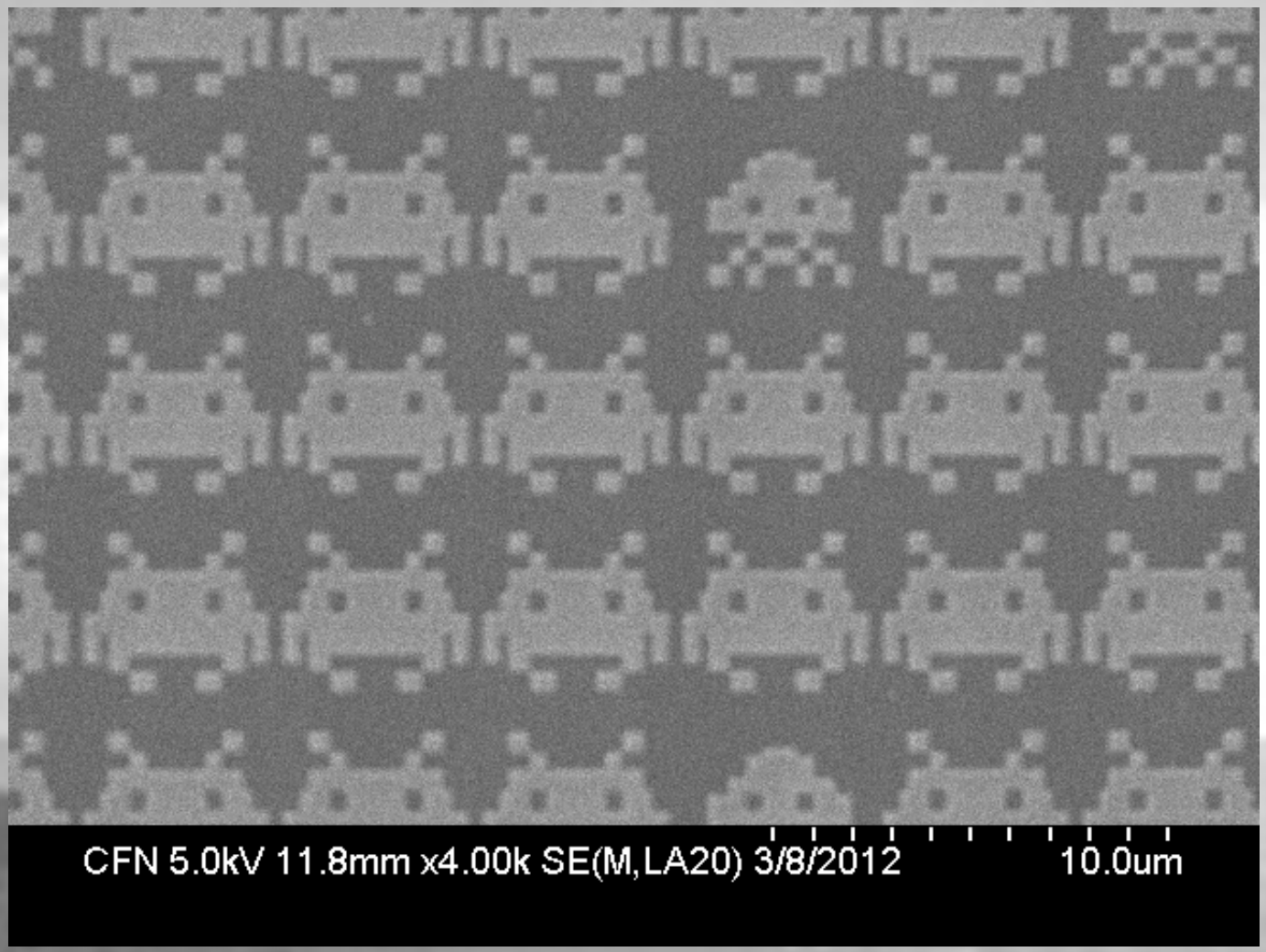
Magnification (3"x4" image): 7000X
Submitted by: Sunwoo Lee

Instrument: Hitachi 4700 SEM
Affiliation: Columbia University

2012 EIPBN MicroGraph Contest

Micrograph Title:
Space Invaders:

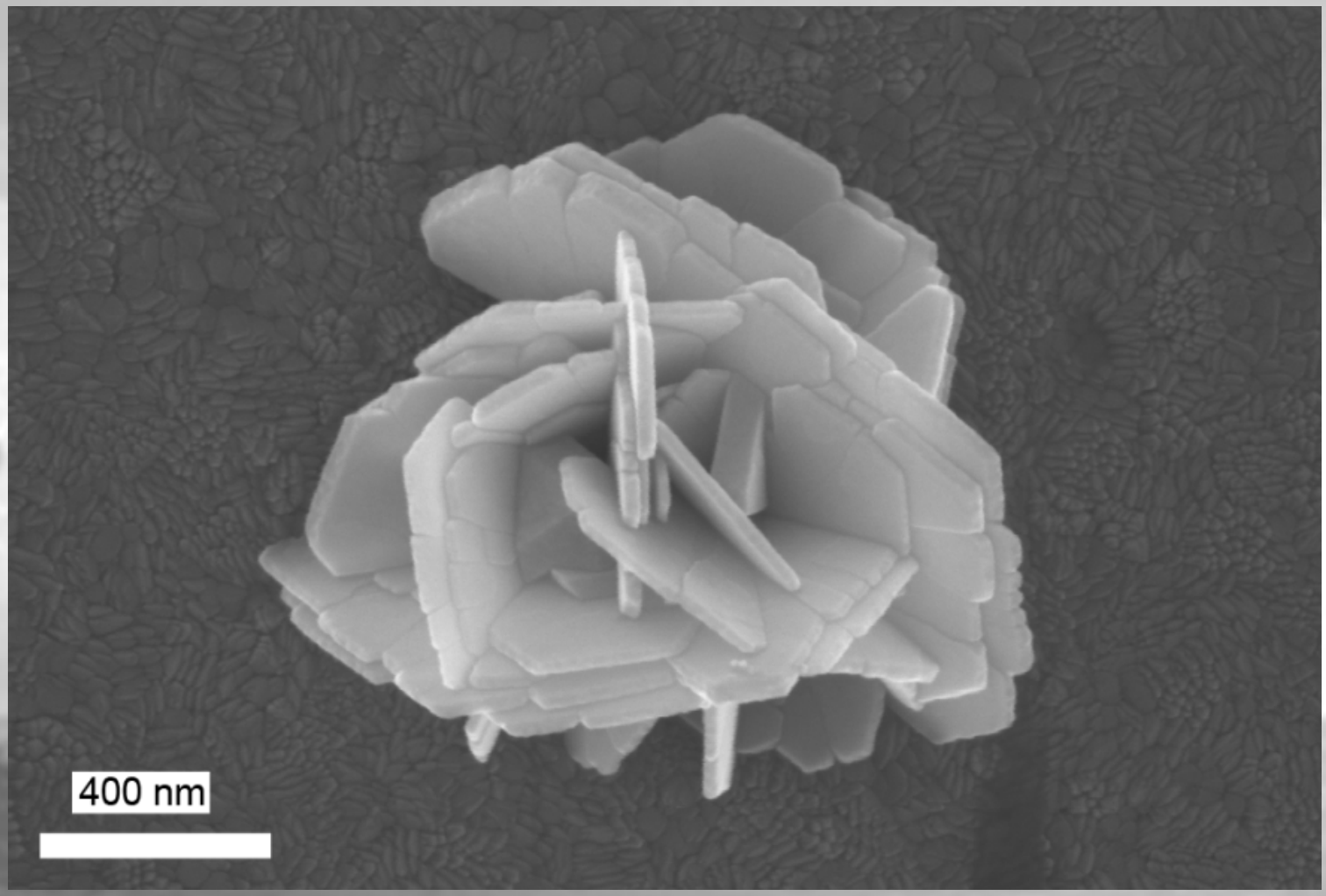
Description:
Portion of a diffractive mask for defect tolerant EUV lithography. Pattern in HSQ (resist) over a silicon nitride membrane.



Magnification (3"x4" image):
Submitted by: Lukasz Urbanski

Instrument (Make and Model): Hitachi S-4800
Affiliation: Colorado State University/BNL

2012 EIPBN MicroGraph Contest



Micrograph Title:
The Prettiest Rose in the Micro Garden

Description:
Rose-like particle, on glass-ITO, made of silver plates obtained by laser-induced liquid deposition

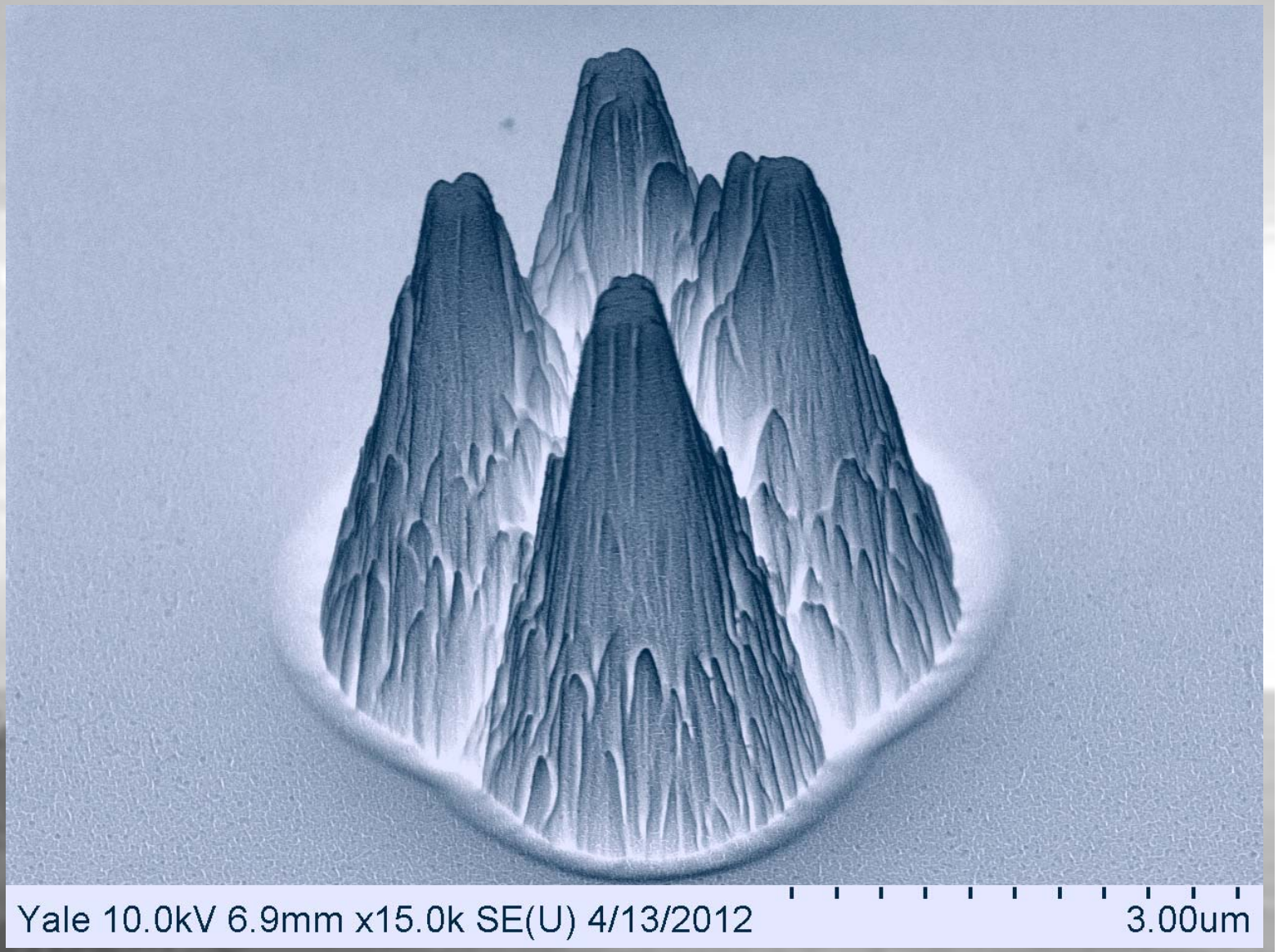
Magnification (3"x4" image): 45,100X
Submitted by: Carlos A. Jarro

Instrument (Make and Model): Raith e-Line
Affiliation: University of Kentucky

2012 EIPBN MicroGraph Contest

Micrograph Title: Chinese Mountain Painting

Description: RIE etched SiO_2 with a double layer photoresist structure as etching mask



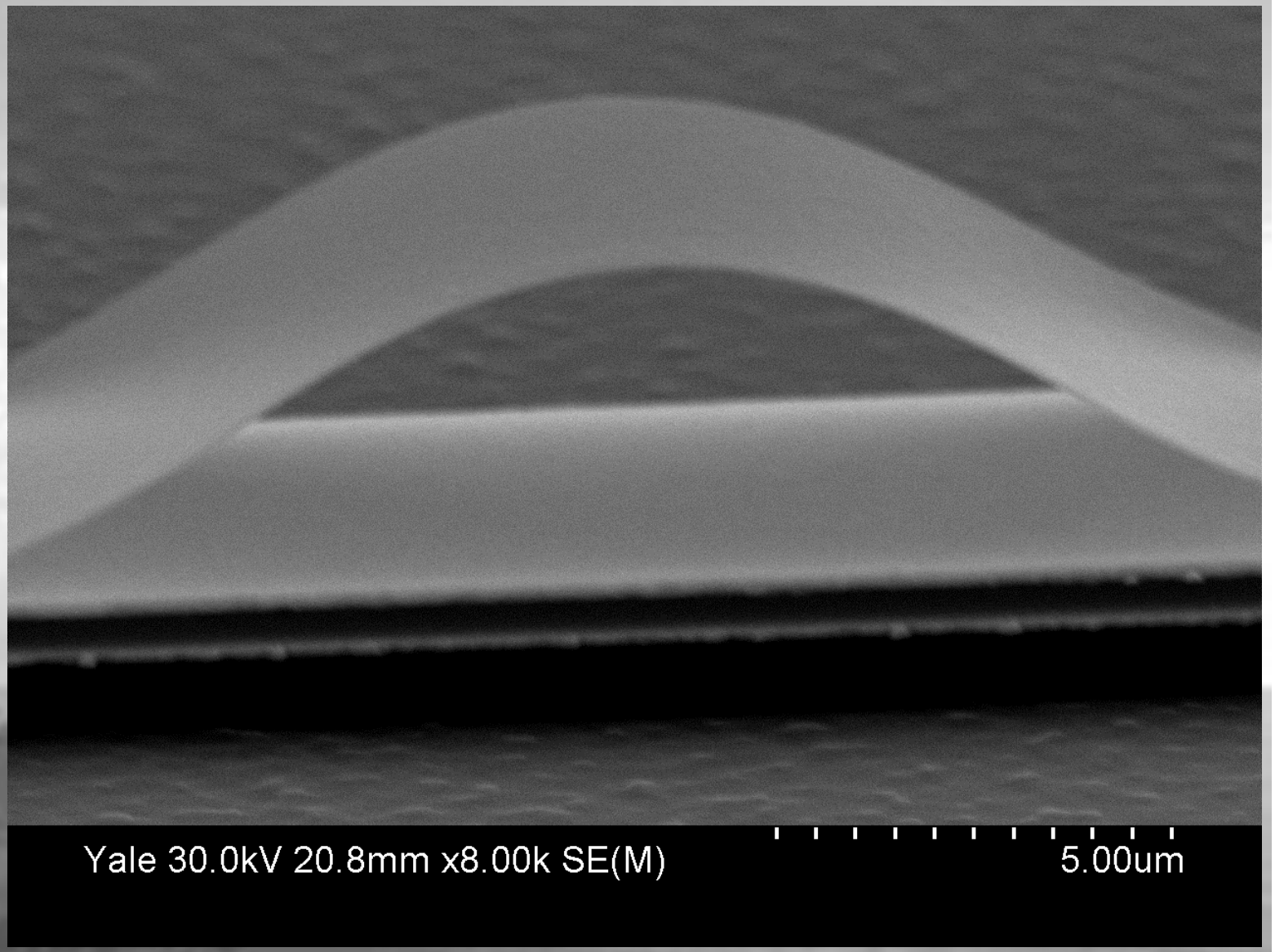
Magnification (3"x4" image): 15,000 **Instrument (Make and Model):** Hitachi SU-70

Submitted by: Weihua Guan **Affiliation:** Yale University

2012 EIPBN MicroGraph Contest

Micrograph Title:
Rainbow Bridge

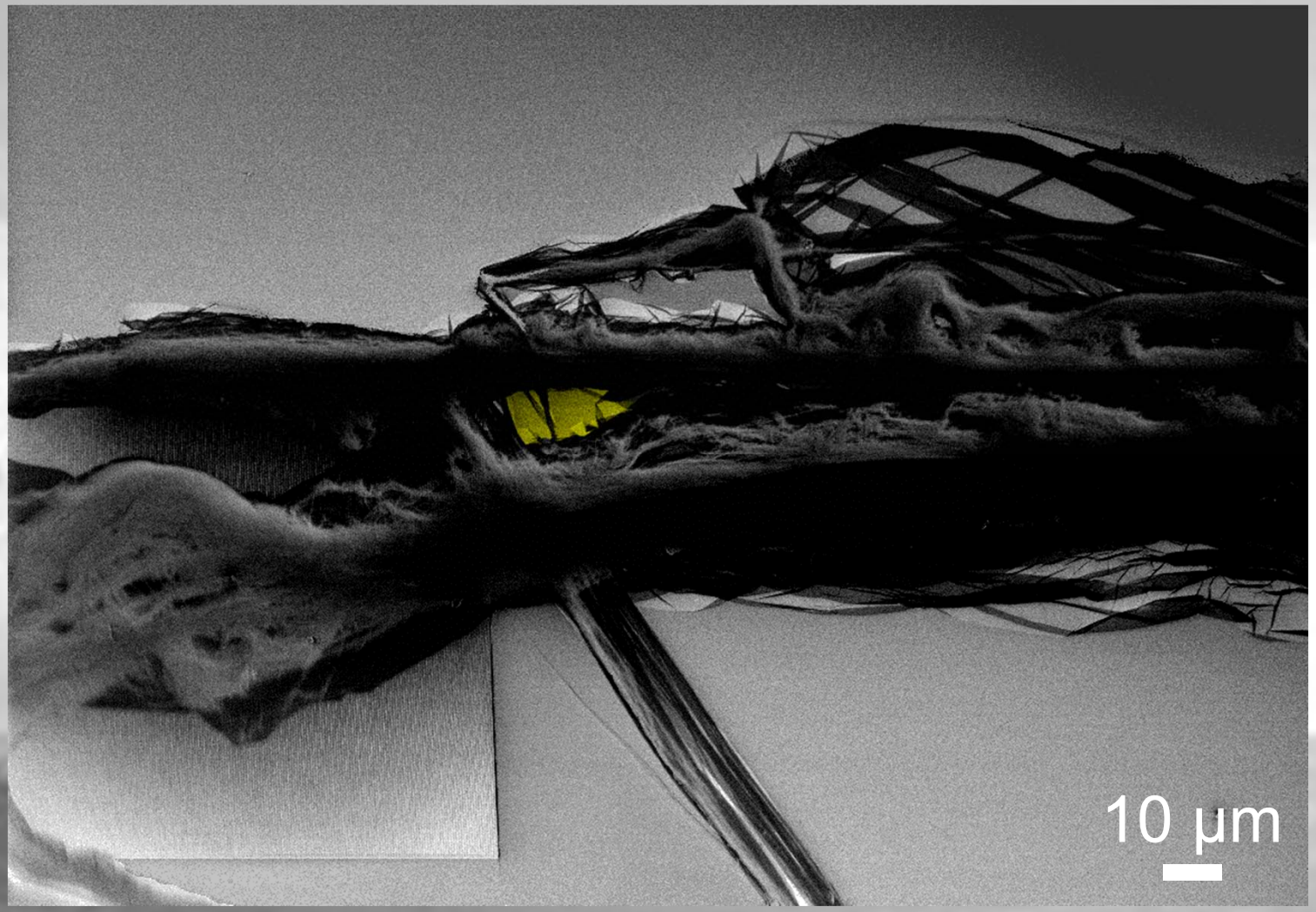
Description:
Stressed thin SiO_2 film detached from Au surface after RIE etching



Magnification (3"x4" image): 8,000
Submitted by: Weihua Guan

Instrument (Make and Model): Hitachi SU-70
Affiliation: Yale University

2012 EIPBN MicroGraph Contest



Micrograph Title:

Cthulhu ate my homework

Description:

There are bad e-beam lithography results, and then there are e-beam lithography results so unspeakably horrible that they awaken the (very tiny) elder gods.

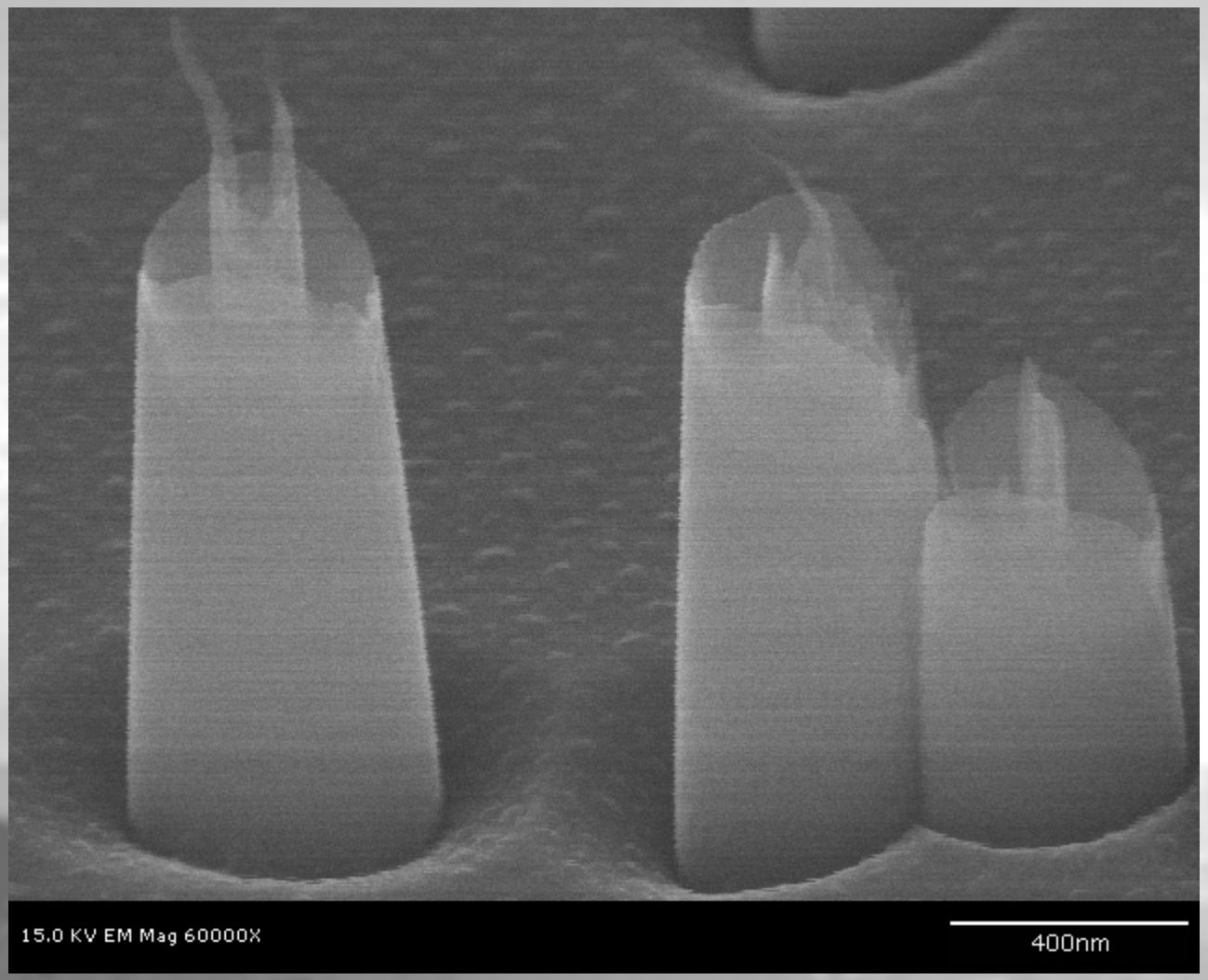
Magnification (3"x4" image): 430X
Submitted by: Bryan Cord

Instrument (Make and Model): JEOL 6700
Affiliation: University of Minnesota

2012 EIPBN MicroGraph Contest

Micrograph Title:
Nano-Candles

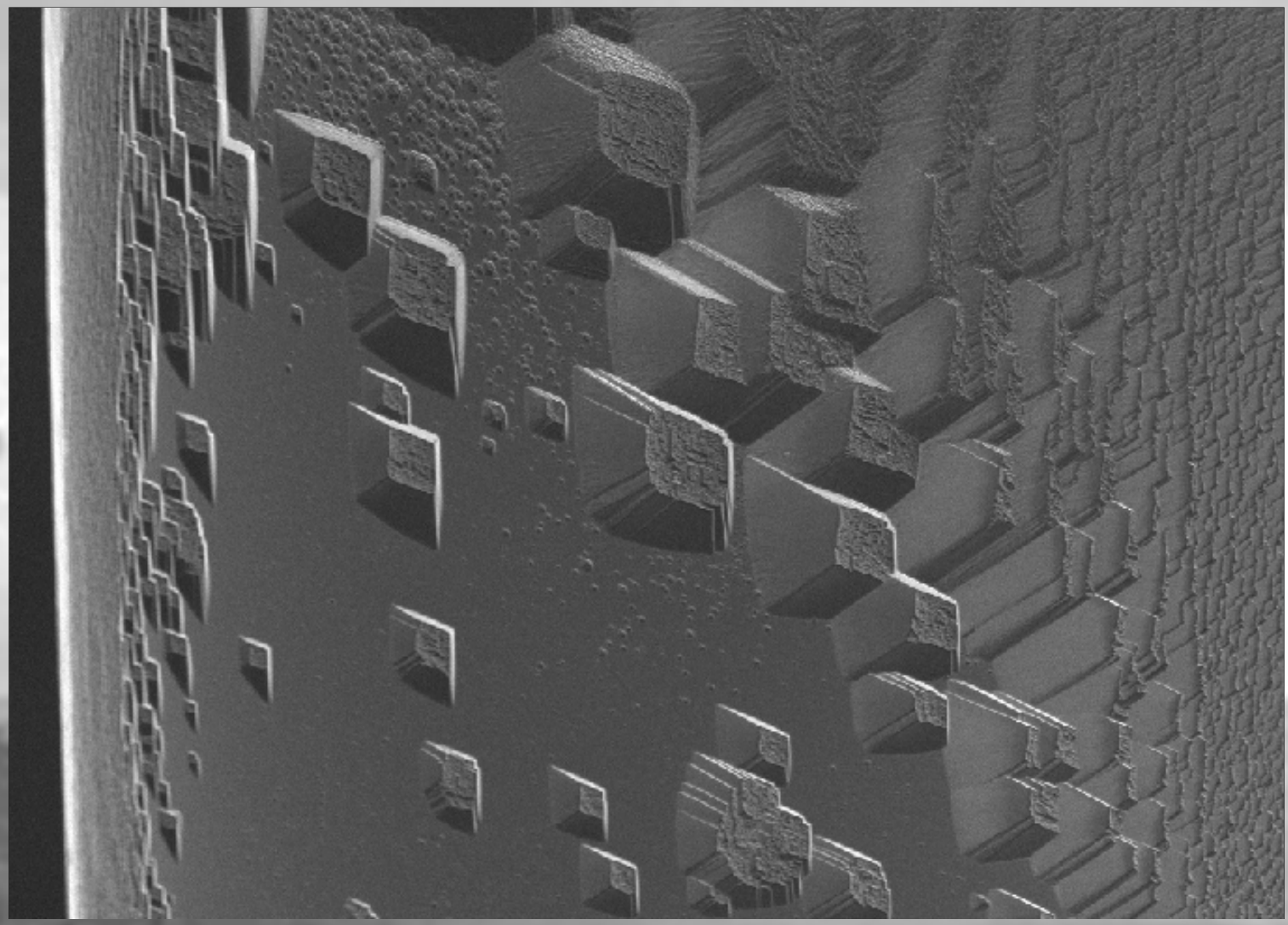
Description:
SEM image of InGaAs/InAlGaAs heterostructure etched by ICP RIE in Cl_2/Ar plasma with SiN_x carrier wafer.



Magnification (3"x4" image): 60000X
Submitted by: Yuning Zhao

Instrument : Hitachi "S-4500" FE-SEM
Affiliation: University of Notre Dame

2012 EIPBN MicroGraph Contest



Micrograph Title:
Pyramids of Escher

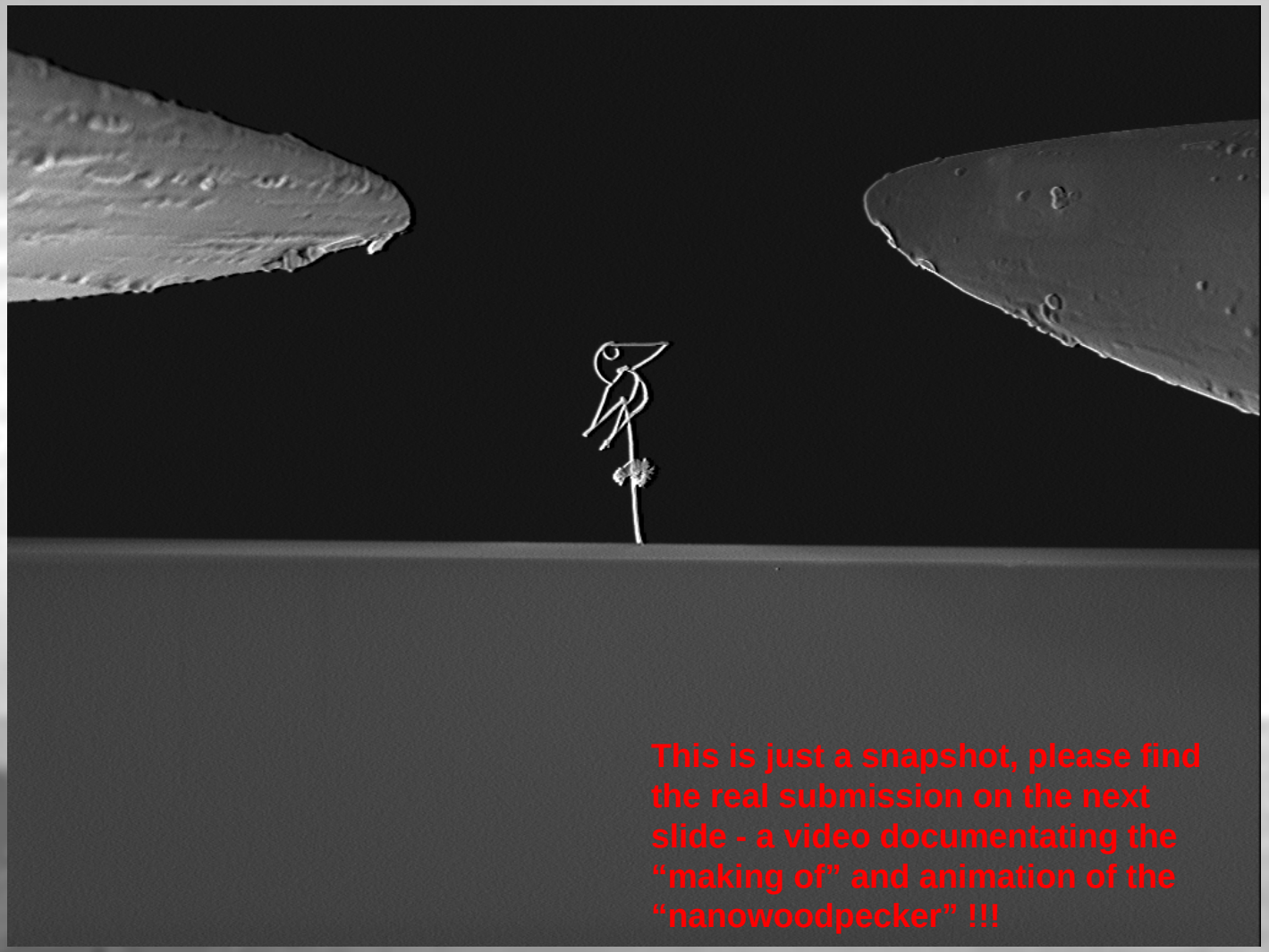
Description:
Etch pits in a tungsten wire used for Scanning Tunneling Microscopy

Magnification (3"x4" image): 870x **Instrument (Make and Model):** FEI Nova 200 Nanolab
Submitted by: Ehud Fuchs and Maia Bischof **Affiliation: Zyvex Labs and UNT**

2012 EIPBN MicroGraph Contest

Micrograph Title:
"Lazy Nanowoodpecker"

Description:
Free standing "Nanowoodpecker", fabricated on the edge of an SOI substrate - applying a sequential electron beam induced deposition (EBID) process. Also visible: tungsten nanoprobes for ac-field application
Also see notes below

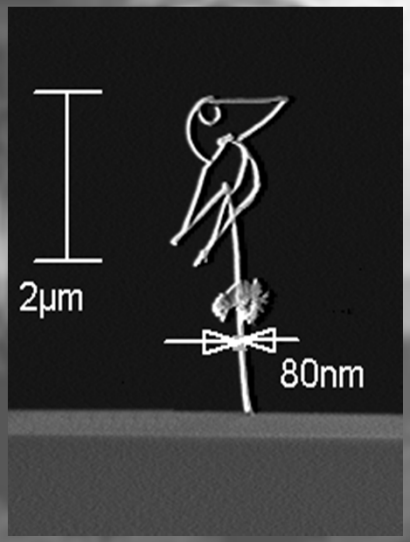


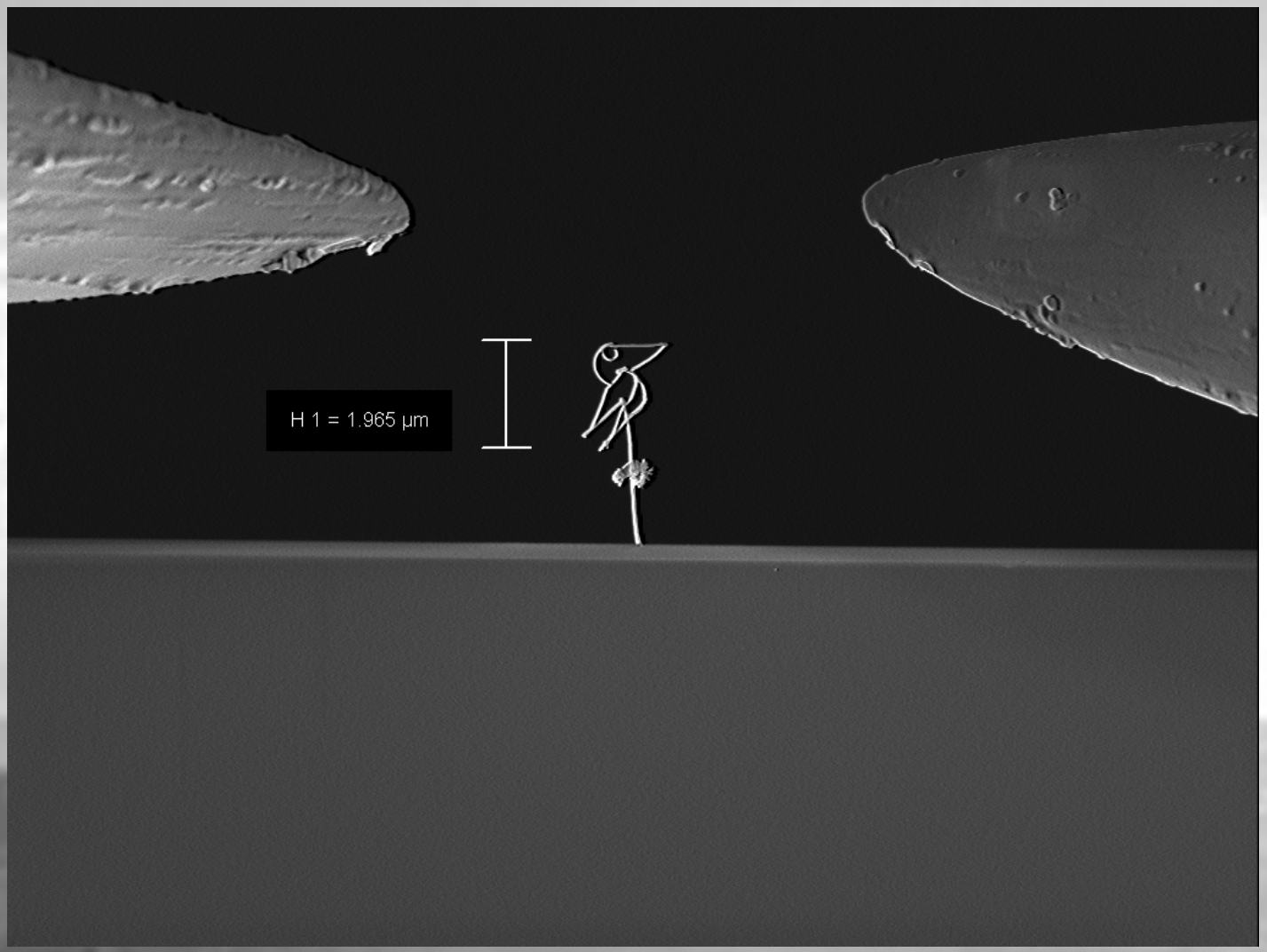
Magnification (3"x4" image): ~5000 **Instrument (Make and Model): Raith eLiNE plus**
Submitted by: F. Nouvertné, A. Rudzinski **Affiliation: Raith GmbH**

2012 EIPBN MicroGraph Contest

Micrograph Title:
"Lazy Nanowoodpecker"

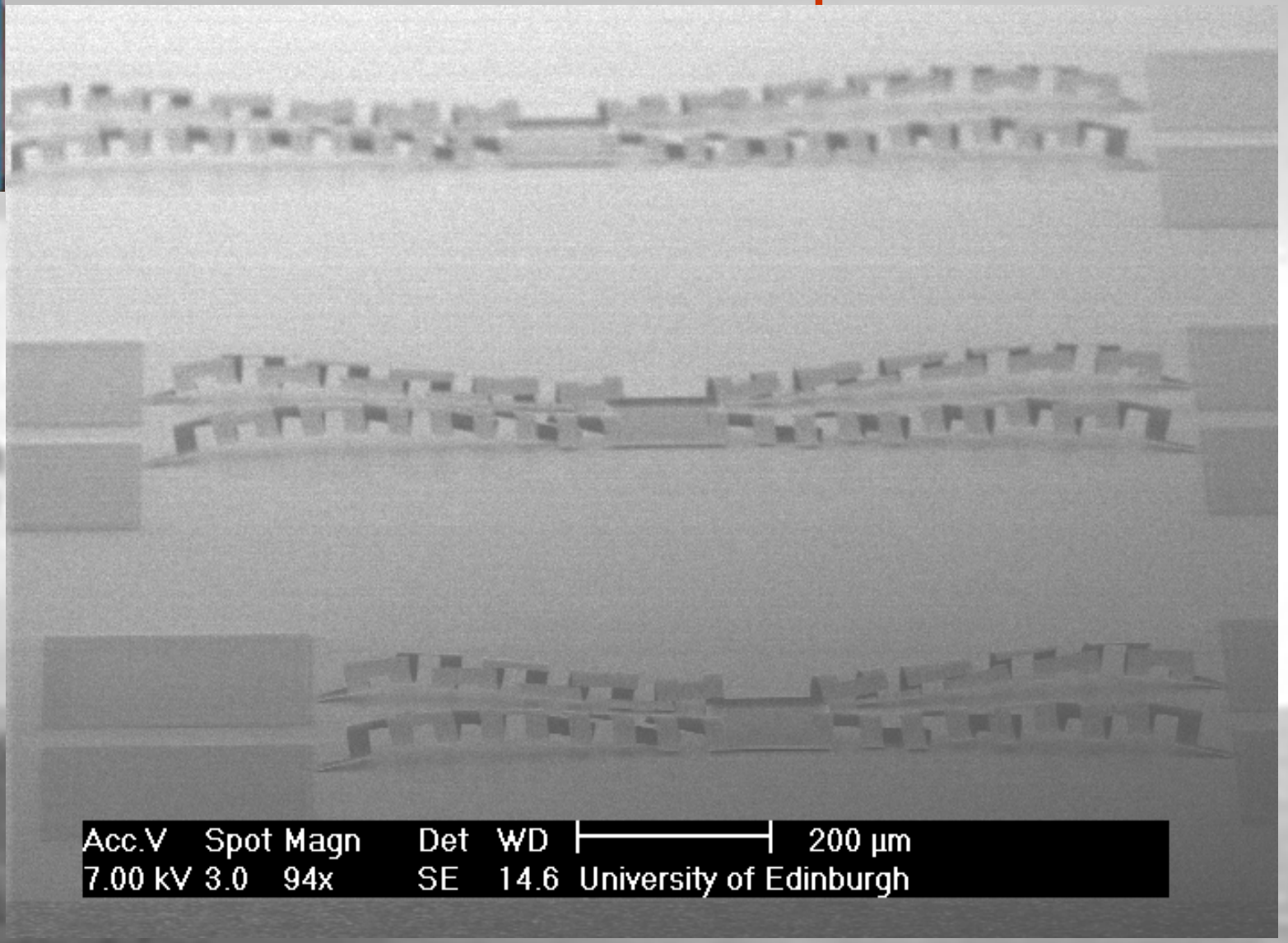
Description:
Dimensions of the same structure





Magnification (3"x4" image): ~5000 **Instrument (Make and Model): Raith eLiNE plus**
Submitted by: F. Nouvertné, A. Rudzinski **Affiliation: Raith GmbH**

2012 EIPBN MicroGraph Contest



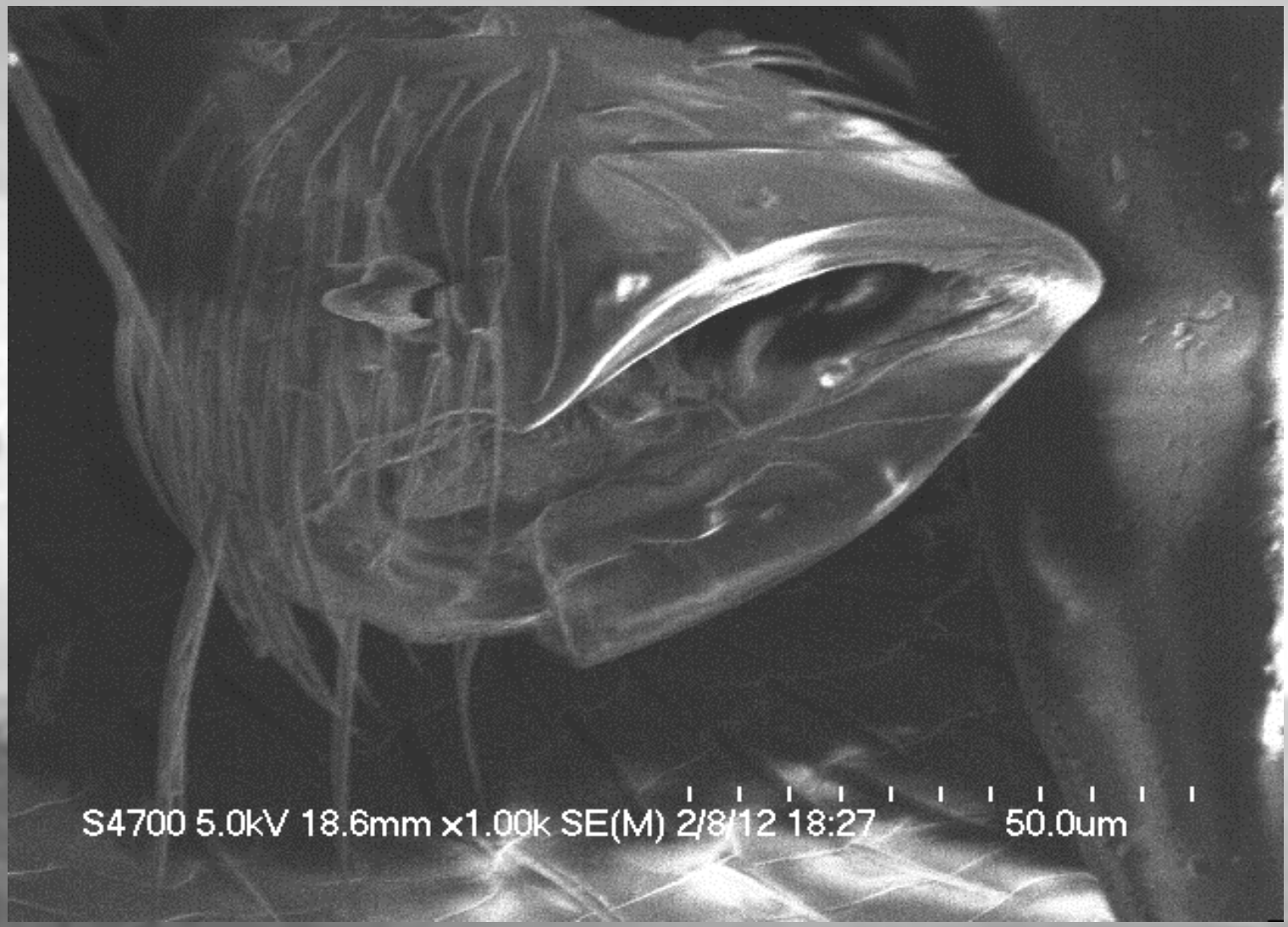
Micrograph Title:
Meander springs

Description:
Tantalum structures with meander arms for stress release

Magnification (3"x4" image): 94x
Submitted by: Enrico Mastropaolo

Instrument: Philips XL 40 FEG SEM
Affiliation: Scottish Microelectronics Centre
The University of Edinburgh (UK)

2012 EIPBN MicroGraph Contest



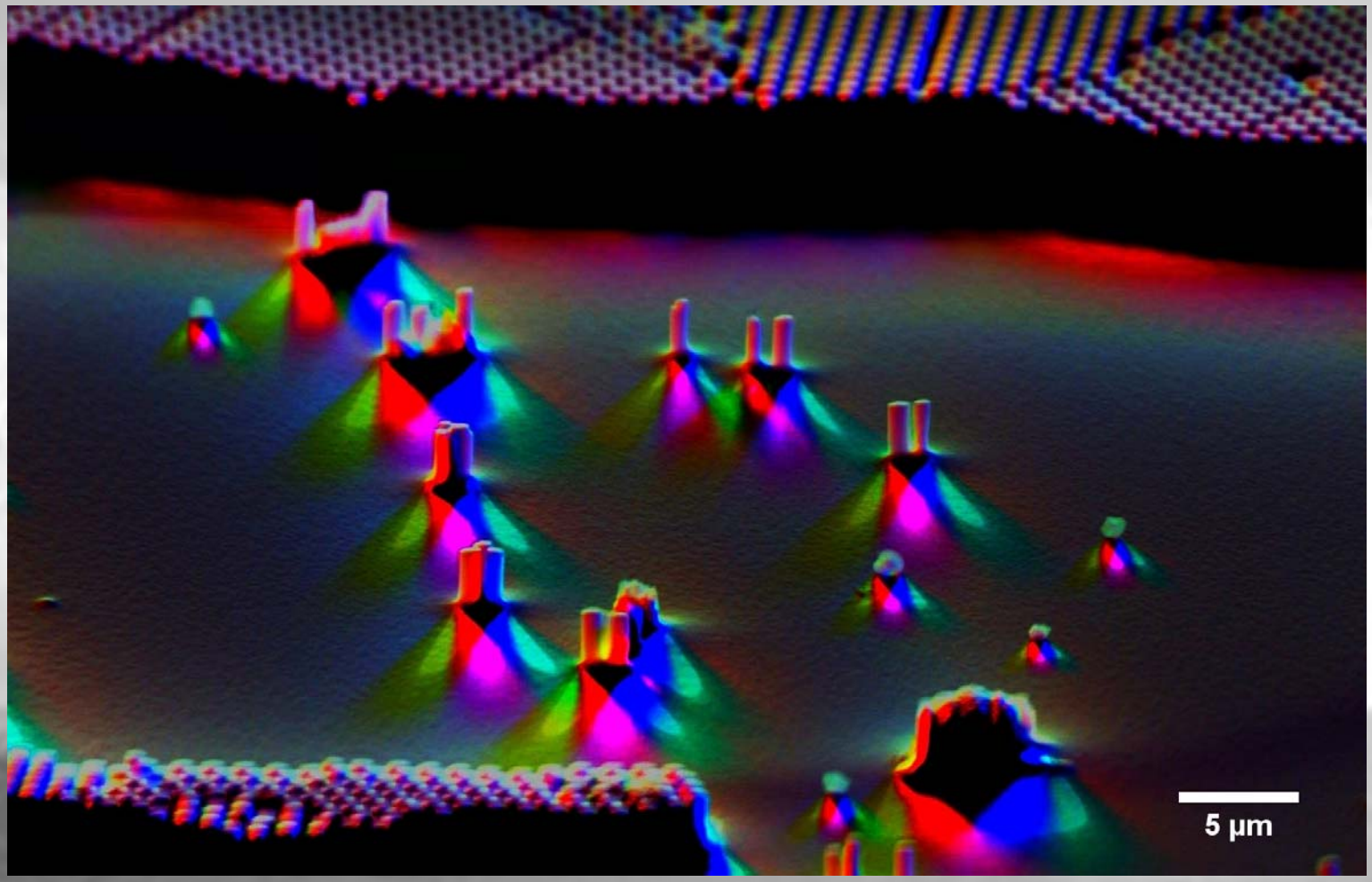
Micrograph Title:
Catfish

Description:
This is an ant's leg that has been broken off at the joint. The mouth region is where you are looking into the ant's leg.

Magnification (3"x4" image): 1000x
Submitted by: James Owen

Instrument: Hitachi S-4700
Affiliation: Zyvex Labs

2012 EIPBN MicroGraph Contest



Micrograph Title:
Nano-Rainbows

Description:
Silicon nanopillars imaged by a forescatter diode detector of a Bruker EBSD system.

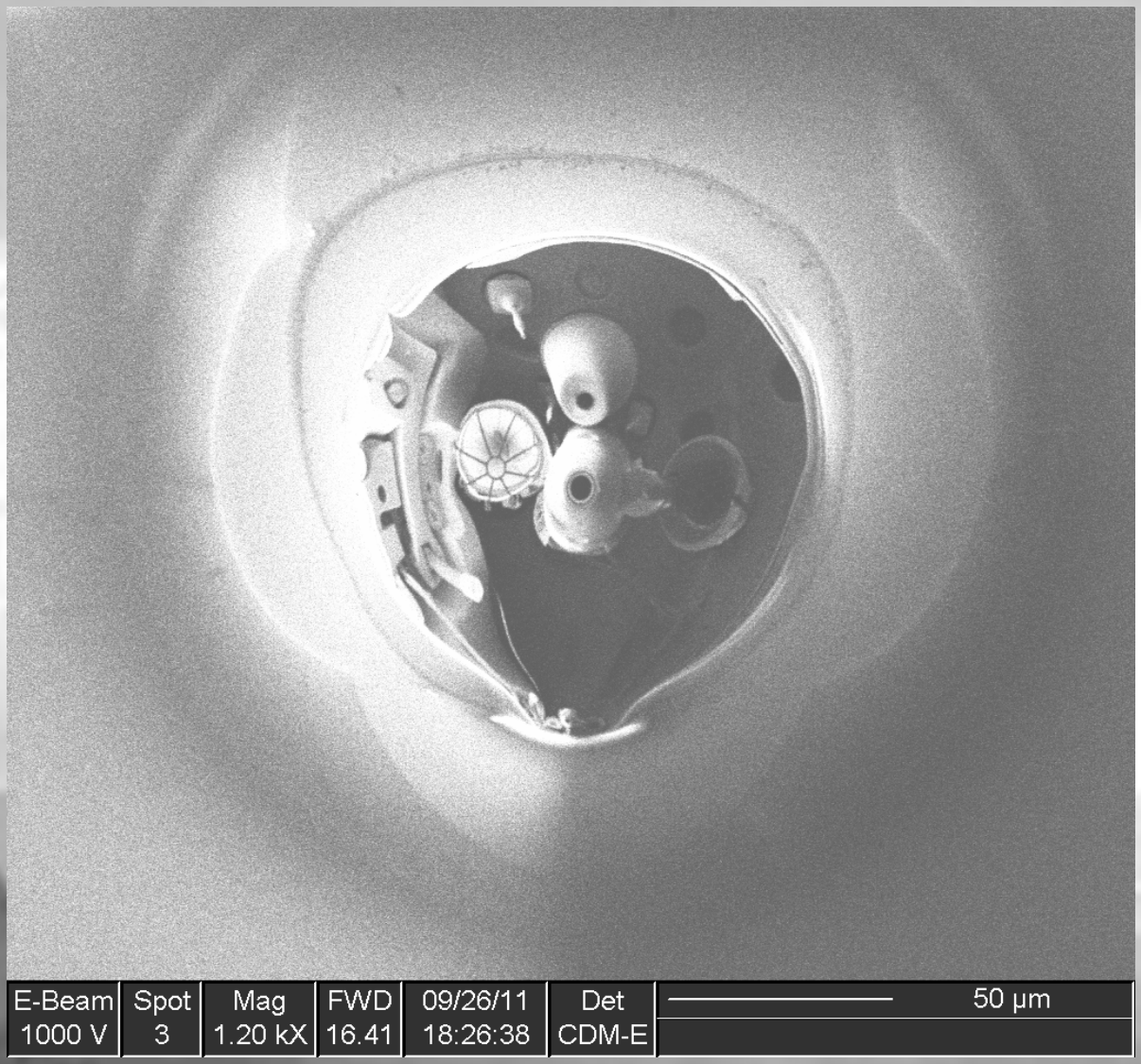
Magnification (3"x4" image): 2000x
Submitted by: Silke Christiansen

Instrument (Make and Model): Tescan Lyra 3
Affiliation: MPI for the Science of Light

2012 EIPBN MicroGraph Contest

Micrograph Title:
Electron mirror

Description:
Self-imaging of colums and detectors on a charged glass particle



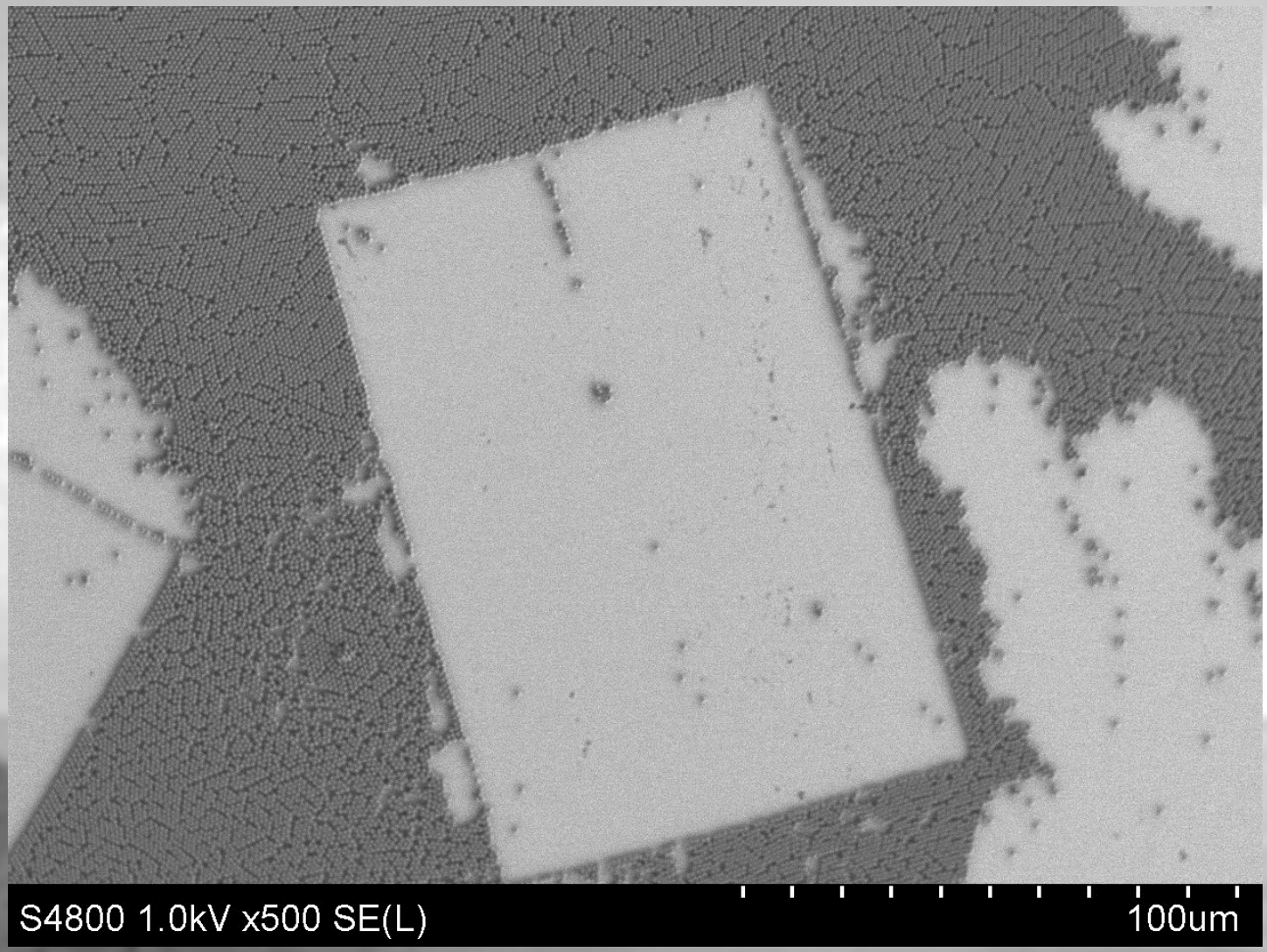
Magnification (3"x4" image): 1200x
Submitted by: Silke Christiansen

Instrument: FEI Strata DB 235
Affiliation: MPL for the Science of Light

2012 EIPBN MicroGraph Contest

Micrograph Title:
Self aligned soccer field

Description:
1µm Polystyrene microspheres formed a rectangular area during a Langmuir-Blodgett coating.



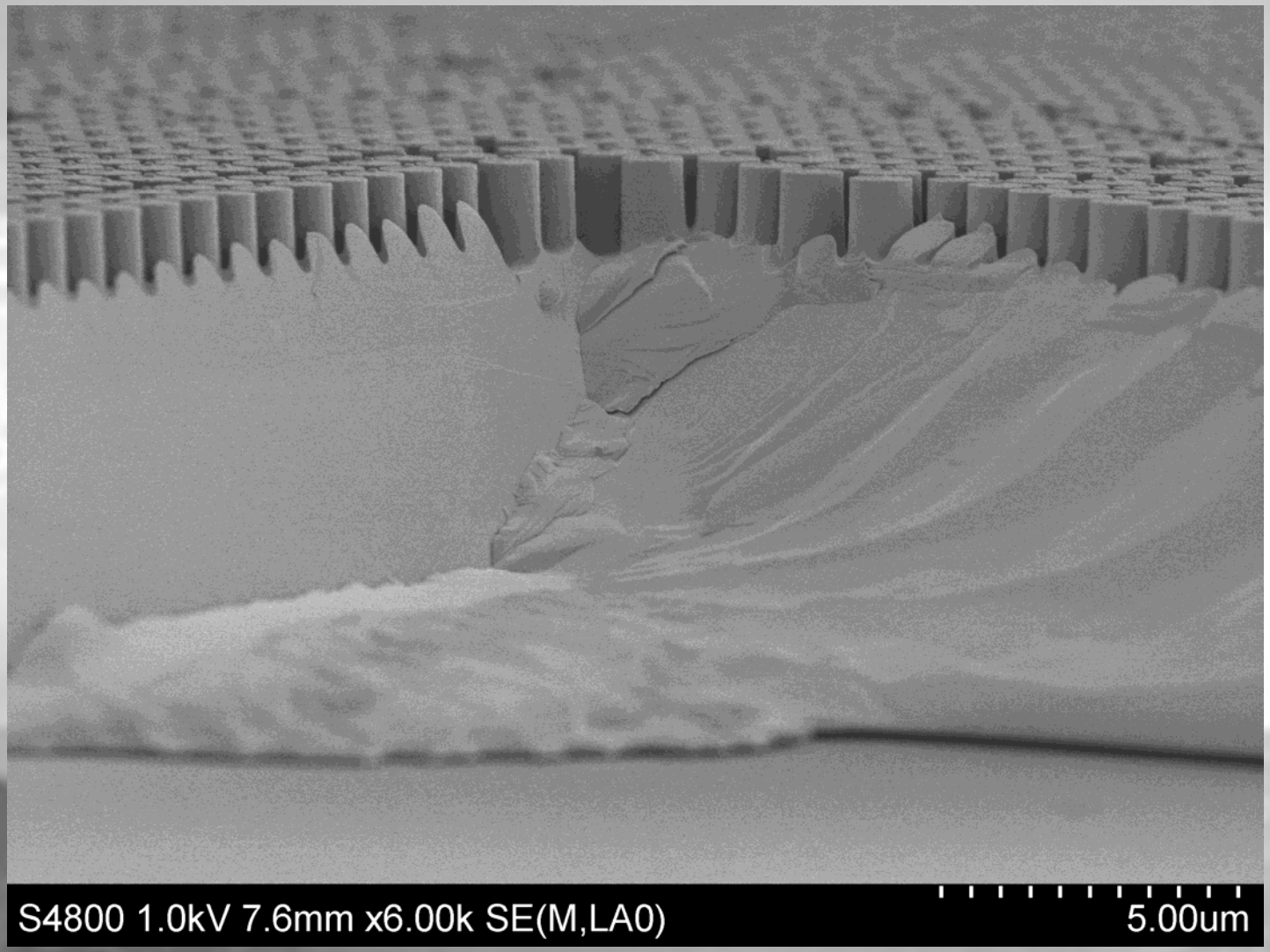
Magnification (3"x4" image): 500x
Submitted by: Silke Christiansen

Instrument: Hitachi S4800
Affiliation: MPL for the Science of Light

2012 EIPBN MicroGraph Contest

Micrograph Title:
Patterned microglacier

Description:
Silicon nanowires formed by reactive ion etching in a thin multicrystalline layer on glass.



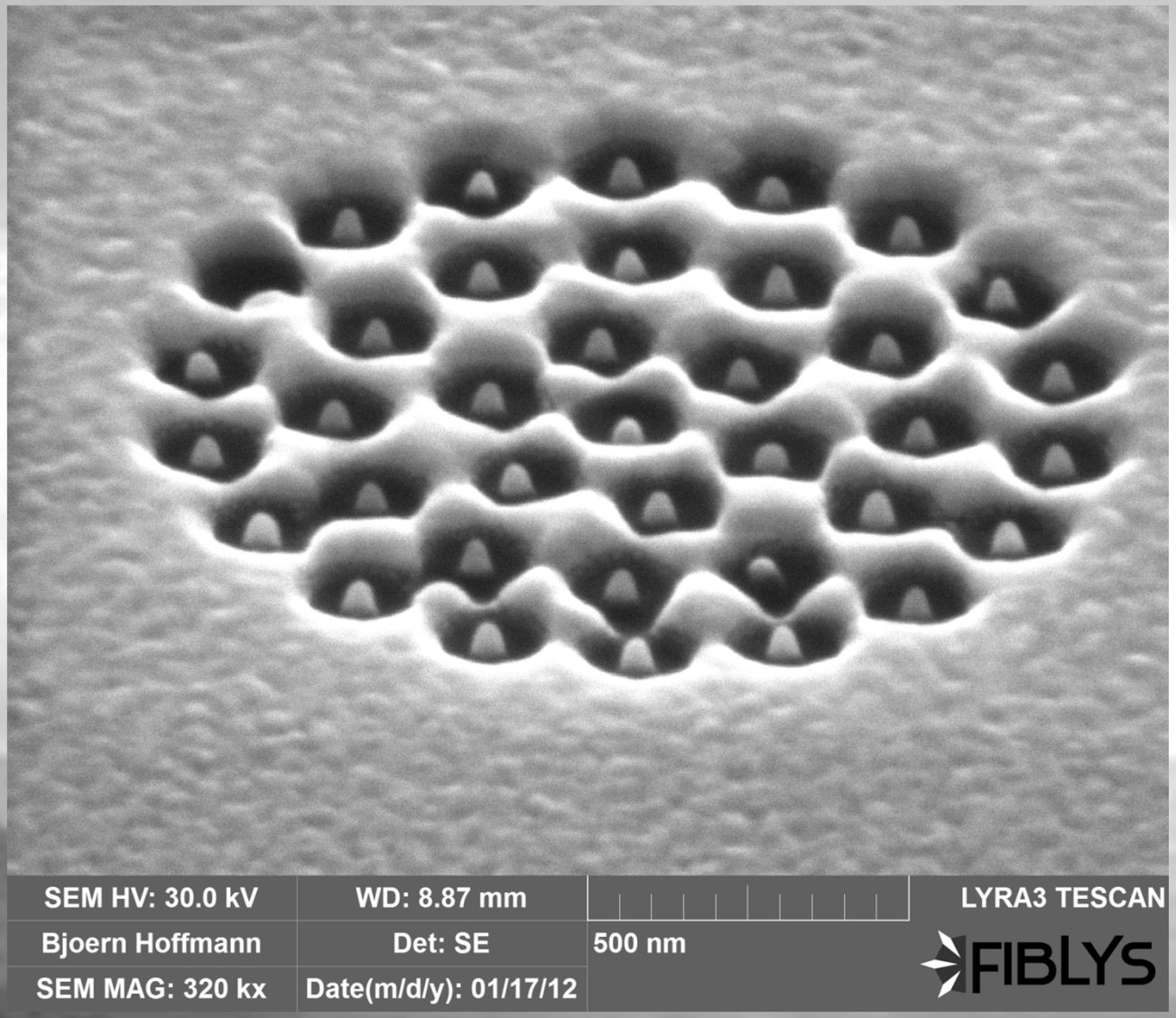
Magnification (3"x4" image): 6000x
Submitted by: Silke Christiansen

Instrument: Hitachi S4800
Affiliation: MPL for the Science of Light

2012 EIPBN MicroGraph Contest

Micrograph Title:
Nanopillar flower

Description:
Gold nanopillars were formed by FIB etching in a gold layer on glass in a flower arrangement.

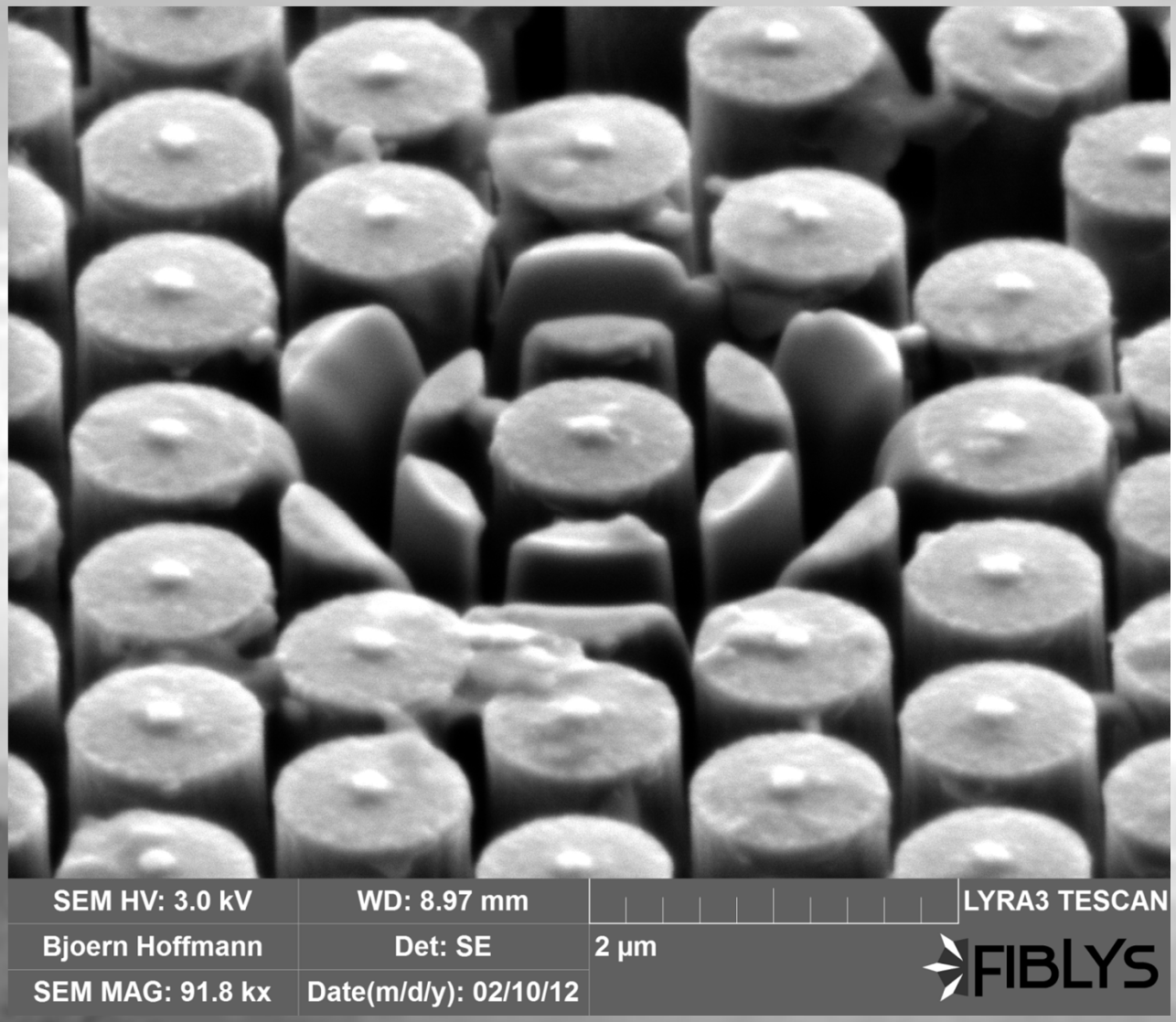


Magnification (3"x4" image): 320 kx
Instrument: Tescan Lyra 3
Submitted by: Silke Christiansen
Affiliation: MPL for the Science of Light

2012 EIPBN MicroGraph Contest

Micrograph Title:
Microflower

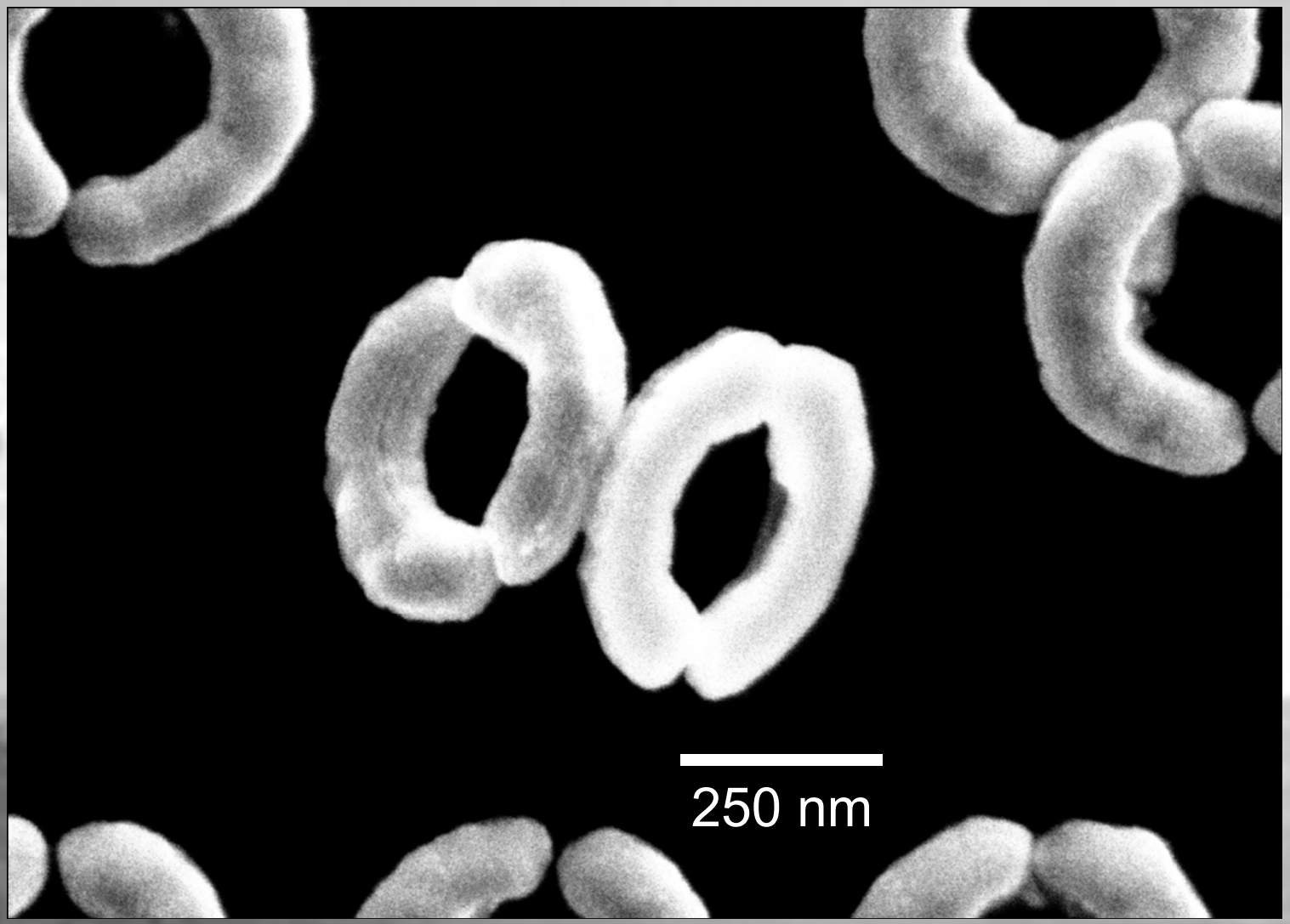
Description:
Silicon micropillars were cutted with a gallium FIB to produce this beautiful flower.



Magnification (3"x4" image): 91.8 kx
Instrument: Tescan Lyra 3
Submitted by: Silke Christiansen
Affiliation: MPL for the Science of Light

2012 EIPBN MicroGraph Contest

Micrograph Title:
Two Engage Nanorings for Ever
Description:
Two Au nanorings support each other on a substrate.



Magnification (3"x4" image): 45000X
Submitted by: Tatsuya Tomioka

Instrument (Make and Model): Hitachi SU6600
Affiliation: IMRAM, Tohoku Univ.

2012 EIPBN MicroGraph Contest

Micrograph Title:
Me eat cookie!

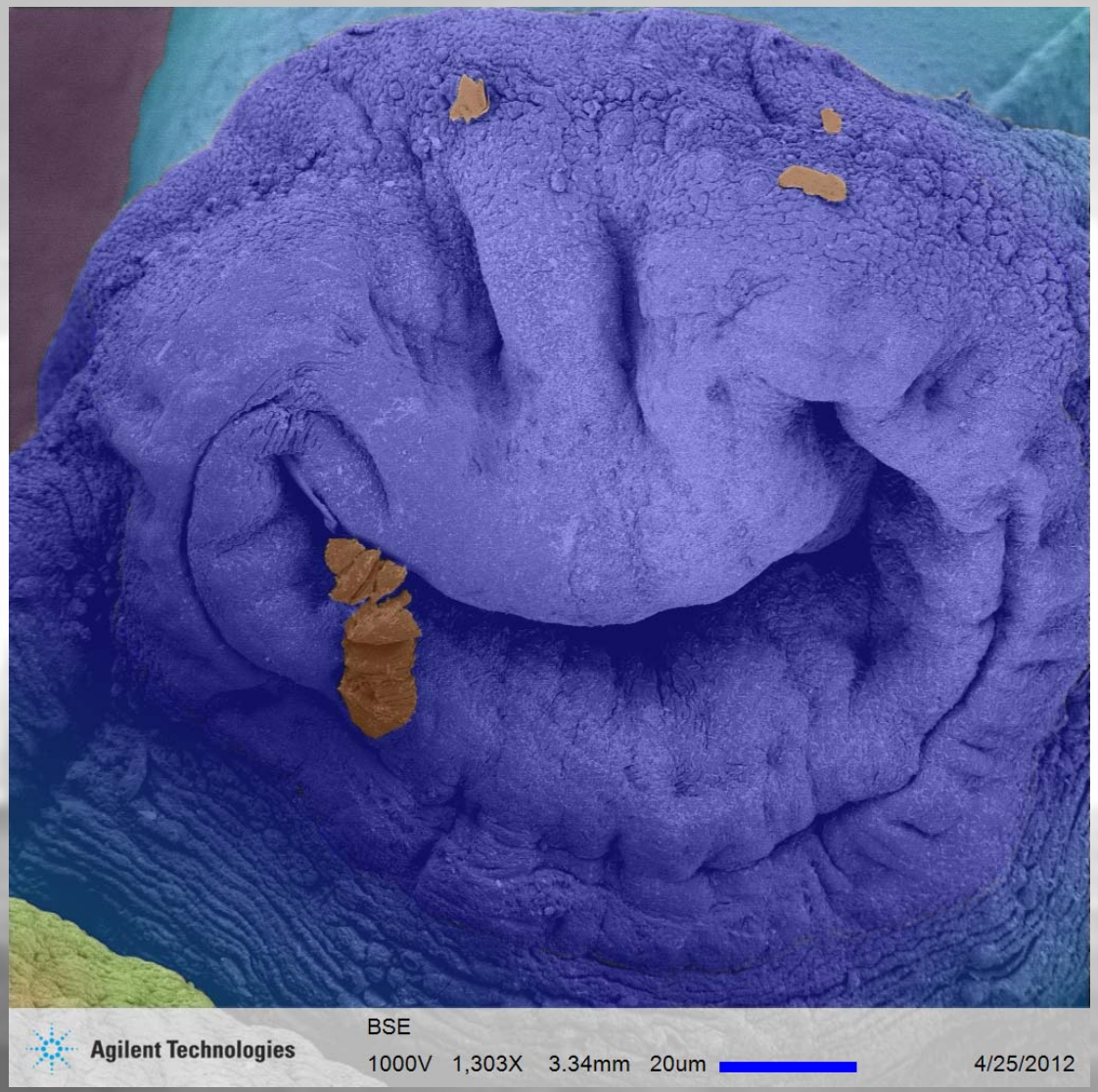
Description:
The oral sucker of an adult liver fluke.

(Sample courtesy of Institute of Cytology and Genetics, Novosibirsk, Russia.)

Magnification (3"x4" image): 2,606X
Submitted by: C. Silver, L. Muray & J. Spallas

Instrument: Agilent 8500 FE-SEM
Affiliation: Agilent Technologies

2012 EIPBN MicroGraph Contest



Micrograph Title:
Me eat cookie!

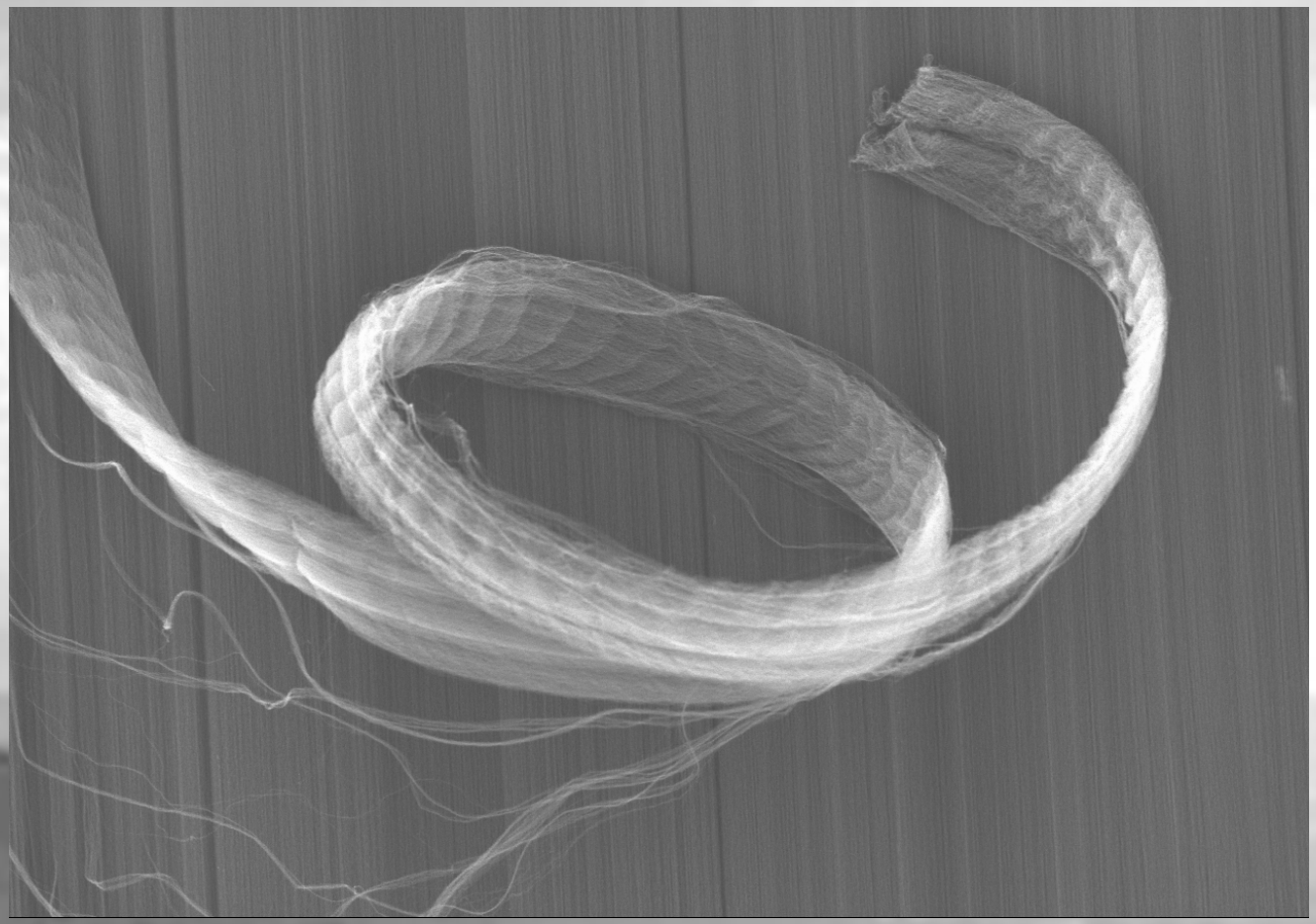
Description:
Colorized electron micrograph of the oral sucker of an adult liver fluke.

(Sample courtesy of Institute of Cytology and Genetics, Novosibirsk, Russia.)

Magnification (3"x4" image): 2,606X
Submitted by: C. Silver, L. Muray & J. Spallas

Instrument: Agilent 8500 FE-SEM
Affiliation: Agilent Technologies

2012 EIPBN MicroGraph Contest



Micrograph Title: The Ring of Fire

Description: A vertical forest of mluti-walled nanotubes with a bundle making a ribbon shape.

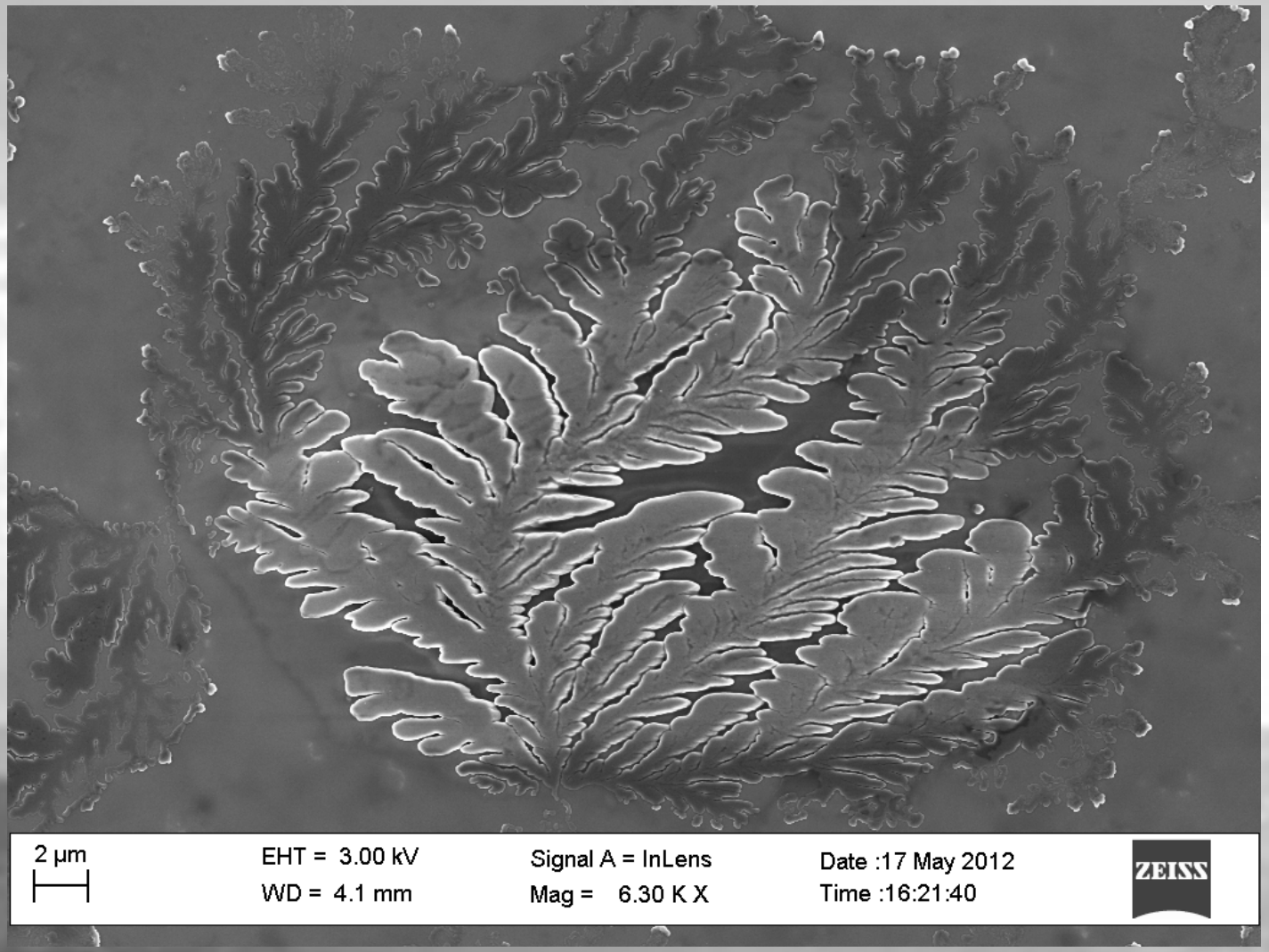
Magnification (3"x4" image): 450 **Instrument (Make and Model):Hitachi S4700**

Submitted by: Ali Kashefian Naieni, Alireza Nojeh
Affiliation: The University of British Columbia

2012 EIPBN MicroGraph Contest

Micrograph Title:
Nano-Fern

Description:
These beautiful ferns are grown from aged opv polymeric materials grown under full sun but without watering!



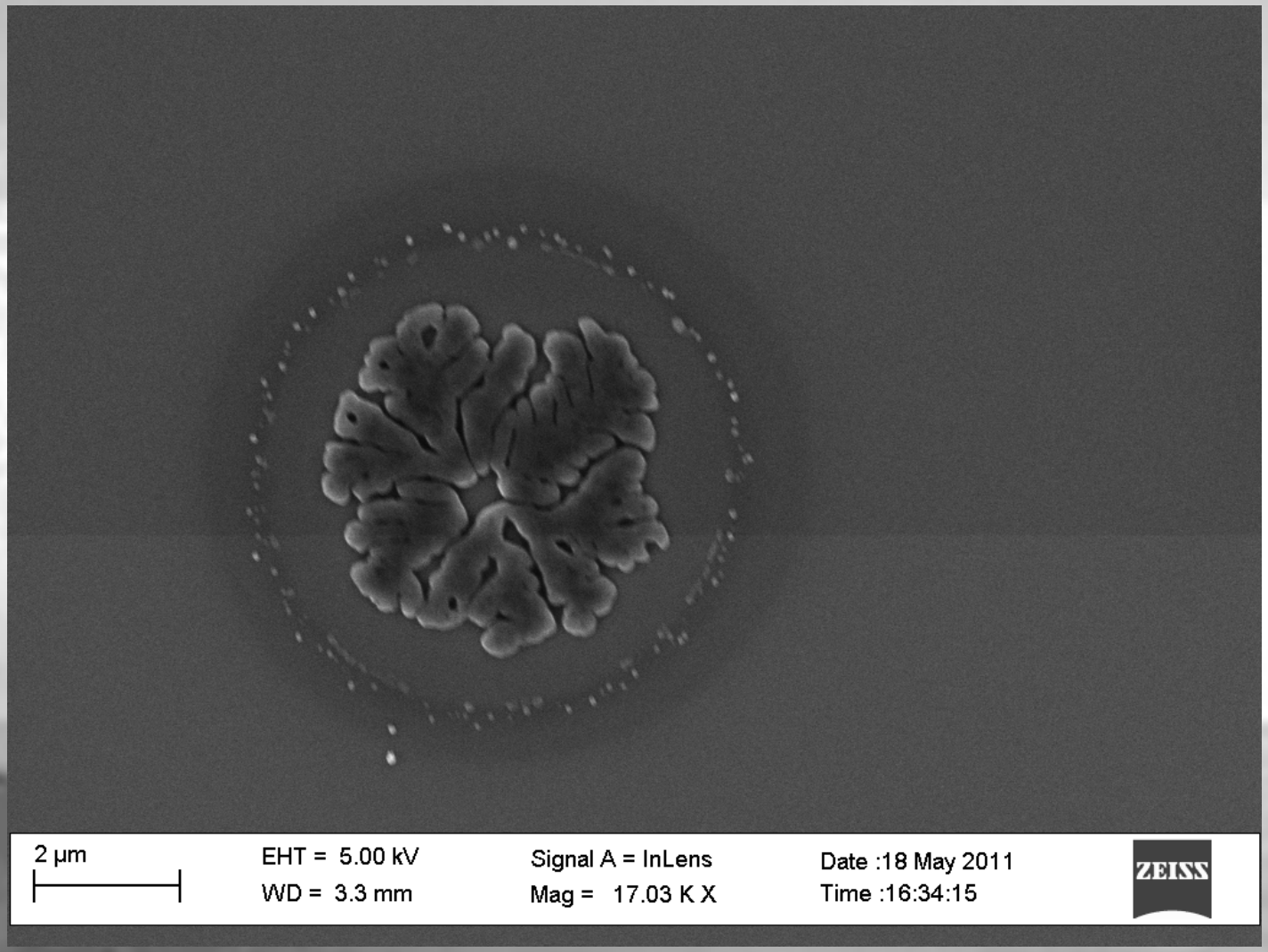
Magnification : 5000 X **Instrument : MERLIN SEM**

Submitted by: Muruganathan Ramanathan Affiliation: Center for Nanophase Materials Sciences, Oak Ridge National Laboratory, Oak Ridge, TN 37923.

2012 EIPBN MicroGraph Contest

Micrograph Title:
Spring

Description:
Spring is always beautiful…even without any colors. Aged OPV active materials are as happy as a sun flower!



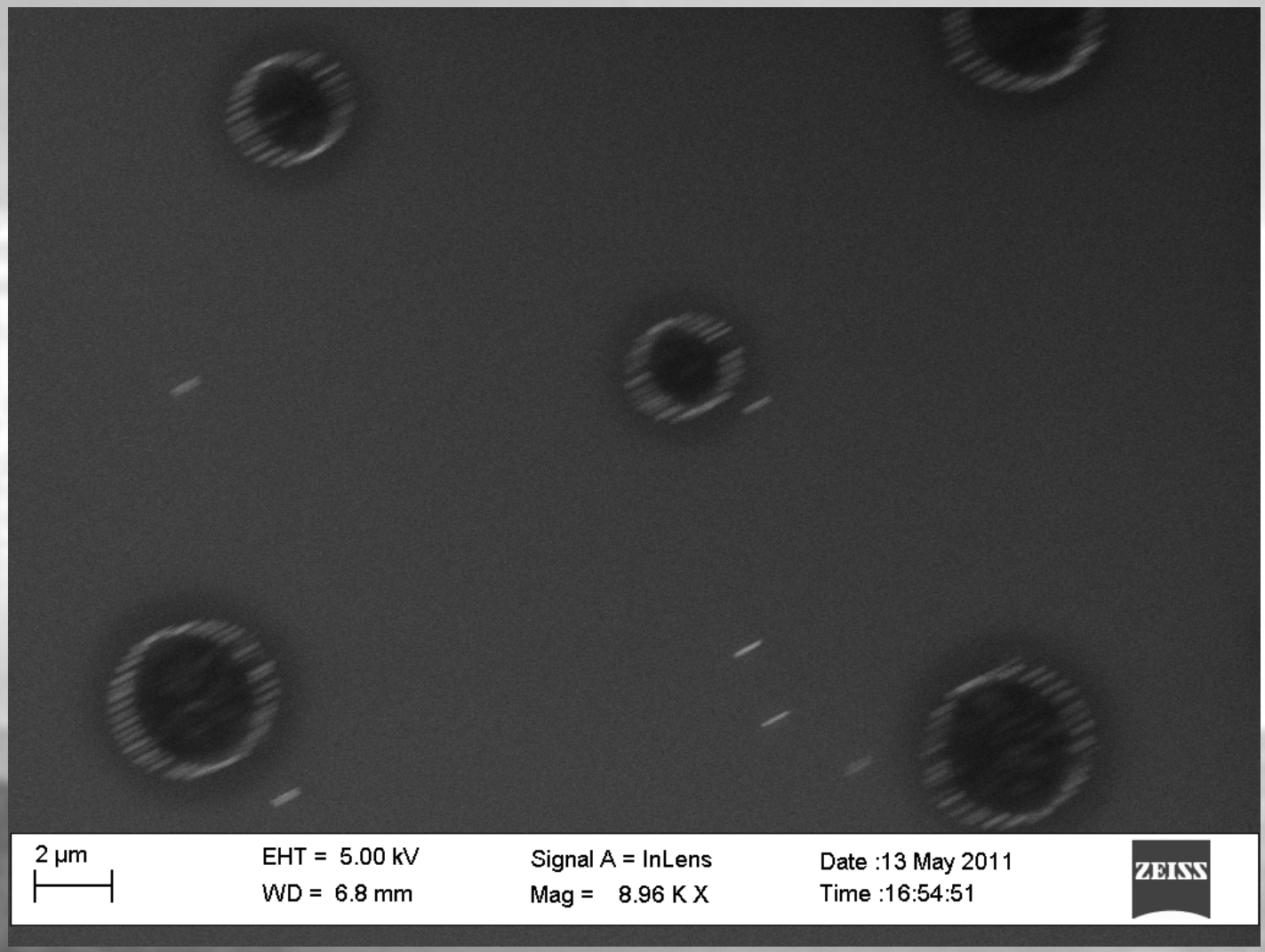
Magnification : 17000 X **Instrument : MERLIN SEM**

Submitted by: Muruganathan Ramanathan Affiliation: Center for Nanophase Materials Sciences, Oak Ridge National Laboratory, Oak Ridge, TN 37923.

2012 EIPBN MicroGraph Contest

Micrograph Title:
Nano-Colosseums

Description:
Fight for charge separations happen in these nano-colosseums between donors and acceptors!



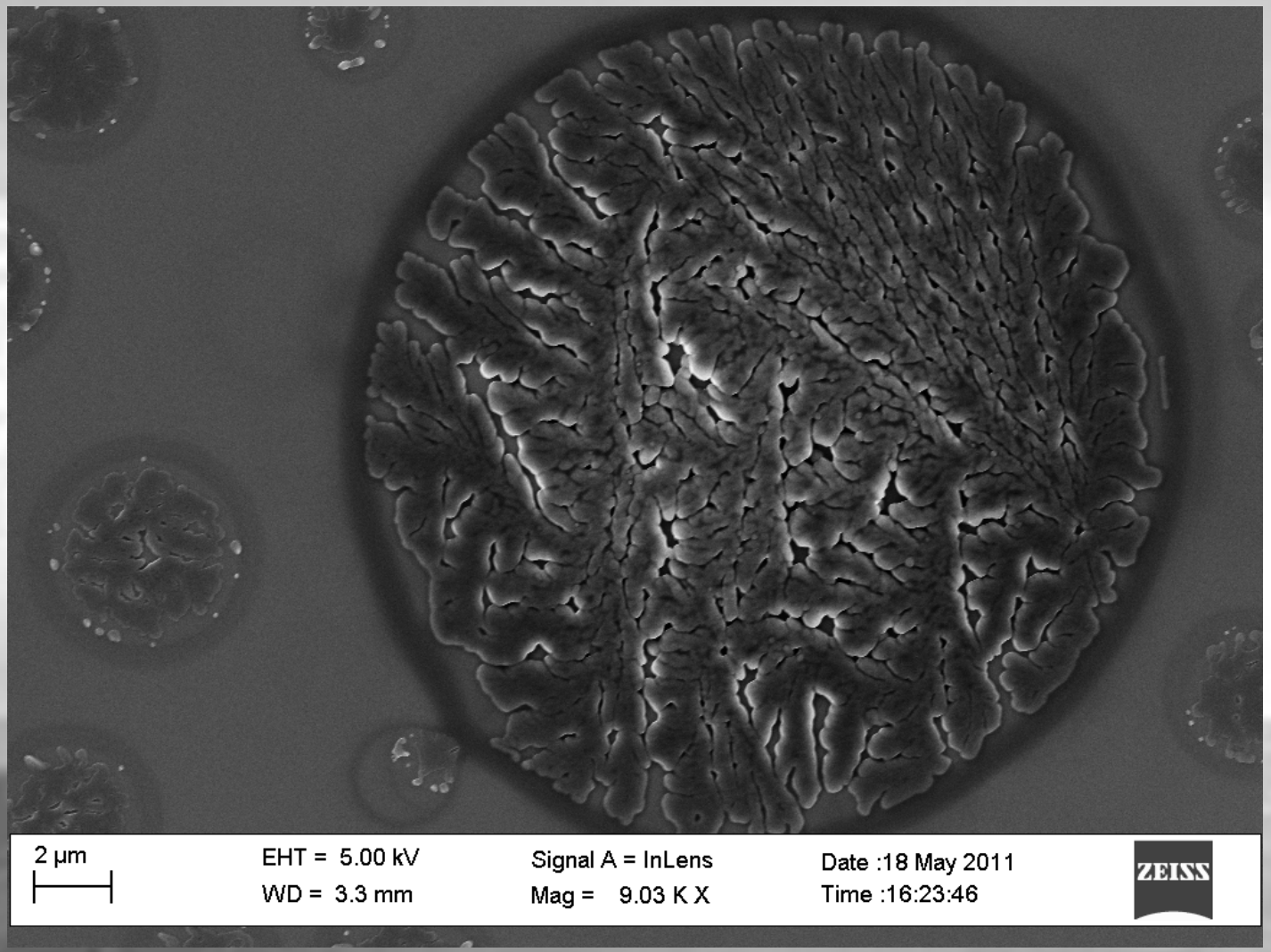
Magnification : 9000 X **Instrument : MERLIN SEM**

Submitted by: Muruganathan Ramanathan Affiliation: Center for Nanophase Materials Sciences, Oak Ridge National Laboratory, Oak Ridge, TN 37923.

2012 EIPBN MicroGraph Contest

Micrograph Title:
Origin of the Universe

Description:
These aged opv active material morphologies symbolically represents the Big Bang Theory.

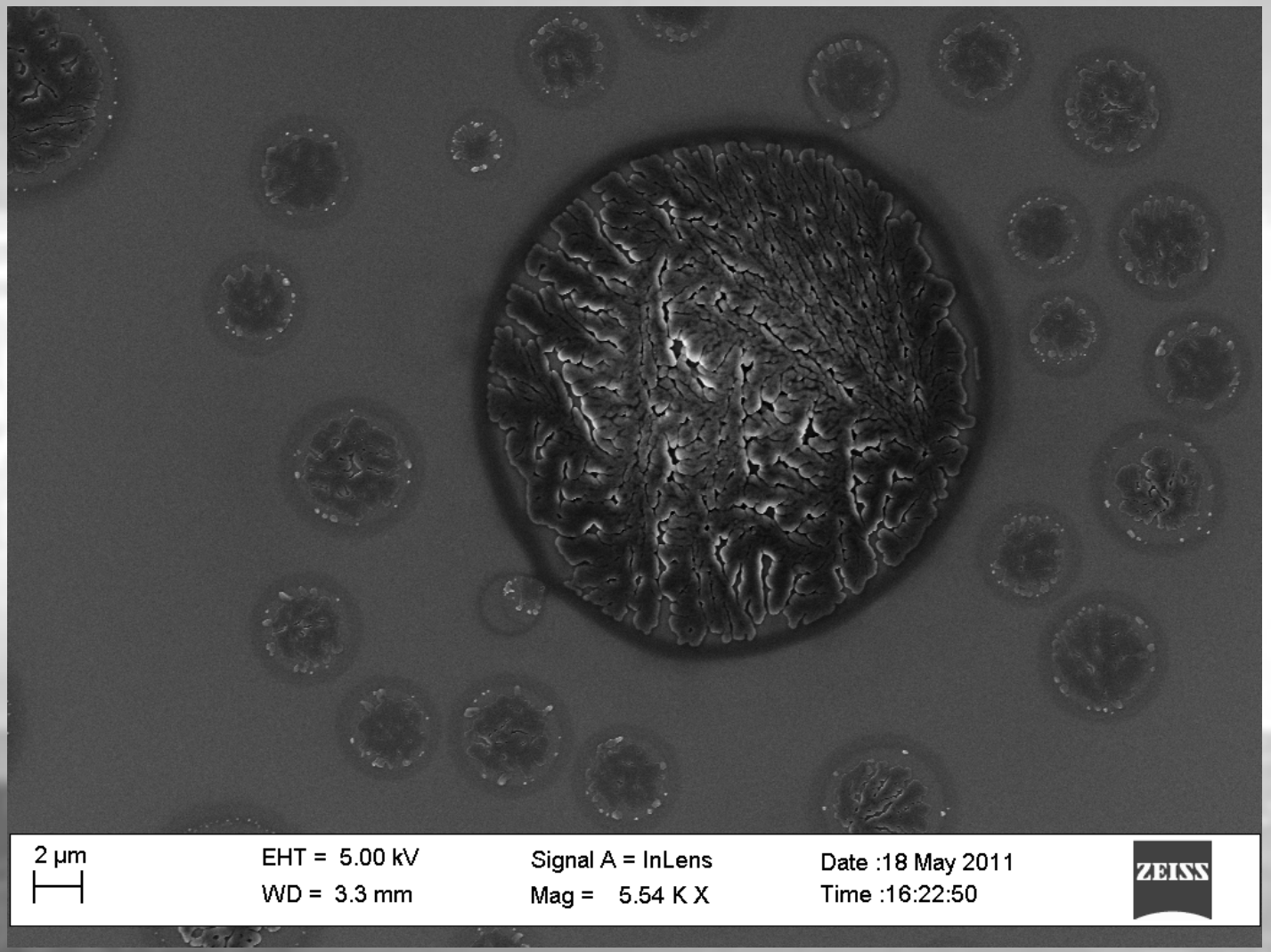


Magnification : 9000 X **Instrument : MERLIN SEM**

Submitted by: Muruganathan Ramanathan Affiliation: Center for Nanophase Materials Sciences, Oak Ridge National Laboratory, Oak Ridge, TN 37923.

2012 EIPBN MicroGraph Contest

Micrograph Title:
Nano-Galaxy



Description:
The nano-galaxy made up of aged opv active materials represent stars, stellar remnants and dark matters!

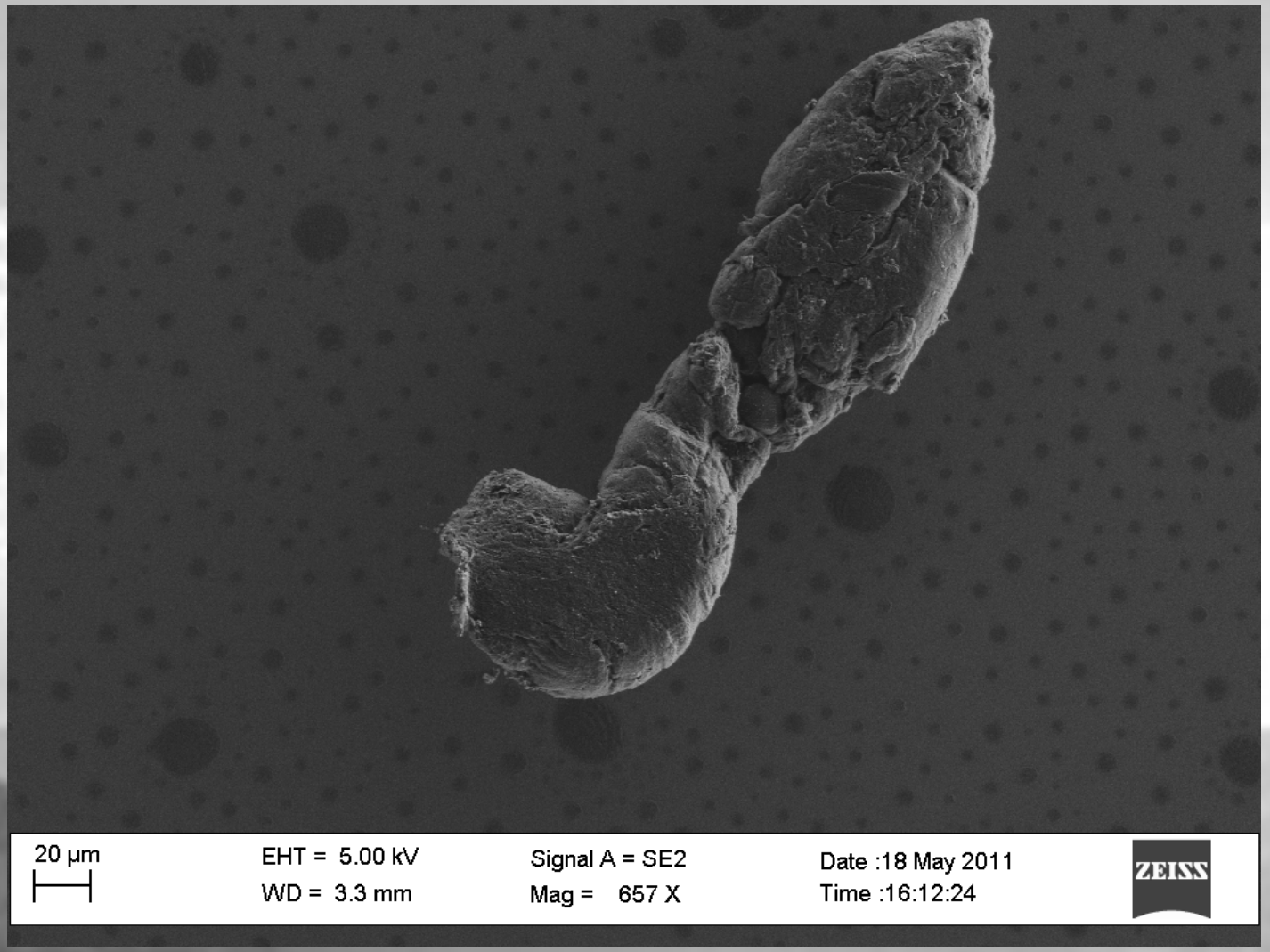
Magnification : 5000 X **Instrument : MERLIN SEM**

Submitted by: Muruganathan Ramanathan Affiliation: Center for Nanophase Materials Sciences, Oak Ridge National Laboratory, Oak Ridge, TN 37923.

2012 EIPBN MicroGraph Contest

Micrograph Title:
why why why

Description:
Is this a worm or an upside down question mark? Oh…s*it!



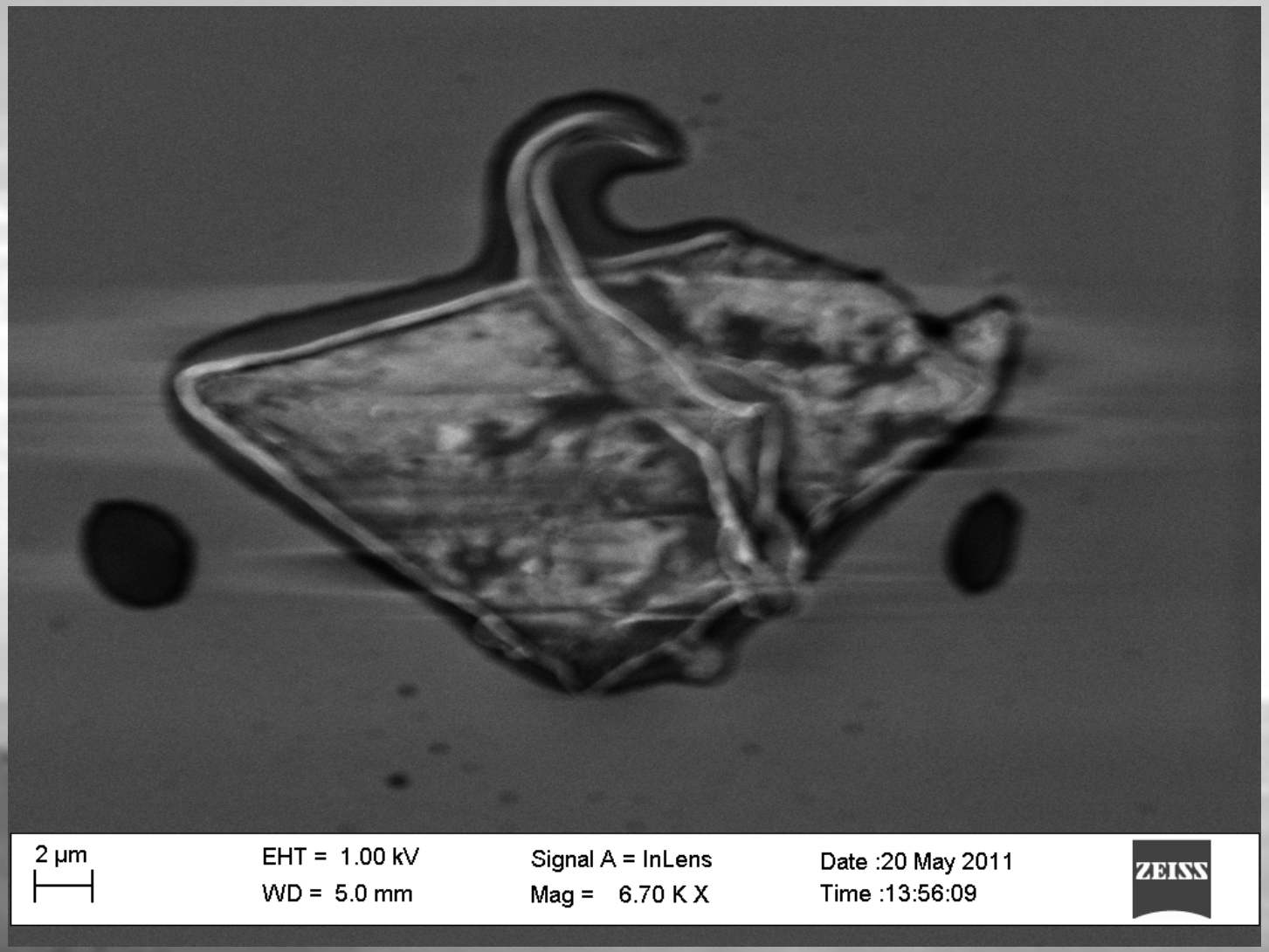
Magnification : 600 X **Instrument : MERLIN SEM**

Submitted by: Muruganathan Ramanathan Affiliation: Center for Nanophase Materials Sciences, Oak Ridge National Laboratory, Oak Ridge, TN 37923.

2012 EIPBN MicroGraph Contest

Micrograph Title:
Snake Dance

Description:
Thanks for your red carpet posing…please go away now I need to image my OPV active materials.



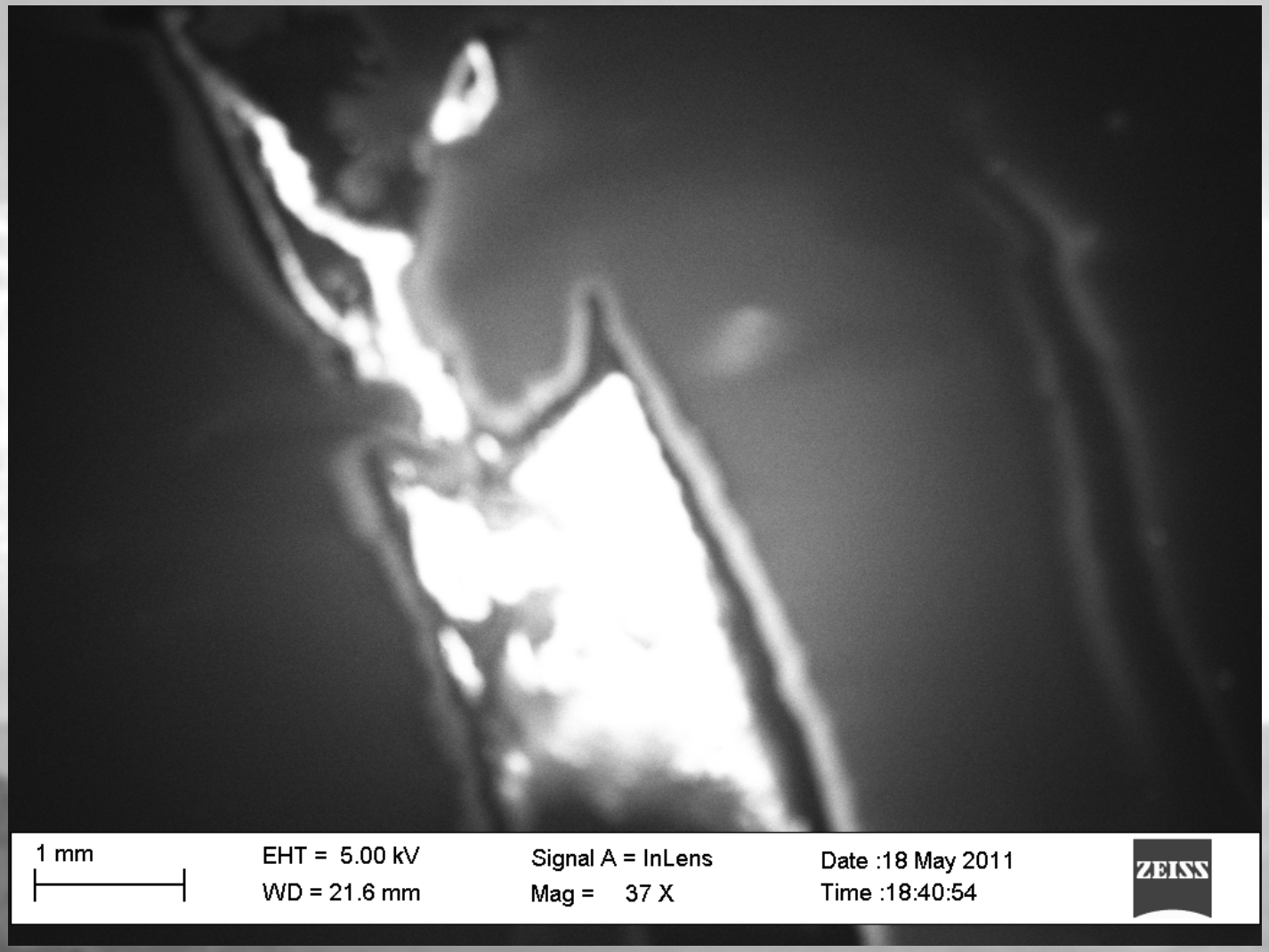
Magnification : 67000 X **Instrument : MERLIN SEM**

Submitted by: Muruganathan Ramanathan Affiliation: Center for Nanophase Materials Sciences, Oak Ridge National Laboratory, Oak Ridge, TN 37923.

2012 EIPBN MicroGraph Contest

Micrograph Title:
Prayers

Description:
This polymeric candle is ignited by the electron beam due to the charge accumulations.



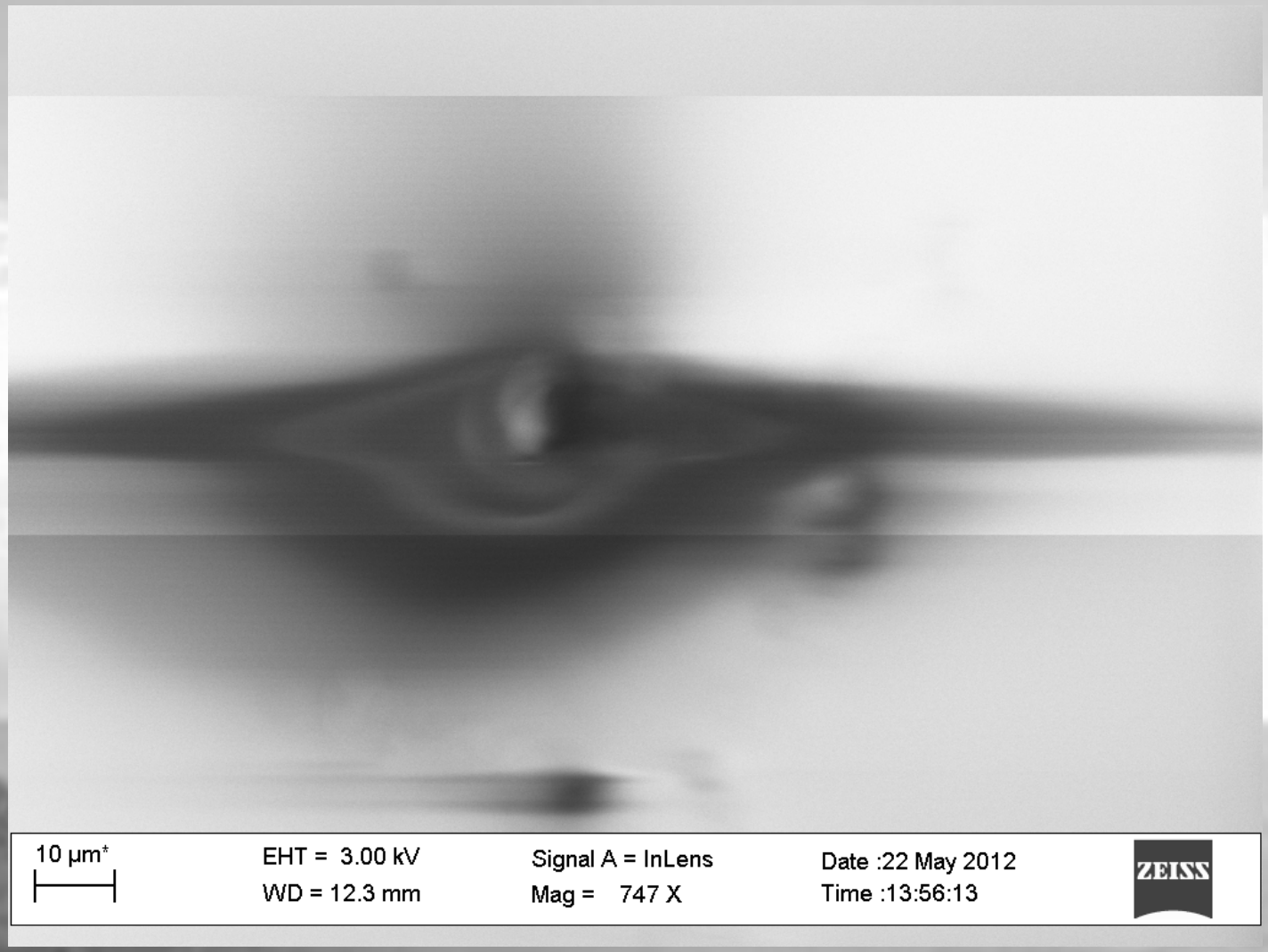
Magnification : 37X **Instrument : MERLIN SEM**

Submitted by: Muruganathan Ramanathan Affiliation: Center for Nanophase Materials Sciences, Oak Ridge National Laboratory, Oak Ridge, TN 37923.

2012 EIPBN MicroGraph Contest

Micrograph Title:
Navy SEAL

Description:
Polymeric Navy SEALs could not escape from the SEM monitoring



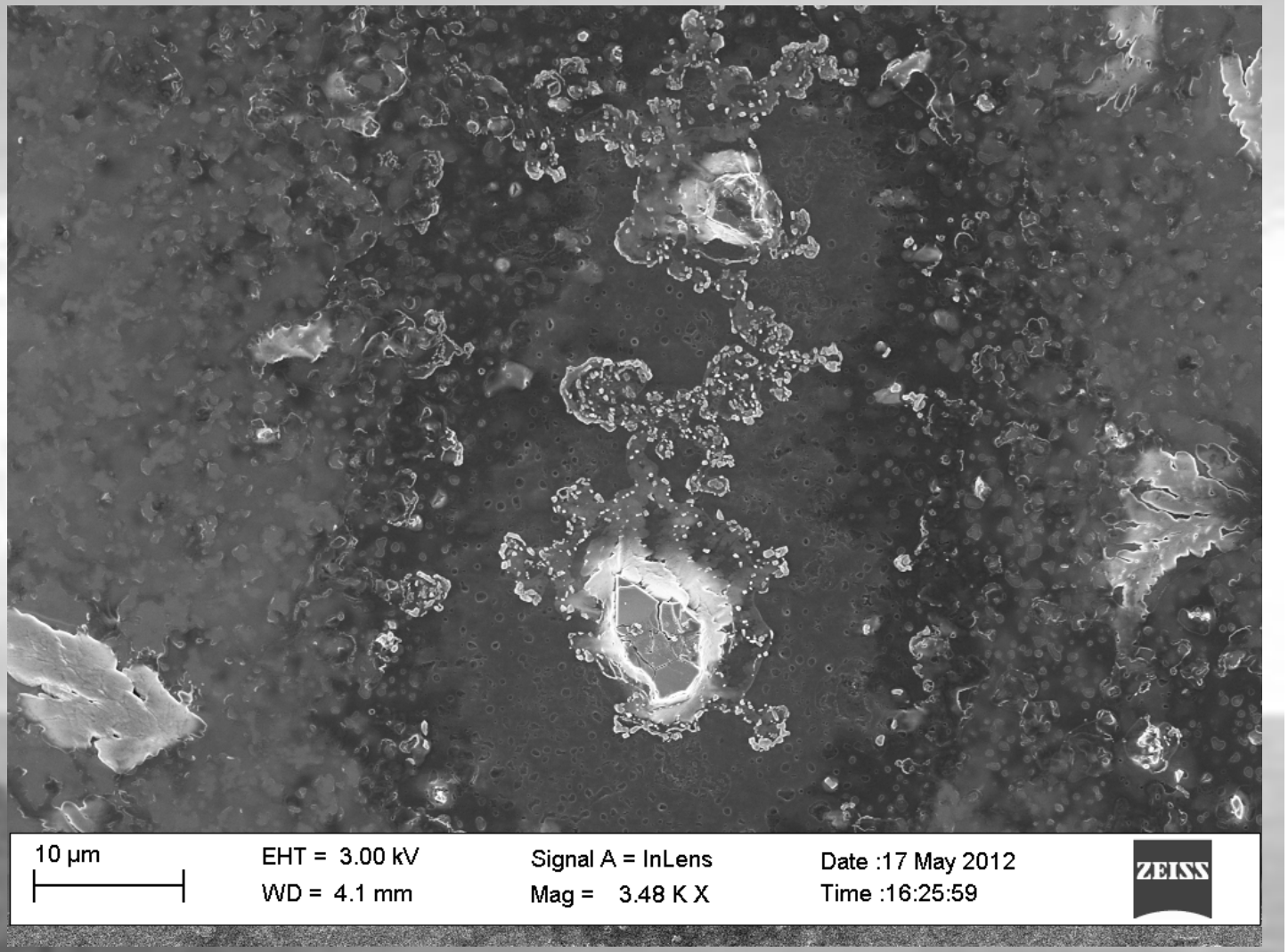
Magnification : 747X **Instrument : MERLIN SEM**

Submitted by: Muruganathan Ramanathan Affiliation: Center for Nanophase Materials Sciences, Oak Ridge National Laboratory, Oak Ridge, TN 37923.

2012 EIPBN MicroGraph Contest

Micrograph Title:
Rudolph – in womb

Description:
This beautiful baby Rudolph is seen in the aged OPV active materials.

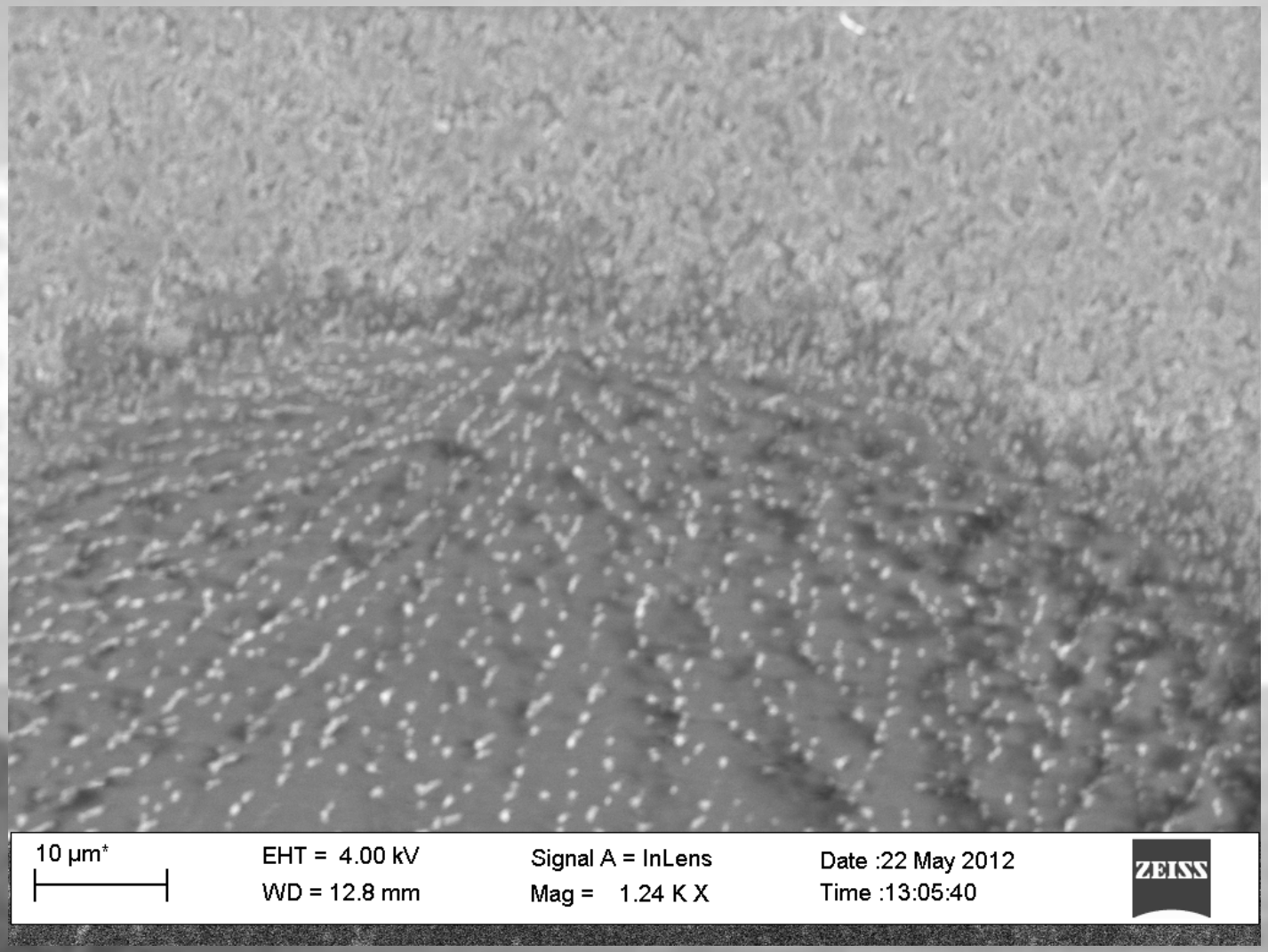


Magnification : 3500 X **Instrument: MERLIN SEM**
Microscope Submitted by: Muruganathan Ramanathan Affiliation: Center for Nanophase Materials Sciences, Oak Ridge National Laboratory, Oak Ridge, TN 37923.

2012 EIPBN MicroGraph Contest

Micrograph Title:
Mammogram

Description:
This E-beam mammography probes lump formation in aged solar cell active materials.



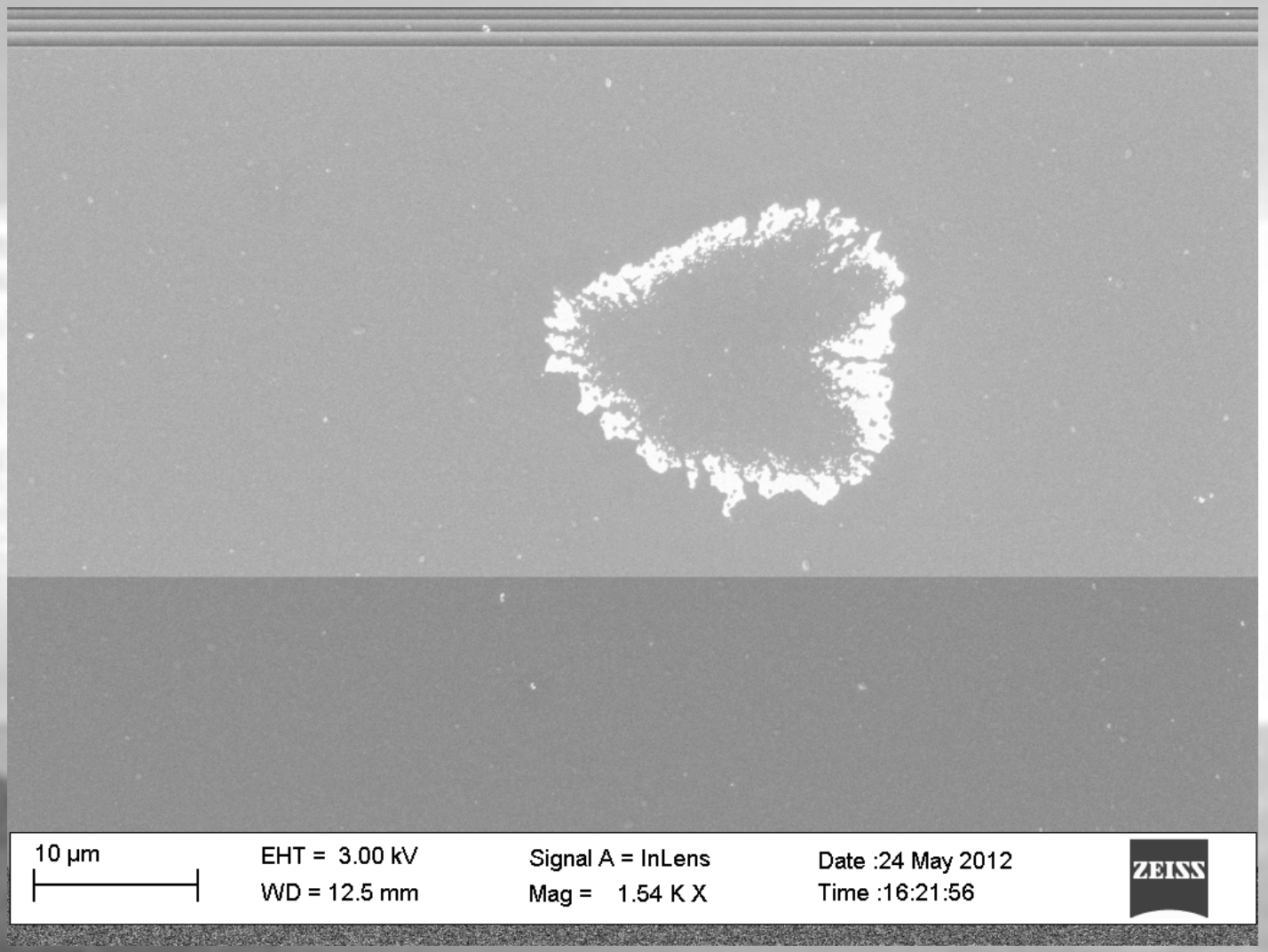
Magnification : 1200 X **Instrument: MERLIN SEM**

Microscope Submitted by: Muruganathan Ramanathan Affiliation: Center for Nanophase Materials Sciences, Oak Ridge National Laboratory, Oak Ridge, TN 37923.

2012 EIPBN MicroGraph Contest

Micrograph Title:
Love is in the air…

Description:
Polymeric buffer layers in opv certainly loves the atmosphere.



Magnification : 747X **Instrument : MERLIN SEM**

Submitted by: Muruganathan Ramanathan Affiliation: Center for Nanophase Materials Sciences, Oak Ridge National Laboratory, Oak Ridge, TN 37923.

2012 EIPBN MicroGraph Contest

Micrograph Title:
Micro-Badger heading to Micro-River

Description:
A badger wanders on a nano-structured plain, weaving through Si dust rocks towards a defect river. Working distance is modified during scanning for artistic effect.

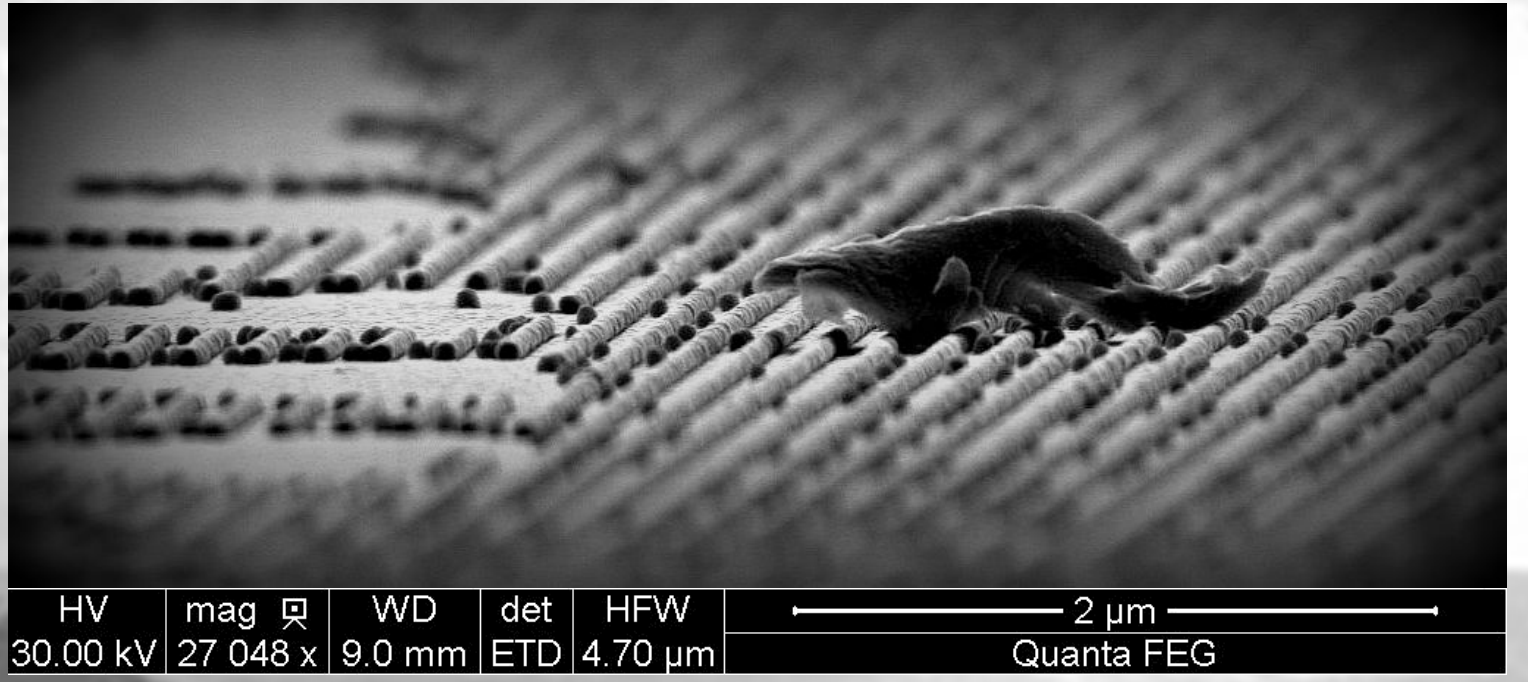
Magnification (3"x4" image): 8,793x
Instrument (Make and Model): FEI Quanta FEG

Submitted by: Fei Ding
Affiliation: Princeton University

2012 EIPBN MicroGraph Contest

Micrograph Title:
Micro-Badger

Description:
A badger wanders on a nano-structured plain, weaving towards a defect river. Working distance is modified during scanning for artistic effect.



Magnification (3"x4" image): 27,048x
Submitted by: Fei Ding

Instrument (Make and Model): FEI Quanta FEG
Affiliation: Princeton University

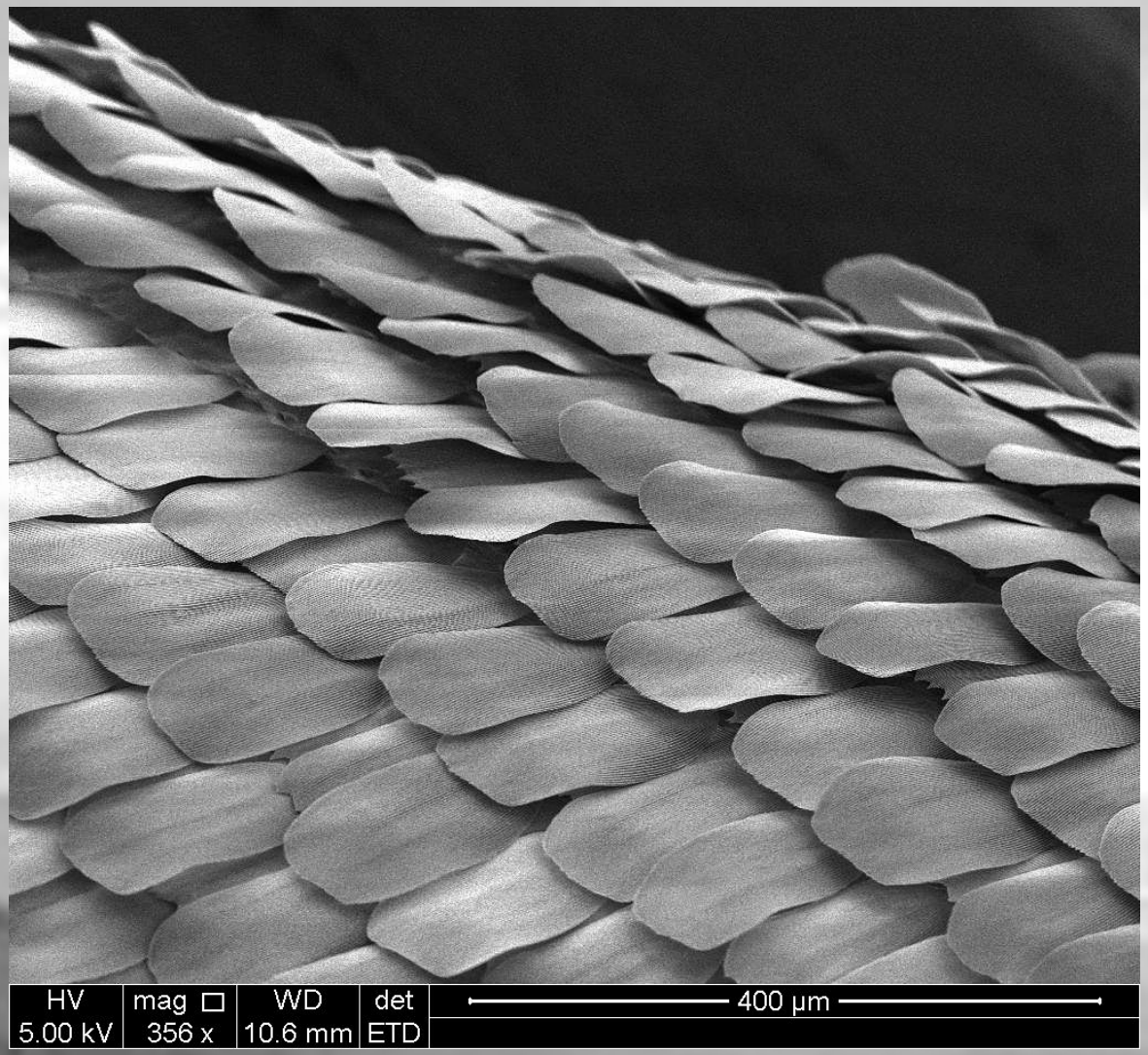
2012 EIPBN MicroGraph Contest

Micrograph Title:

Feather

Description:

The scales array on a butter fly wing.



Magnification (3"x4" image): 356x

Instrument (Make and Model): FEI Quanta FEG

Submitted by: Fei Ding

Affiliation: Princeton University

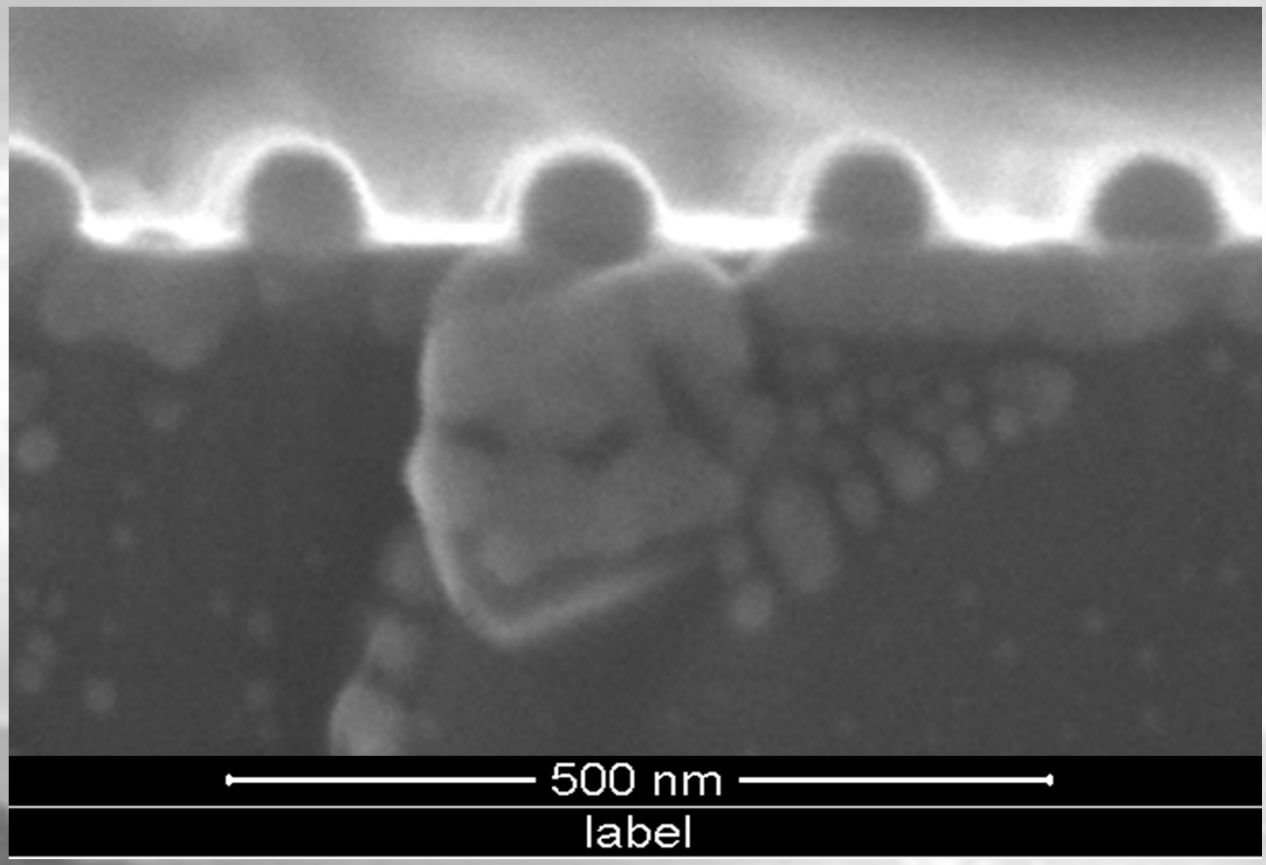
2012 EIPBN MicroGraph Contest

Micrograph Title:

Ghost Face

Description:

There are Au dots on the sidewall of silicon wafer after e-beam evaporation.



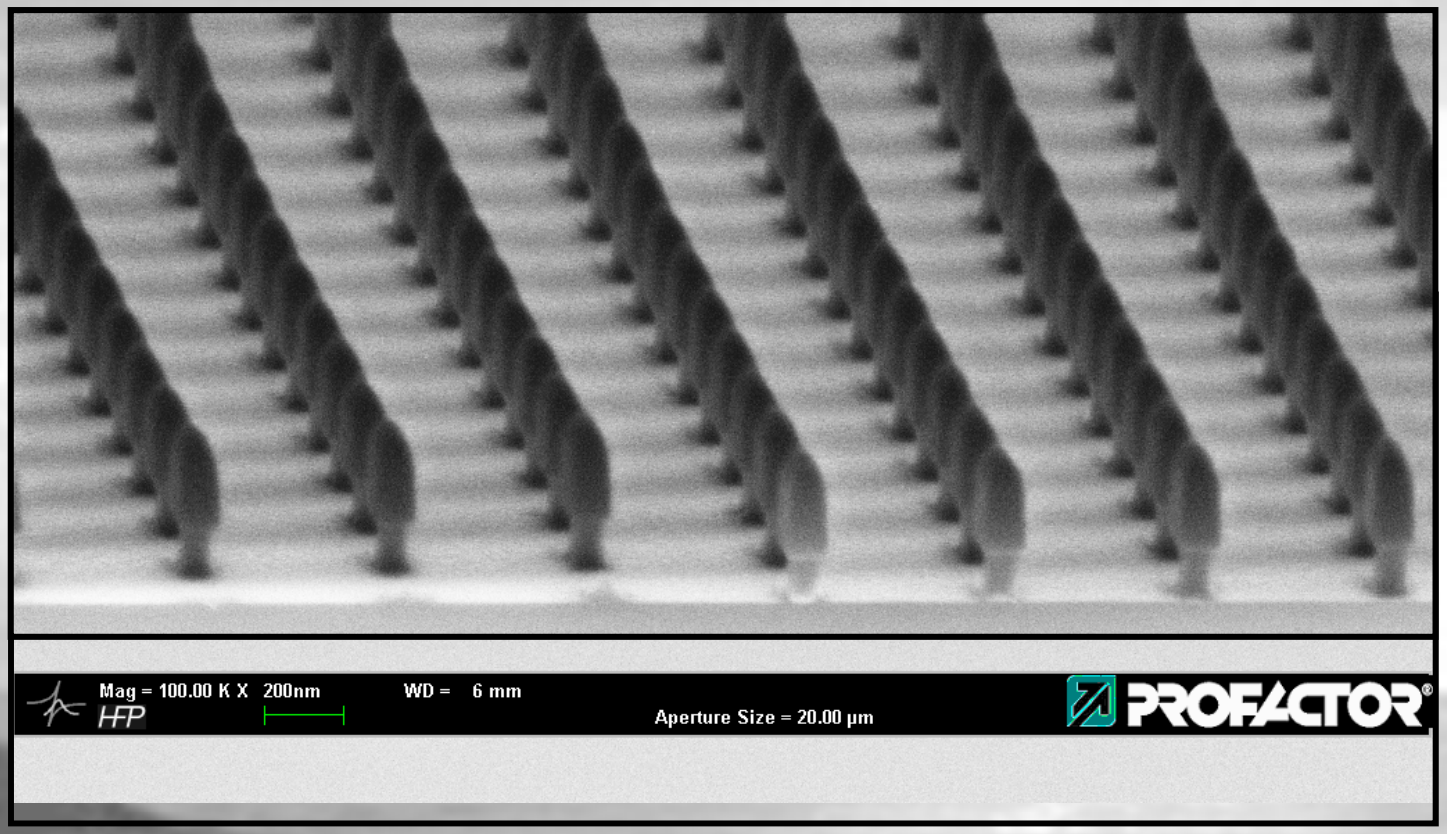
Magnification (3"x4" image): 162,131x Instrument (Make and Model): FEI Quanta FEG

Submitted by: Fei Ding Affiliation: Princeton University

2012 EIPBN MicroGraph Contest

Micrograph Title:
Nano Forest

Description:
nanoimprinted resist pattern for a lift-off process

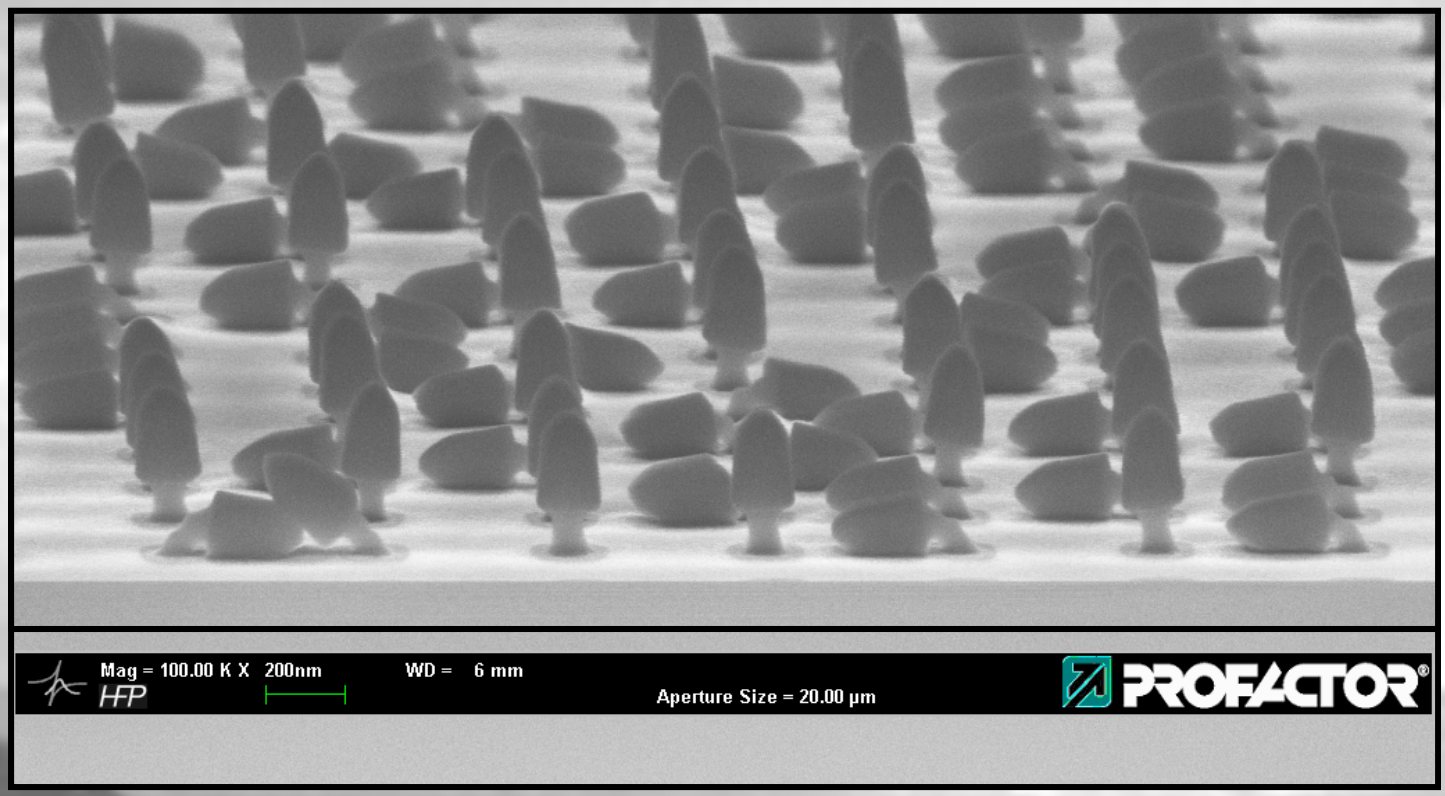


Magnification (3"x4" image): 28.620x (image width: 3,55µm)
Instrument (Make and Model): Leo Supra35
Submitted by: Iris Bergmair **Affiliation: PROFACTOR GmbH**

2012 EIPBN MicroGraph Contest

Micrograph Title:
After the Storm in the Nano Forest

Description:
overdeveloped nanoimprinted resist pattern for a lift-off process



Magnification (3"x4" image): 28.620x (image width: 3,55µm)
Instrument (Make and Model): Leo Supra35
Submitted by: Iris Bergmair **Affiliation: PROFACTOR GmbH**

2012 EIPBN MicroGraph Contest

A Glance From The Nanoworld

Miniaturized grayscale image of Lena patterned using electron-beam lithography into HSQ nanoposts with varying densities down to 20 nm pitch at densest

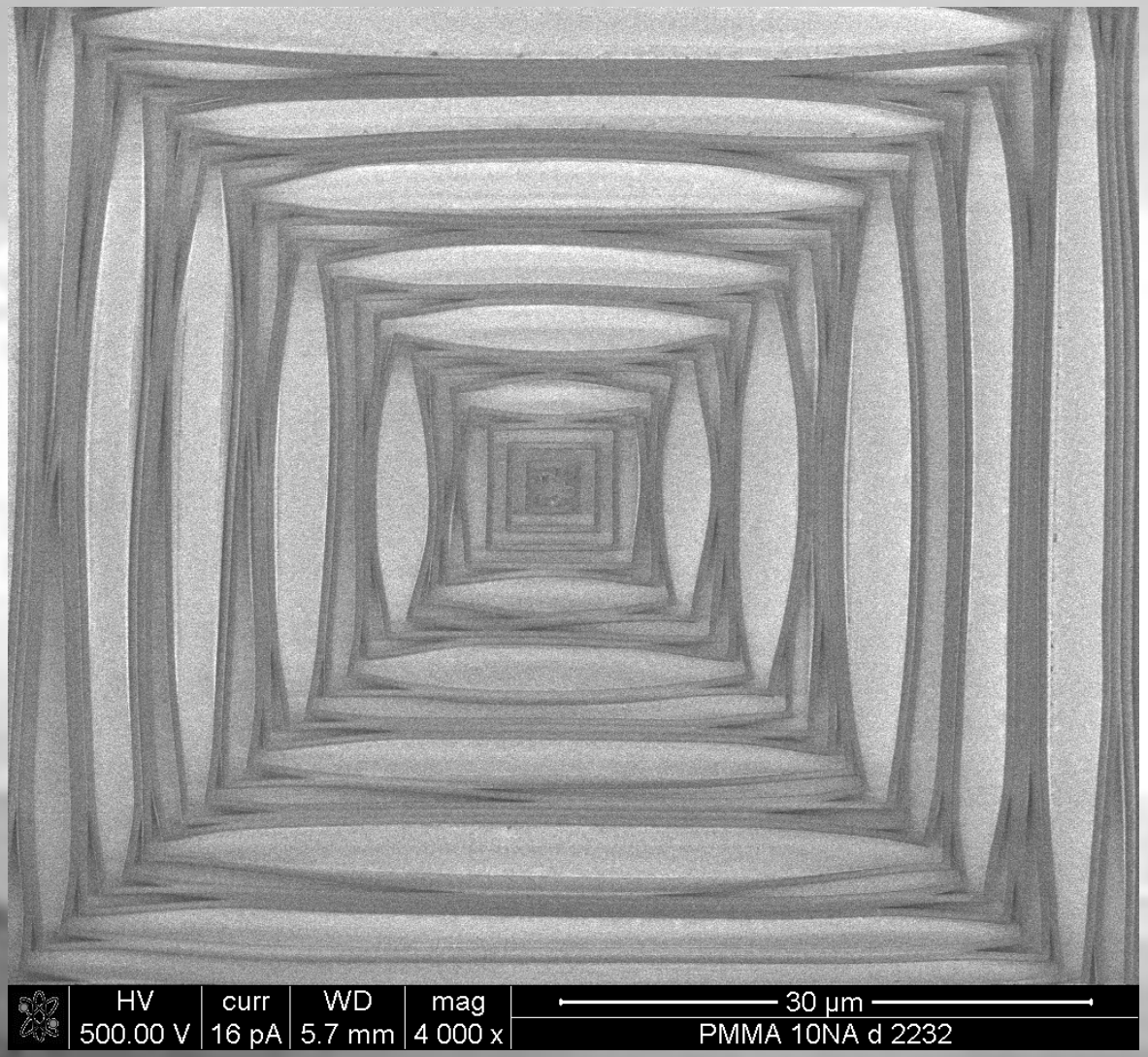
Magnification (3"x4" image): 2,000
Submitted by: J.Yang, H. Duan, B. Cord

Instrument: Elionix ESM-9000
Affiliation: IMRE & U. Minnesota

2012 EIPBN MicroGraph Contest

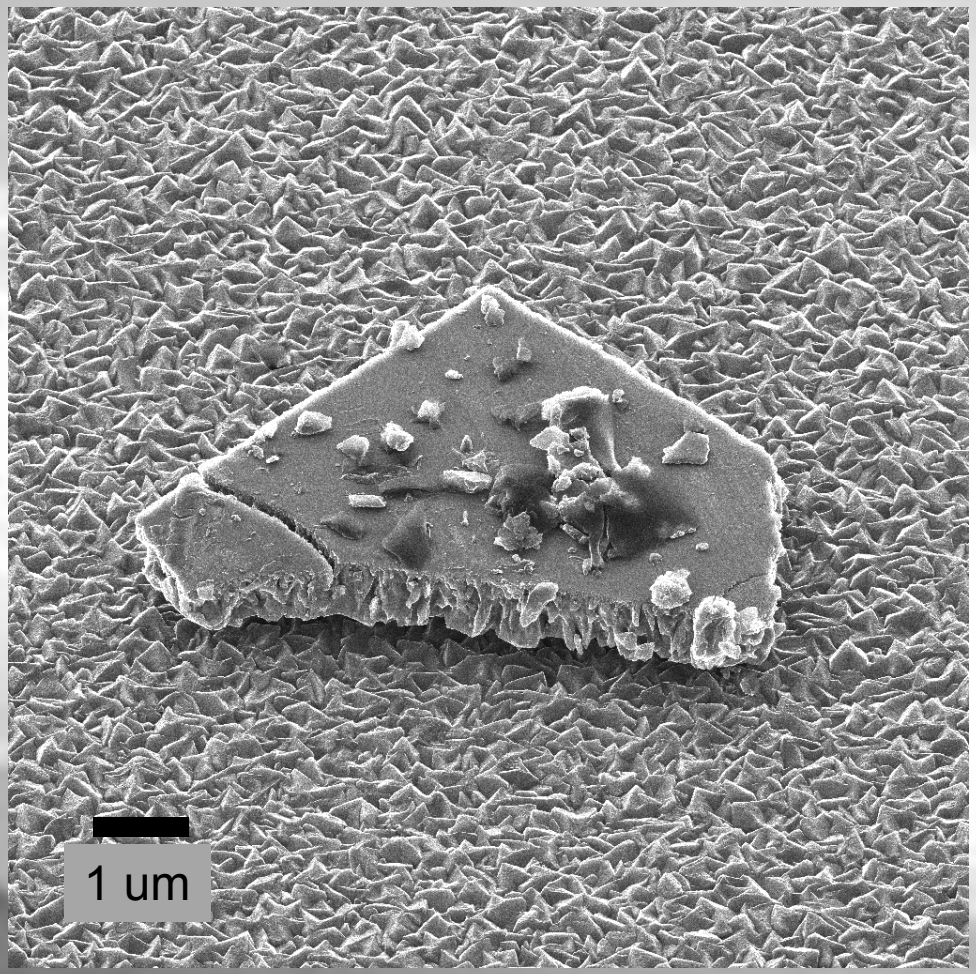
Micrograph Title:
Going Up or Going Down?

Description:
Square box of 500nm line segments and spaces overexposed in PMMA



Magnification (3"x4" image): 4000X
Instrument (Make and Model): FEI Nova 600
Submitted by: Guy DeRose
Affiliation: Caltech

2012 EIPBN MicroGraph Contest

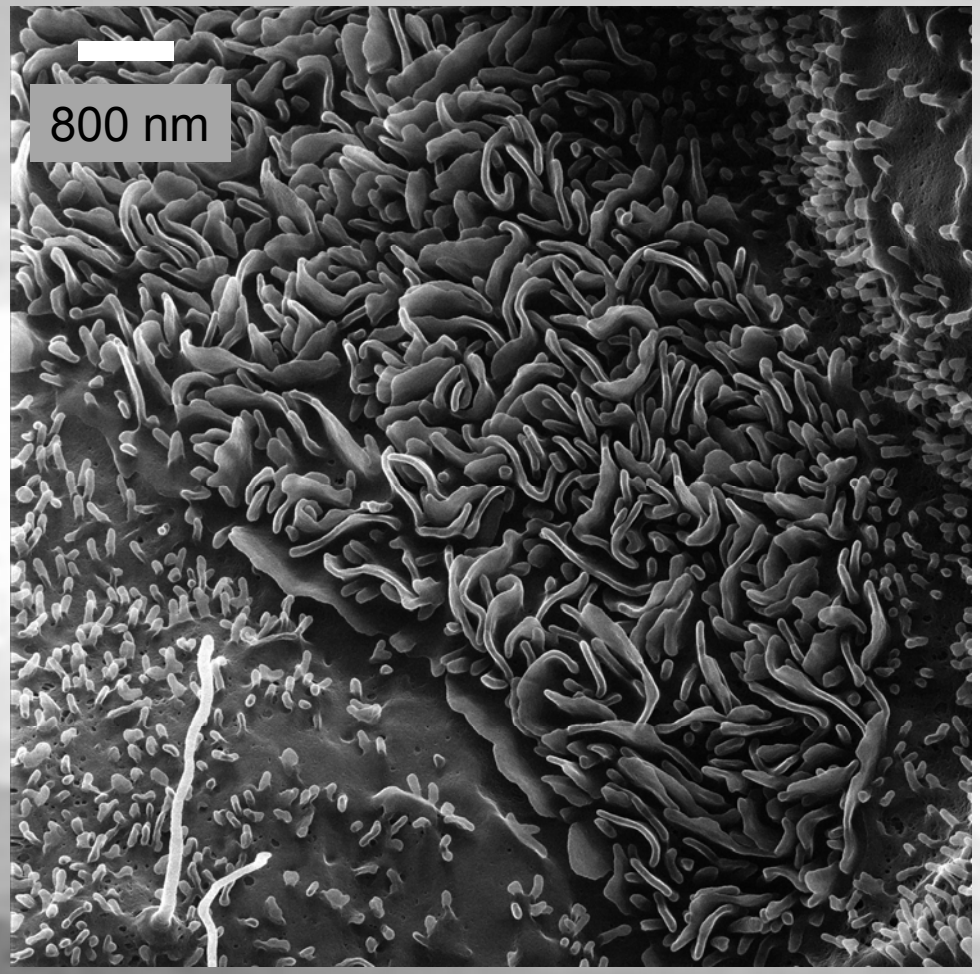


Micrograph Title:
ICERBERG IN TUNGSTEN

Description:
A PIECE OF DEBRI STUCK ON SURFACE OF TUNGSTEN FILM ON SILICON (UNCOATED SAMPLE)

Magnification (3"x4" image): 11430 X
Instrument (Make and Model): CARL ZEISS ORION PLUS
Submitted by: Mohan Ananth **Affiliation: Carl Zeiss NTS**

2012 EIPBN MicroGraph Contest



Micrograph Title: THE GREAT BARRIER REEF

Description:
COLLECTING DUCT SURFACE IN MOUSE KIDNEY SHOWING PRINCIPAL AND INTERCALATED CELLS (UNCOATED SAMPLE)

Magnification (3"x4" image): 14287.5 X
Instrument (Make and Model): CARL ZEISS ORION PLUS
Submitted by: Mohan Ananth Affiliation: Carl Zeiss NTS

2012 EIPBN MicroGraph Contest

Micrograph Title:
WINDSOR CASTLE

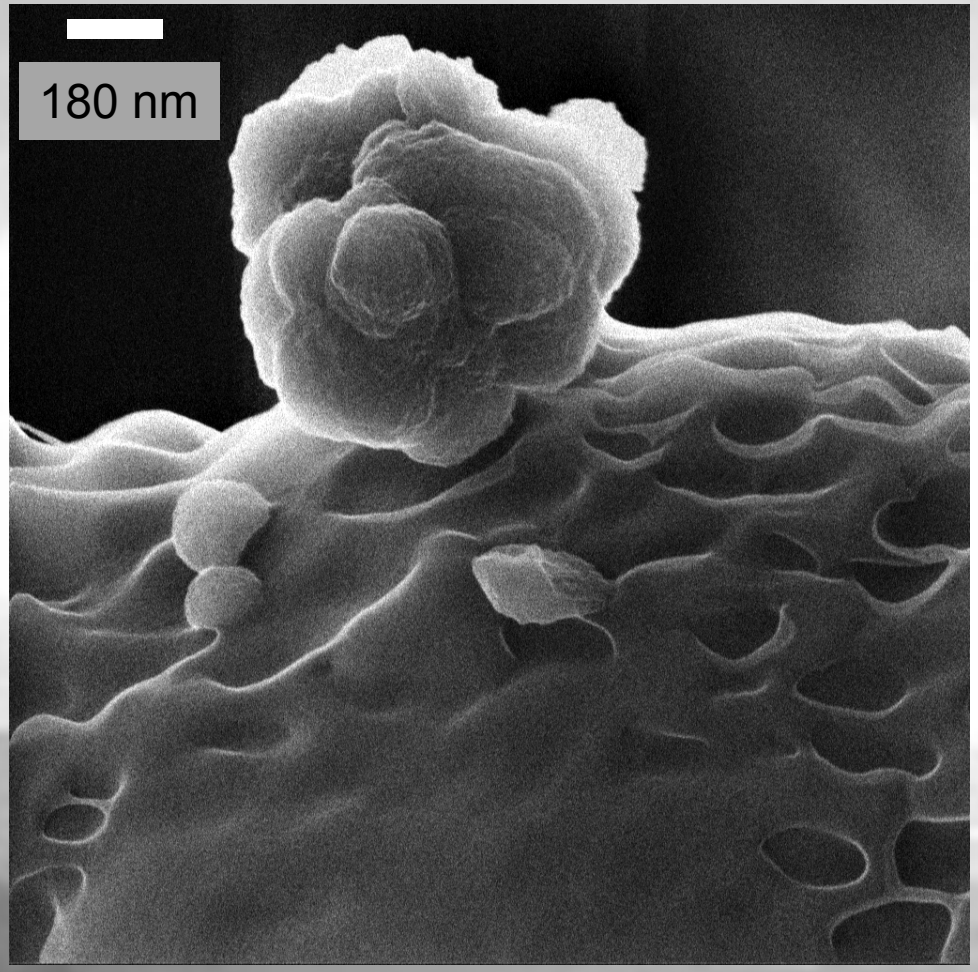
Description:
WINDSOR CASTLE MADE BY SPUTTERING SILICON OXIDE ON SILICON USING GALLIUM FIB (UNCOATED SAMPLE)

Magnification (3"x4" image): 7620 X
Instrument (Make and Model): CARL ZEISS ORION PLUS
Submitted by: Mohan Ananth **Affiliation: Carl Zeiss NTS**

2012 EIPBN MicroGraph Contest

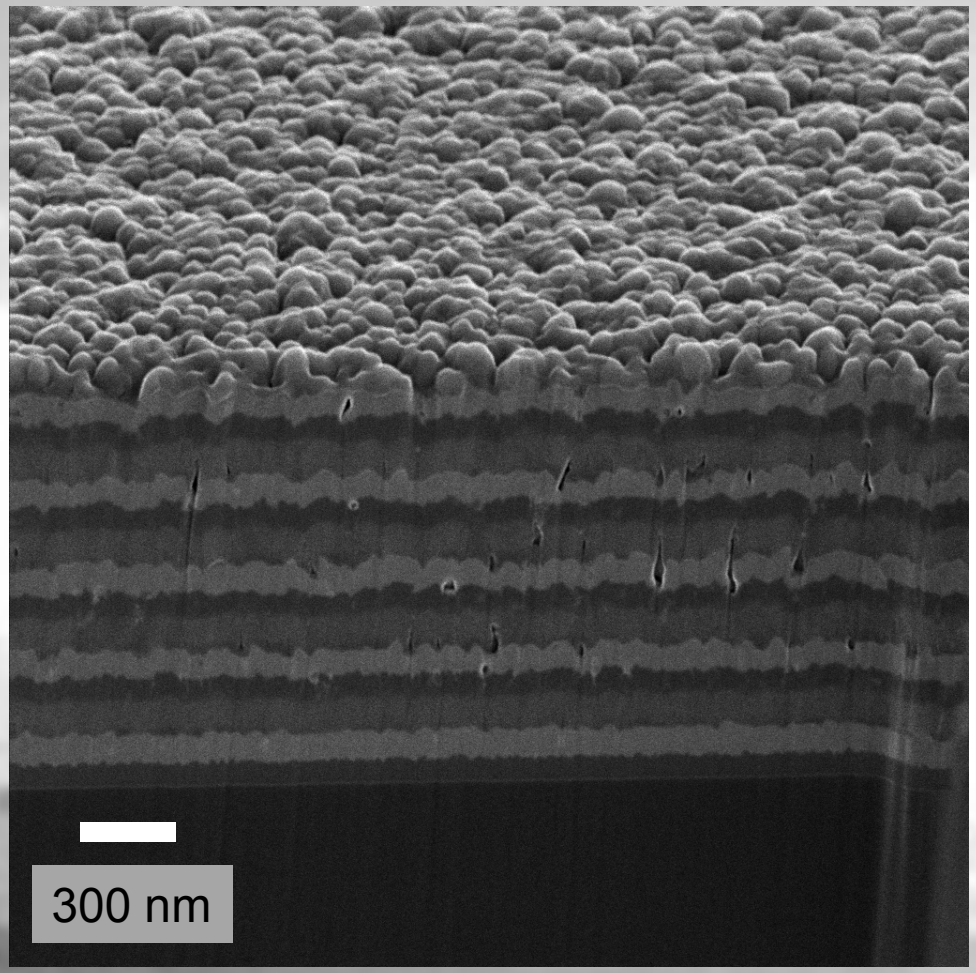
Micrograph Title:
METEOR IMPACT ON VENUS

Description:
HYDROXYAPATITE CRYSTAL GROWING ON A PLLA POLYMER NANO-FIBER. (UNCOATED SAMPLE)



Magnification (3"x4" image): 63500 X
Instrument (Make and Model): CARL ZEISS ORION PLUS
Submitted by: Mohan Ananth **Affiliation: Carl Zeiss NTS**

2012 EIPBN MicroGraph Contest



Micrograph Title: THE GRAND CANYON

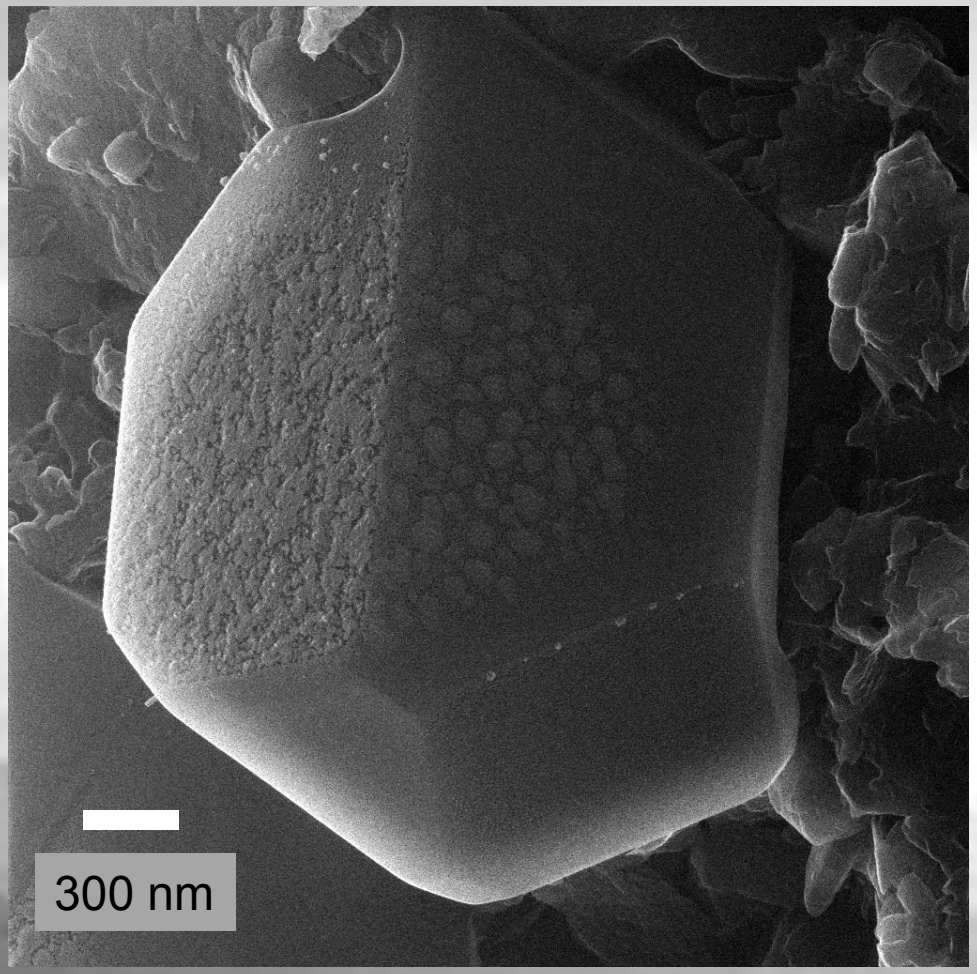
Description: A MULTILAYERED SAMPLE CONSISTING OF TUNGSTEN, TITANIUM AND ALUMINUM (UNCOATED SAMPLE)

Magnification (3"x4" image): 38100 X
Instrument (Make and Model): CARL ZEISS ORION PLUS
Submitted by: Mohan Ananth **Affiliation: Carl Zeiss NTS**

2012 EIPBN MicroGraph Contest

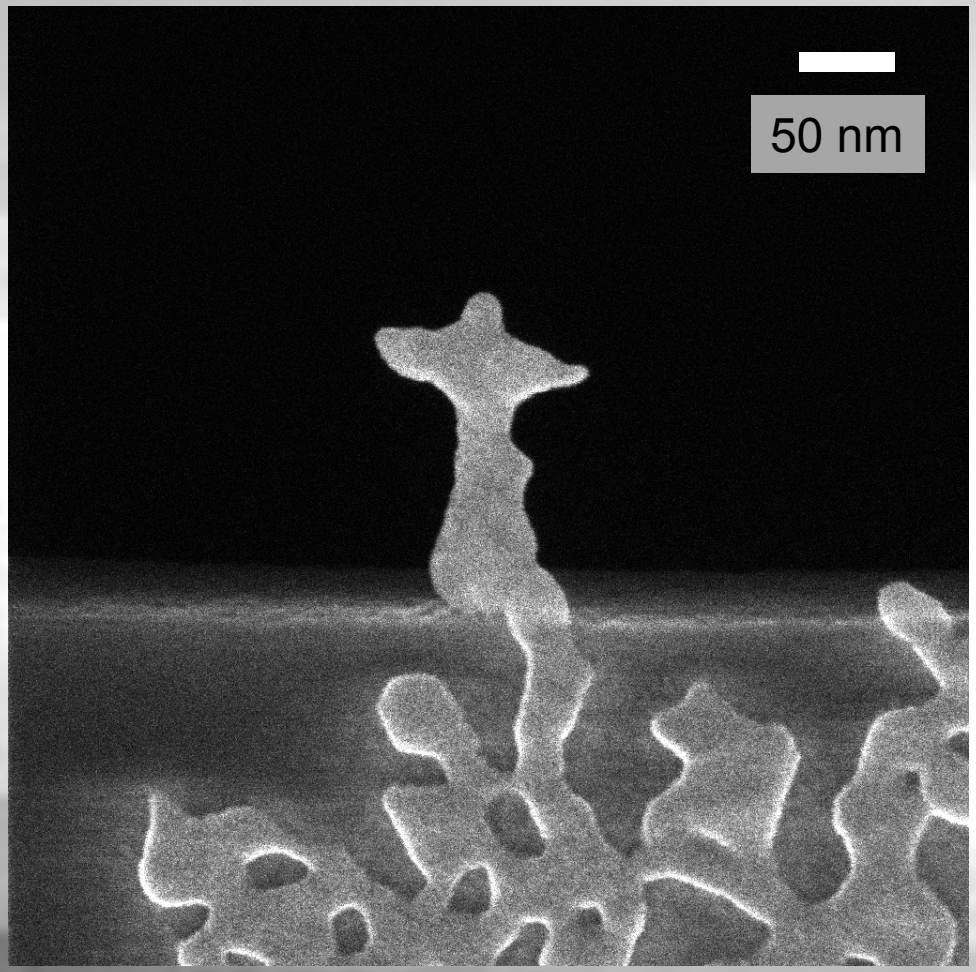
Micrograph Title: THE BIG ROCK

Description: A PIECE OF MICROQUARTZ STUCK IN SHALE ROCK (UNCOATED SAMPLE)



Magnification (3"x4" image): 38100 X
Instrument (Make and Model): CARL ZEISS ORION PLUS
Submitted by: Mohan Ananth Affiliation: Carl Zeiss NTS

2012 EIPBN MicroGraph Contest



Micrograph Title: THE GHOST IN THE MACHINE

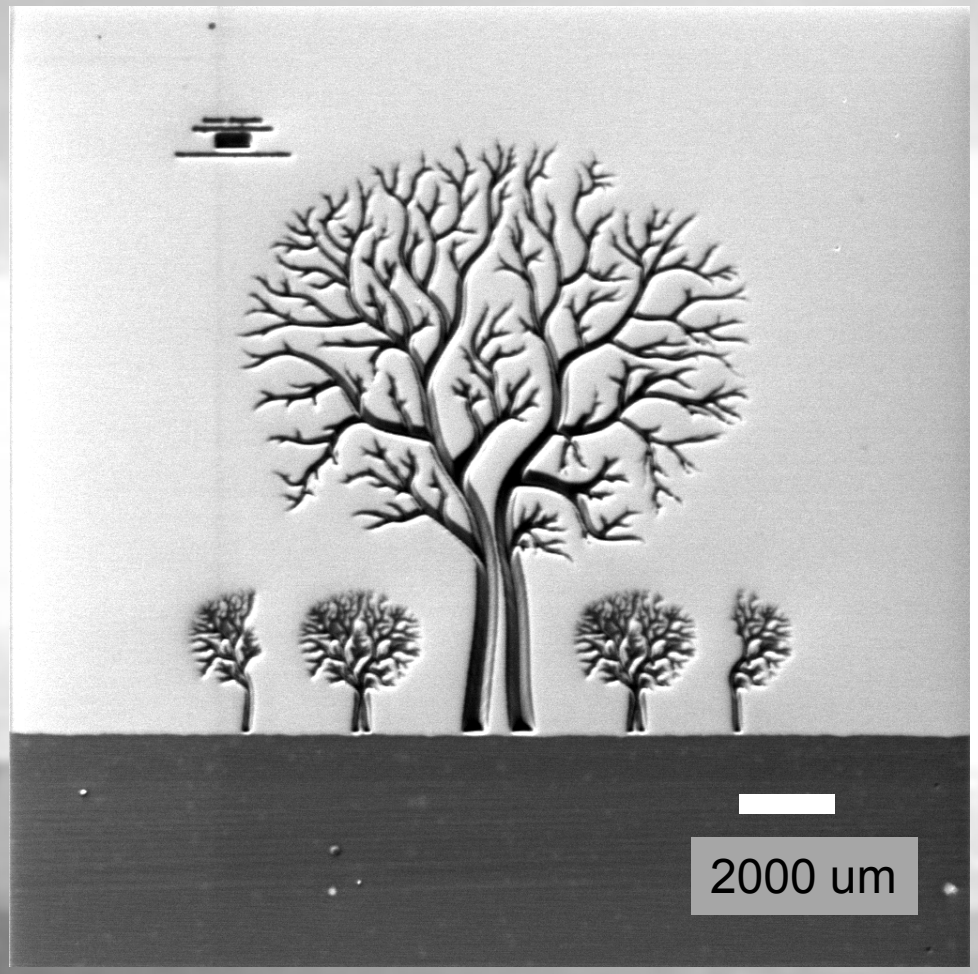
Description: EDGE OF A SILICON ON WHICH PLATINUM HAS BEEN DEPOSITED (UNCOATED SAMPLE)

Magnification (3"x4" image): 228600 X
Instrument (Make and Model): CARL ZEISS ORION PLUS
Submitted by: Mohan Ananth Affiliation: Carl Zeiss NTS

2012 EIPBN MicroGraph Contest

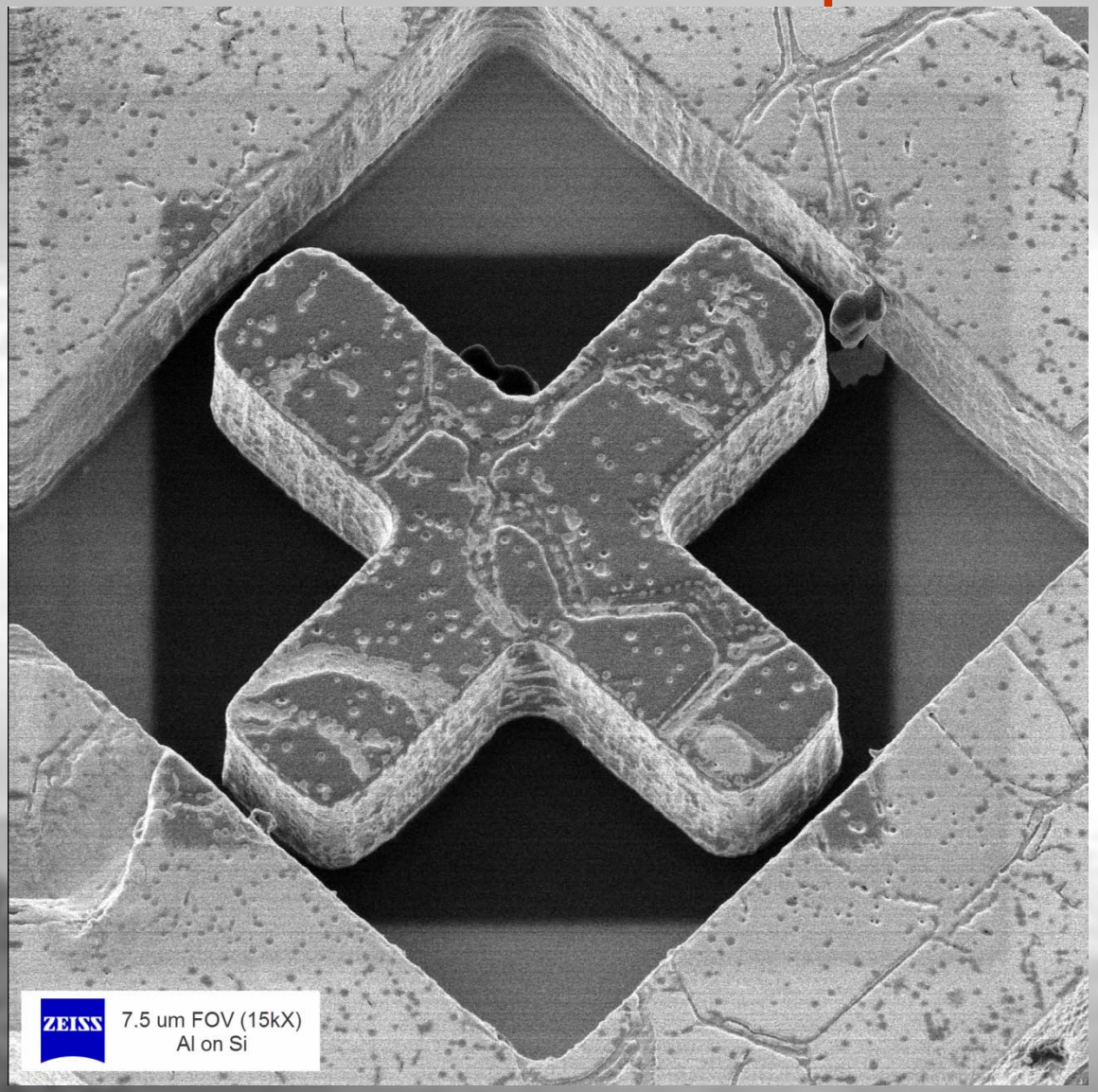
Micrograph Title: THE BODHI TREE

Description: A PIECE OF ART MADE BY SPUTTERING SILICON OXIDE ON SILICON USING GALLIUM FIB (UNCOATED SAMPLE)



Magnification (3"x4" image): 5715 X
Instrument (Make and Model): CARL ZEISS ORION PLUS
Submitted by: Mohan Ananth Affiliation: Carl Zeiss NTS

2012 EIPBN MicroGraph Contest

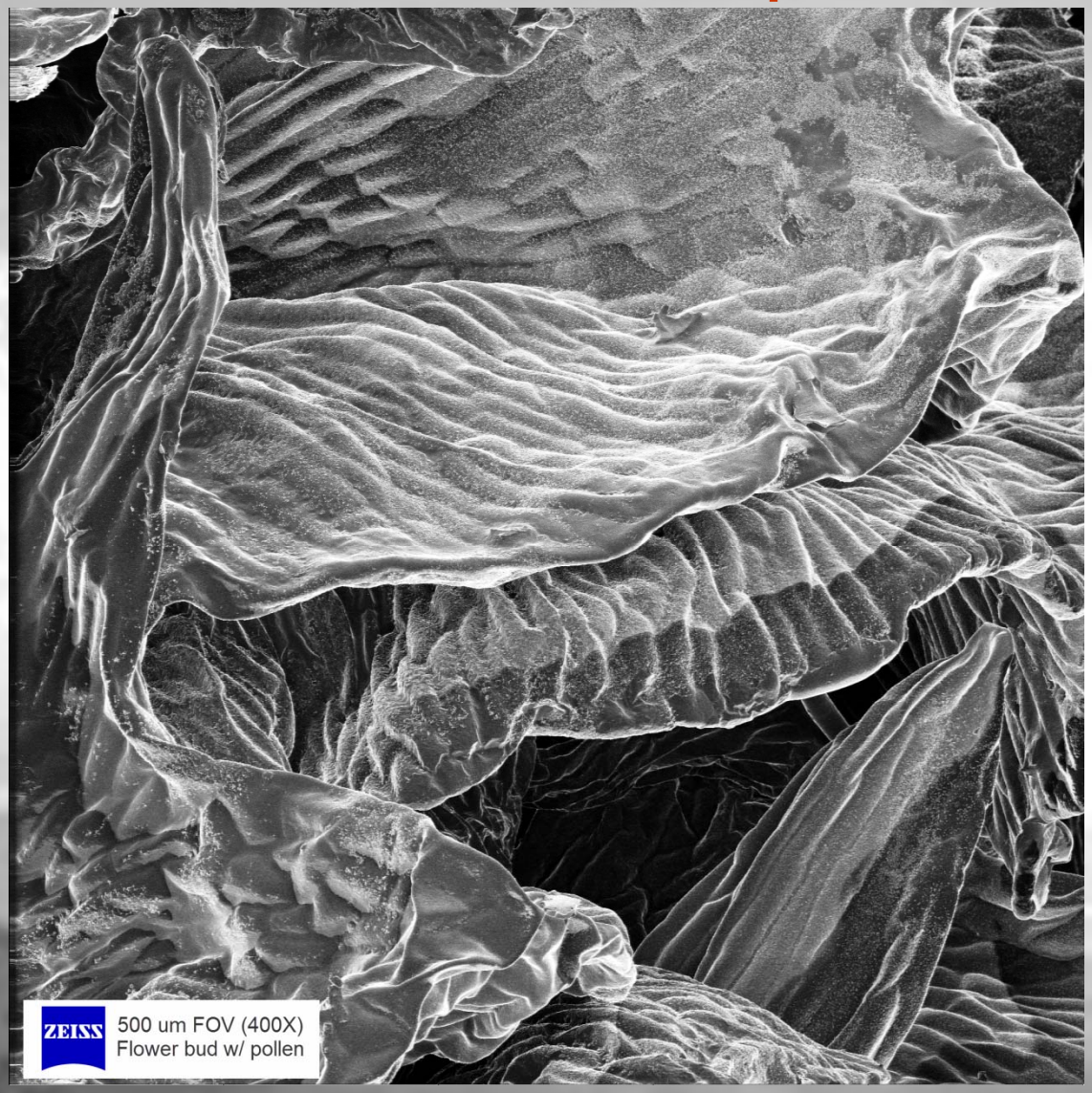


Micrograph Title:
Tic-Tac-Toe

Description:
The image shows an aluminum feature on a silicon substrate.

Magnification: 15kX
Submitted by: John Notte, Shawn McVey
Instrument: ORION (He)
Affiliation: Zeiss

2012 EIPBN MicroGraph Contest



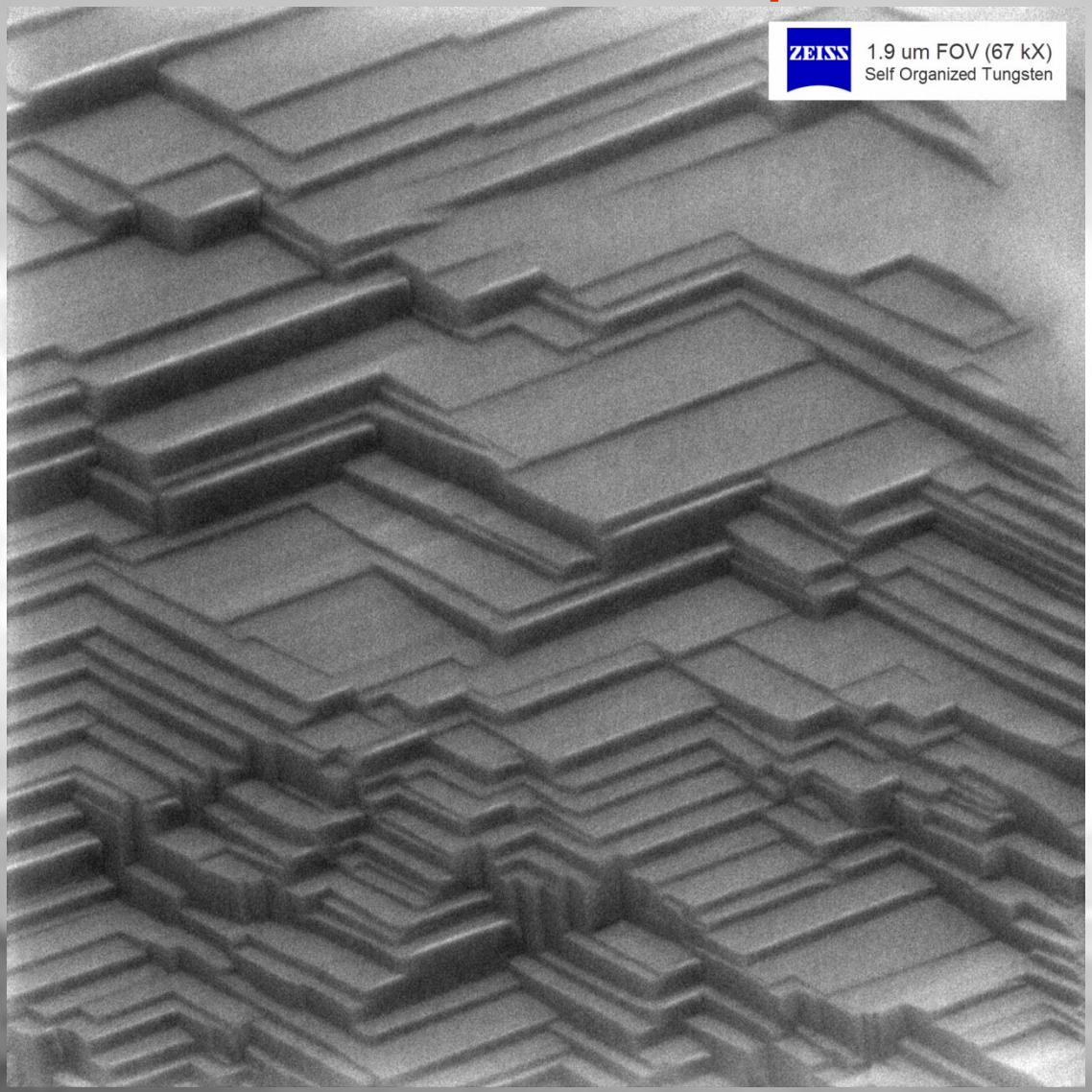
Micrograph Title:
Spring Time

Description:
In the spring there is a terrific show of flowers outside the office (Peabody, MA). How could we resist plucking one for the microscope?

Magnification : 400X
Submitted by: John Notte, Shawn McVey

Instrument: ORION (He)
Affiliation: Zeiss

2012 EIPBN MicroGraph Contest

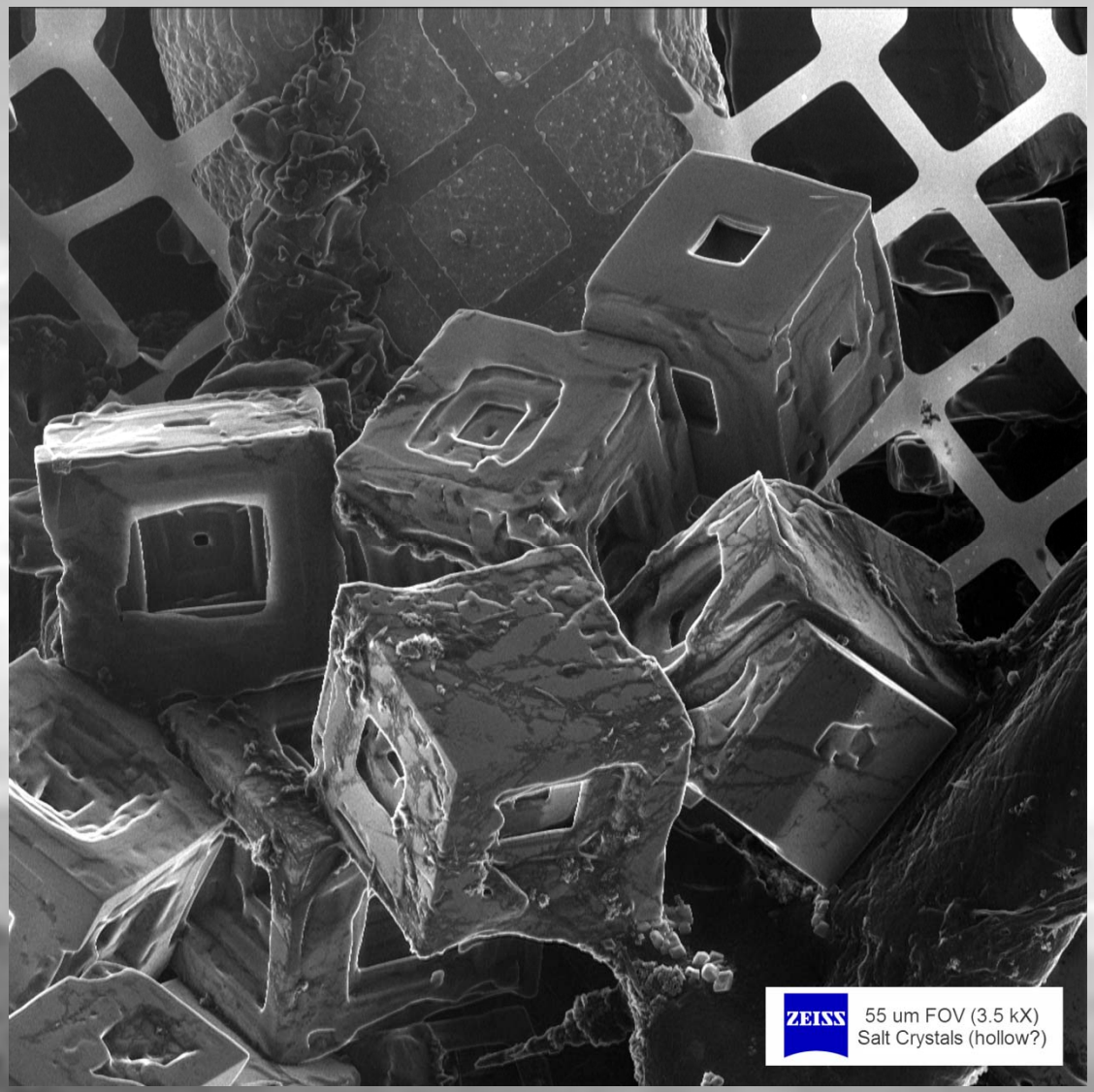


Micrograph Title:
Escher's Staircases

Description:
A tungsten weld was being inspected. Within the various grains there was one region where the crystalline form was wonderfully evident. All the atoms stacked themselves perfectly.

Magnification : 67kX
Submitted by: John Notte, Shawn McVey
Instrument: ORION (He)
Affiliation: Zeiss

2012 EIPBN MicroGraph Contest

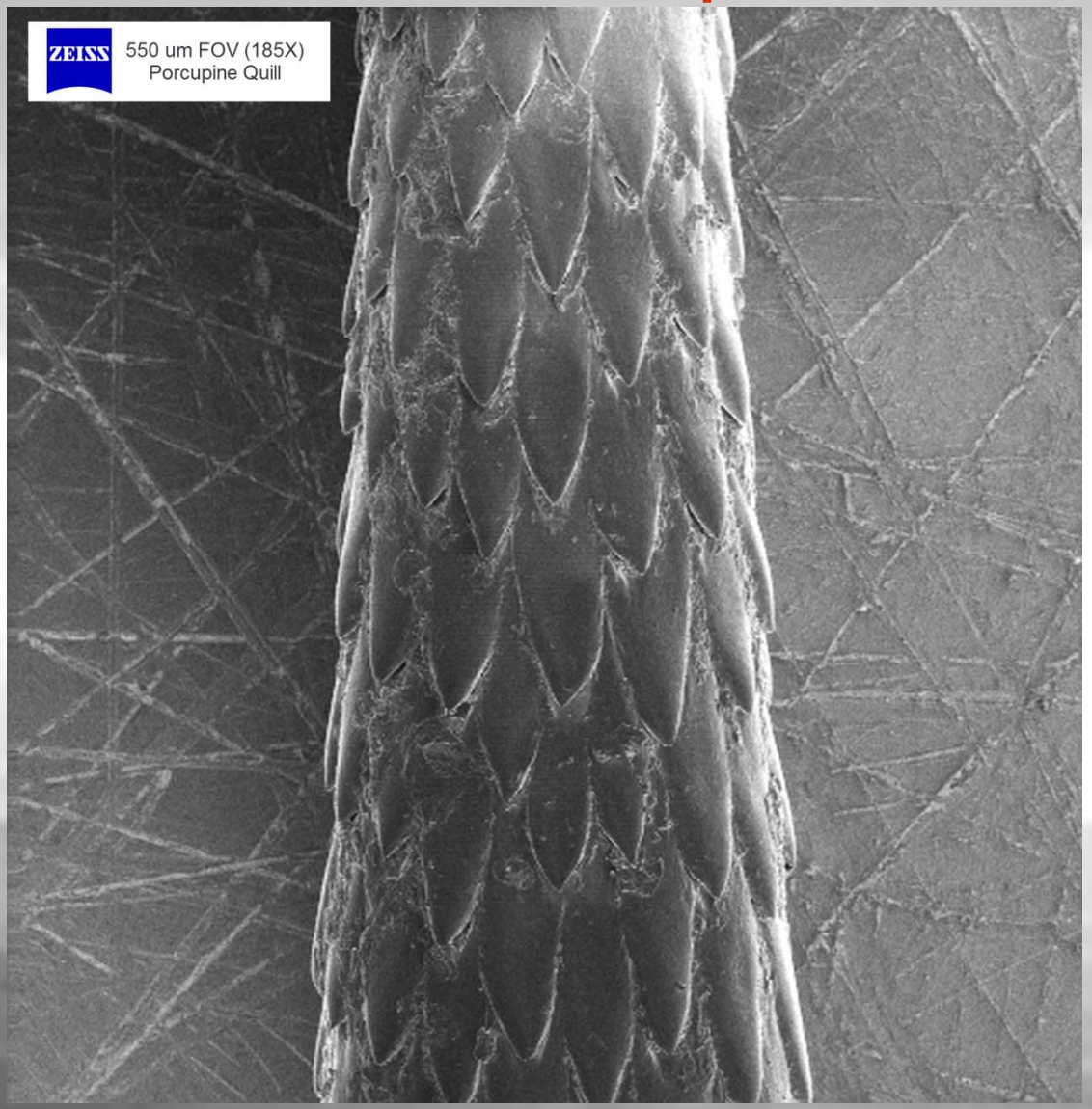


Micrograph Title:
Hollow Cubes
-or-
Little Boxes

Description:
Salt crystals were being imaged here. For some reason we found a cluster that showed multiple internal cavities.

Magnification : 3.5kX
Submitted by: John Notte, Shawn McVey
Instrument: ORION (He)
Affiliation: Zeiss

2012 EIPBN MicroGraph Contest



Micrograph Title:

Micro - Palm Tree ?

Description:

This is a quill from a porcupine. Notice that unlike human hairs, the overlapping plates are in the opposite direction – making them hard to extract!

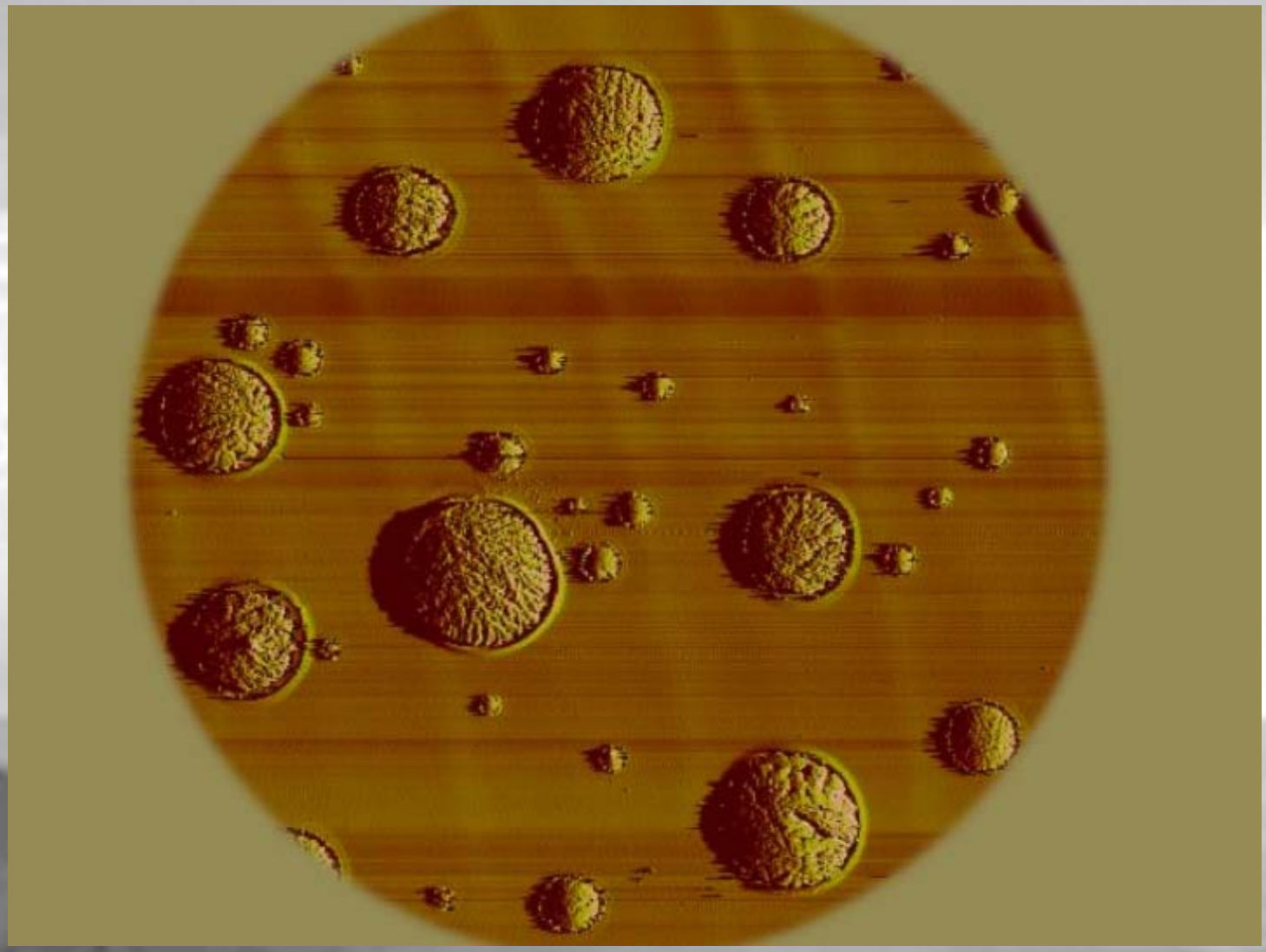
Magnification : 185X

Submitted by: John Notte, Shawn McVey

Instrument: ORION (He)

Affiliation: Zeiss

2012 EIPBN MicroGraph Contest



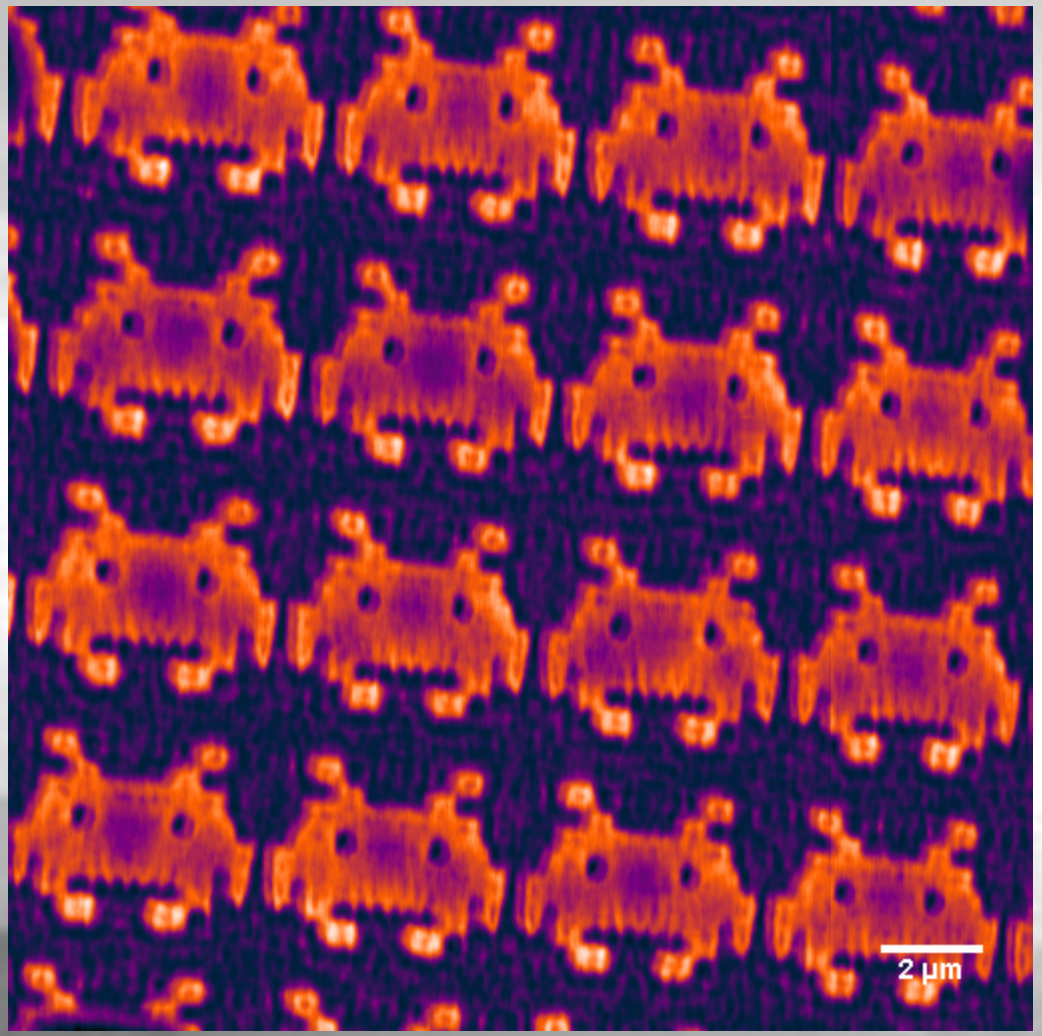
Micrograph Title:
Nano-Volcanoes in the Big Island

Description:
Active materials in organic solar cells form these nanoscale volcanoes in the big island while subjecting them to a rigorous heat/cool and light/dark (day/night) cycling.

Magnification (2 μmx2μm image): **Instrument (Veeco Multimode AFM):**

Submitted by: Muruganathan Ramanathan Affiliation: Center for Nanophase Materials Sciences, Oak Ridge National Laboratory, Oak Ridge, TN 37923.

2012 EIPBN MicroGraph Contest



Micrograph Title:
Space Invaders:

Description:
Atomic Force Microscope scan of PMMA resist patterned with a soft x-ray laser via Generalized Talbot lithography

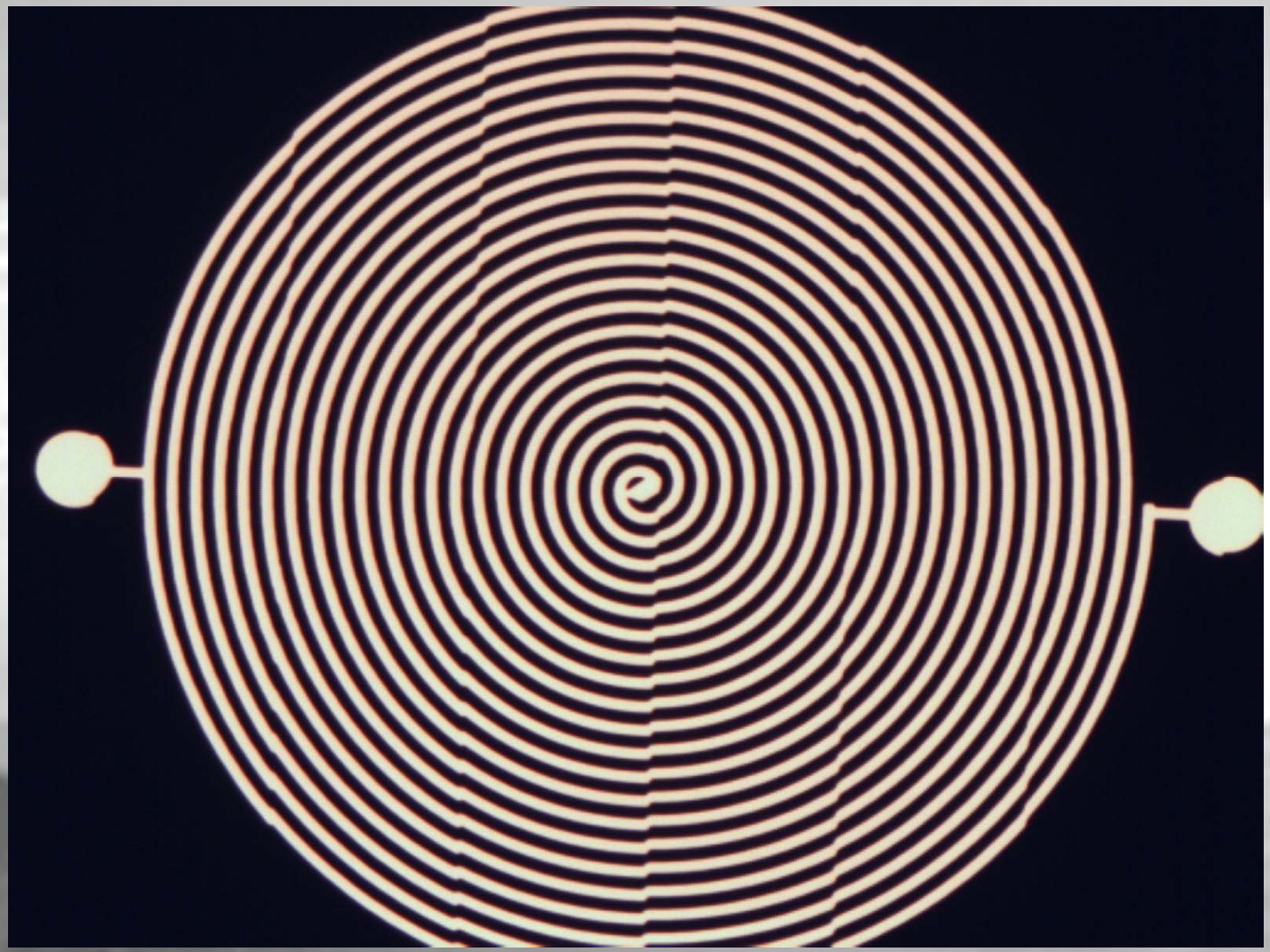
Magnification (3"x4" image):

Instrument (Make and Model): ESPM3D Novascan

Submitted by: Lukasz Urbanski

Affiliation: Colorado State University

2012 EIPBN MicroGraph Contest



Micrograph Title: Trippy

Description: Spiral microfluidic mixer structure on a photomask, with a slight stitching error from the writing process

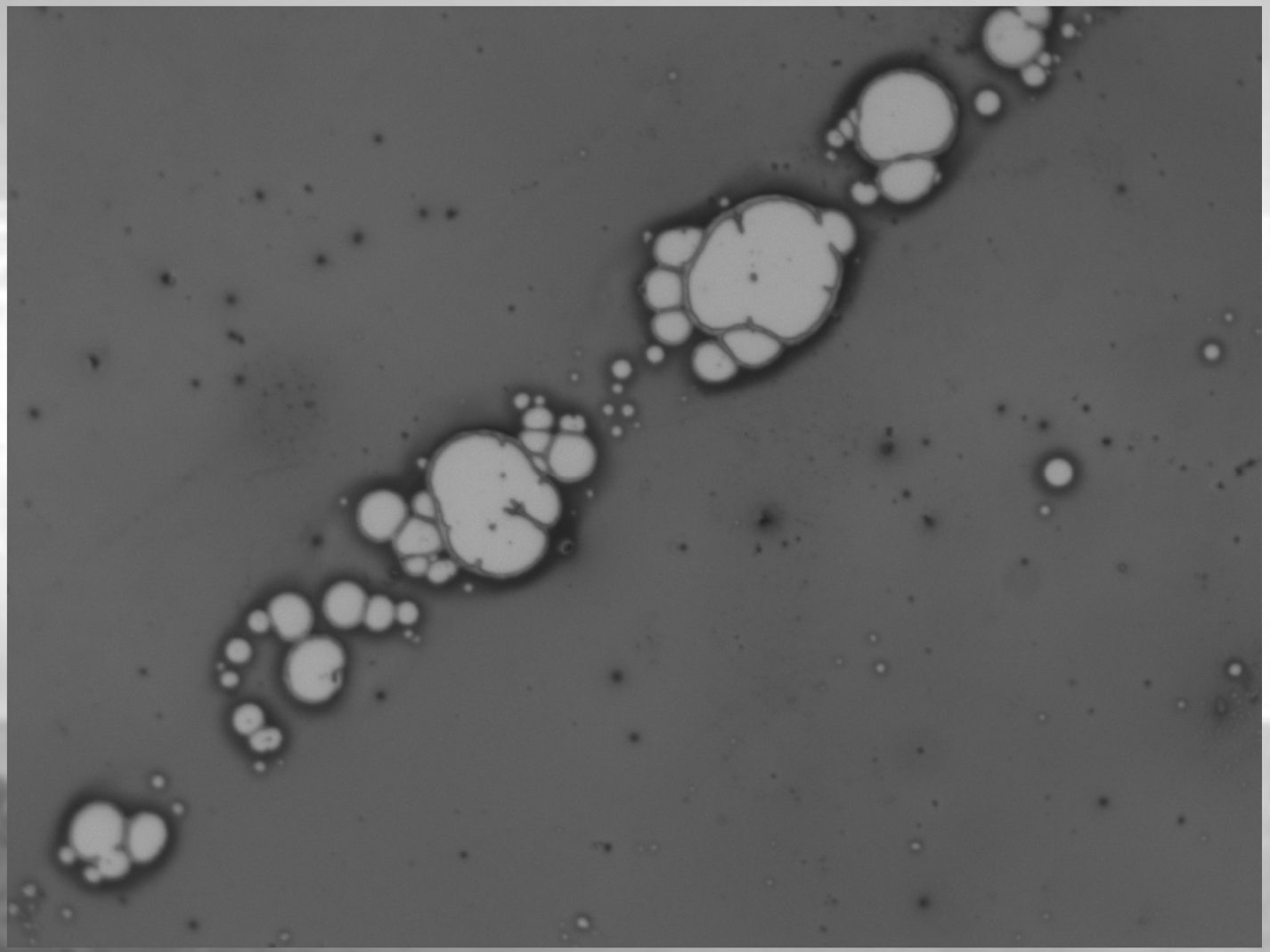
Magnification (3"x4" image): 500x

Instrument (Make and Model): Olympus BX50

Submitted by: Steven Hickman

Affiliation: Harvard CNS

2012 EIPBN MicroGraph Contest



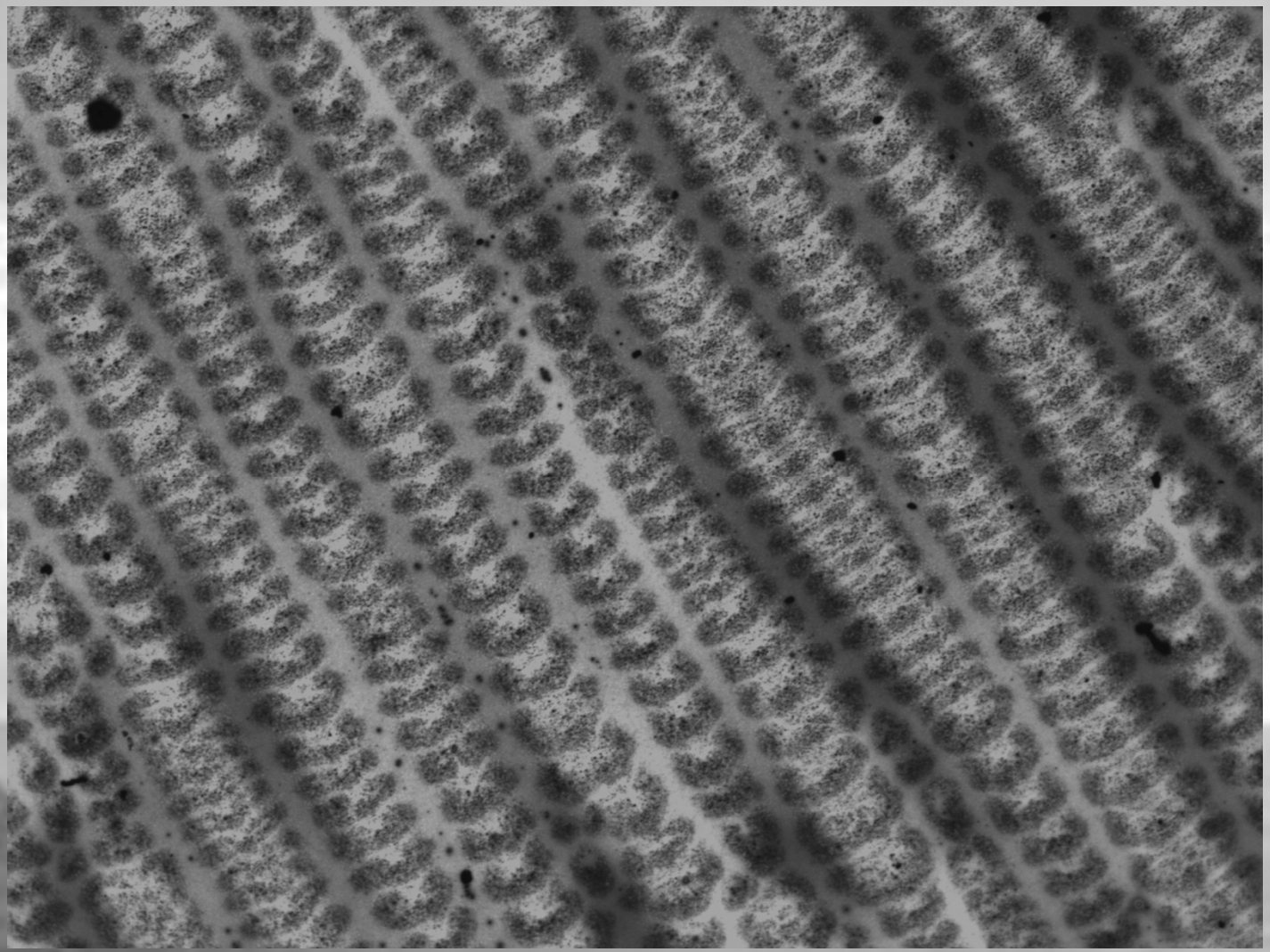
Micrograph Title:
Facebook - Timeline

Description:
In 2010 it was in Alaska (the Grizzly's footstep!) in 2011 it moved to Los Vegas (the semi-circle gambling table with a pole in the center!) and now its all happing in the big island (a big and few small islands!)

Magnification : 40X **Instrument: Zeiss Optical Microscope**

Submitted by: Muruganathan Ramanathan Affiliation: Center for Nanophase Materials Sciences, Oak Ridge National Laboratory, Oak Ridge, TN 37923.

2012 EIPBN MicroGraph Contest



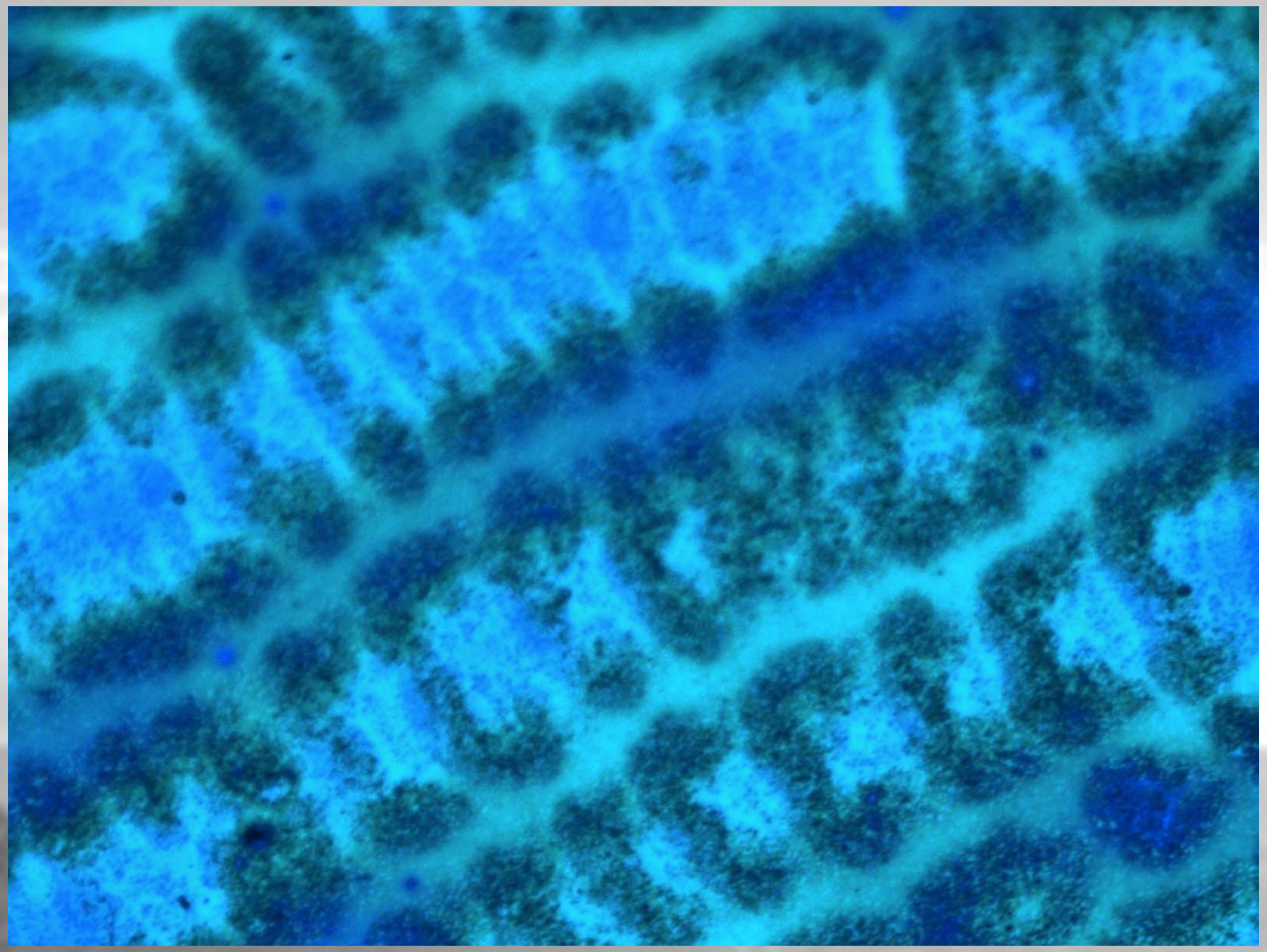
Micrograph Title:
Polymeric Vertebrae

Description:
Sulfonated polystyrene thin films show these periodic patterns in order to protest against unfavorable circumstances (polymer - solvent interaction) . These polymers are not spineless!

Magnification: 40x **Instrument : Zeiss Optical Microscope**

Submitted by: Muruganathan Ramanathan Affiliation: Center for Nanophase Materials Sciences, Oak Ridge National Laboratory, Oak Ridge, TN 37923.

2012 EIPBN MicroGraph Contest



Micrograph Title:
Lava tubes

Description:
This polariation optical micrograph reveals lave tube like structures in sufonated polystyrene thin films.

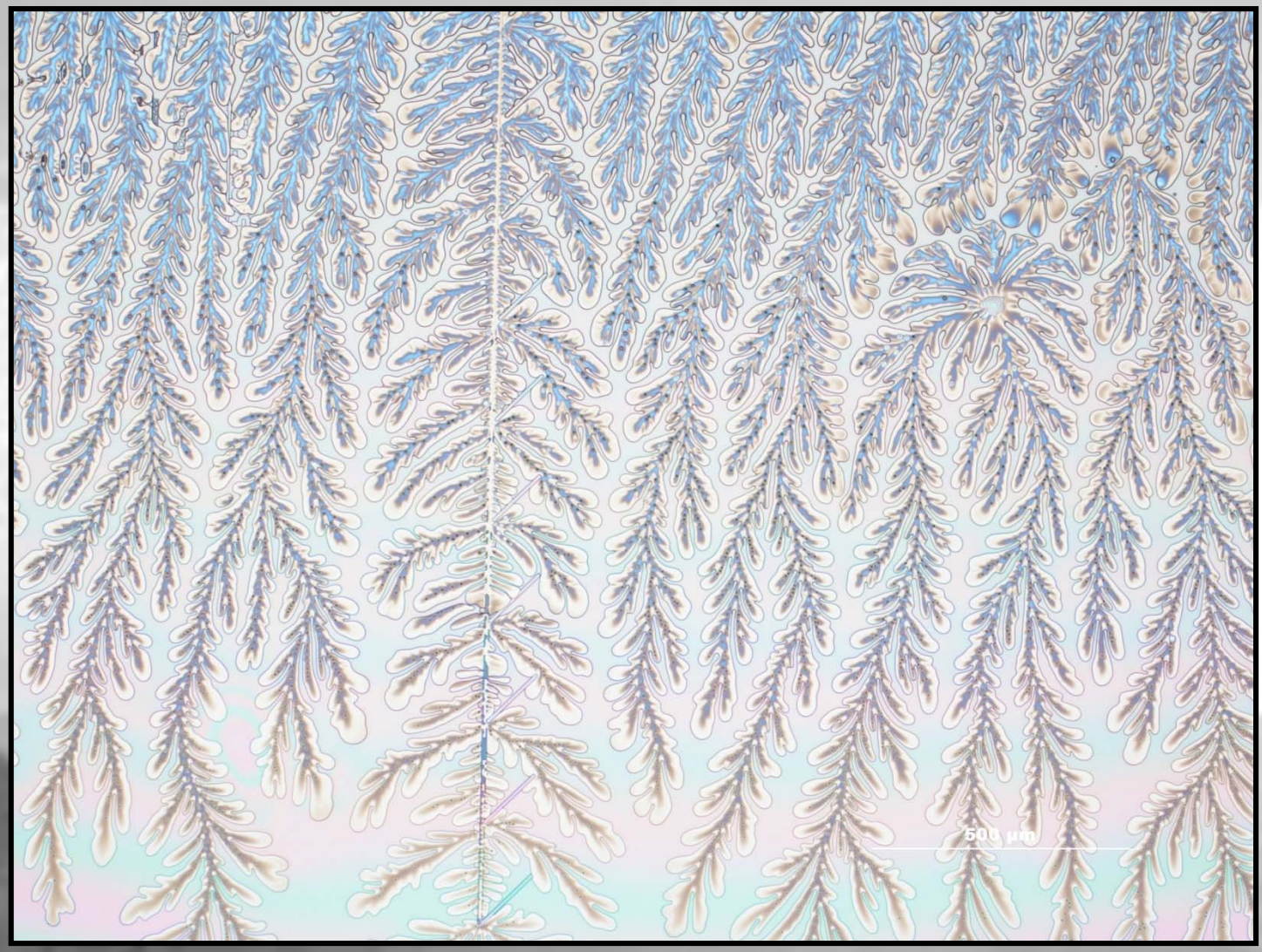
Magnification : 100 X **Instrument: Olympus Polarizations Optical Microscope**

Submitted by: Muruganathan Ramanathan Affiliation: Center for Nanophase Materials Sciences, Oak Ridge National Laboratory, Oak Ridge, TN 37923.

2012 EIPBN MicroGraph Contest

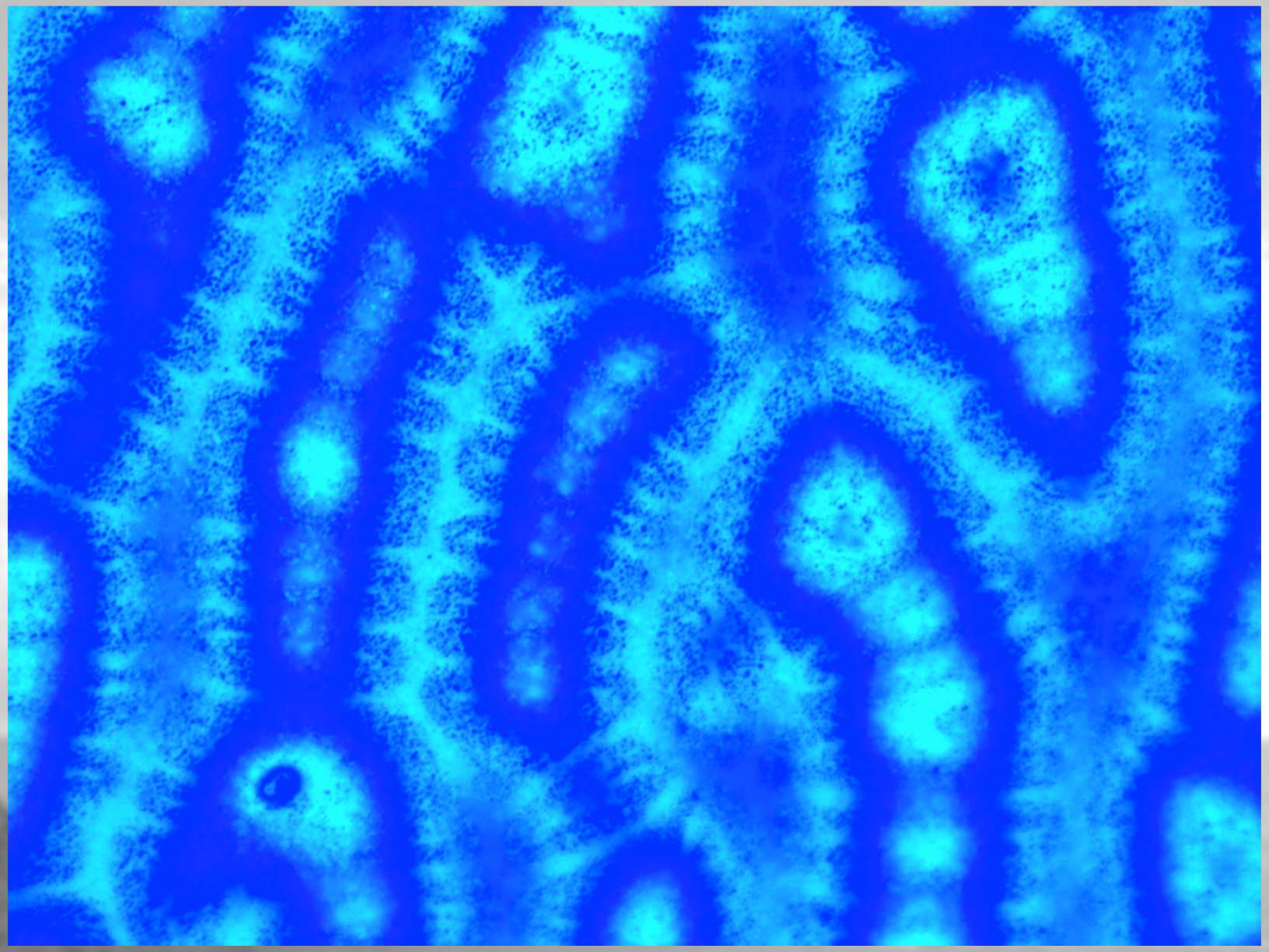
Micrograph Title:Hanging Leafs

Description: Imprint of Polysilsesquioxane went wrong



Magnification (3"x4" image): x170 (450µm x 600µm image size)
Instrument (Make and Model):NIKON LV 150 optical microscope
Submitted by: Iris Bergmair / Olivier Lorret Affiliation: PROFACTOR GmbH

2012 EIPBN MicroGraph Contest



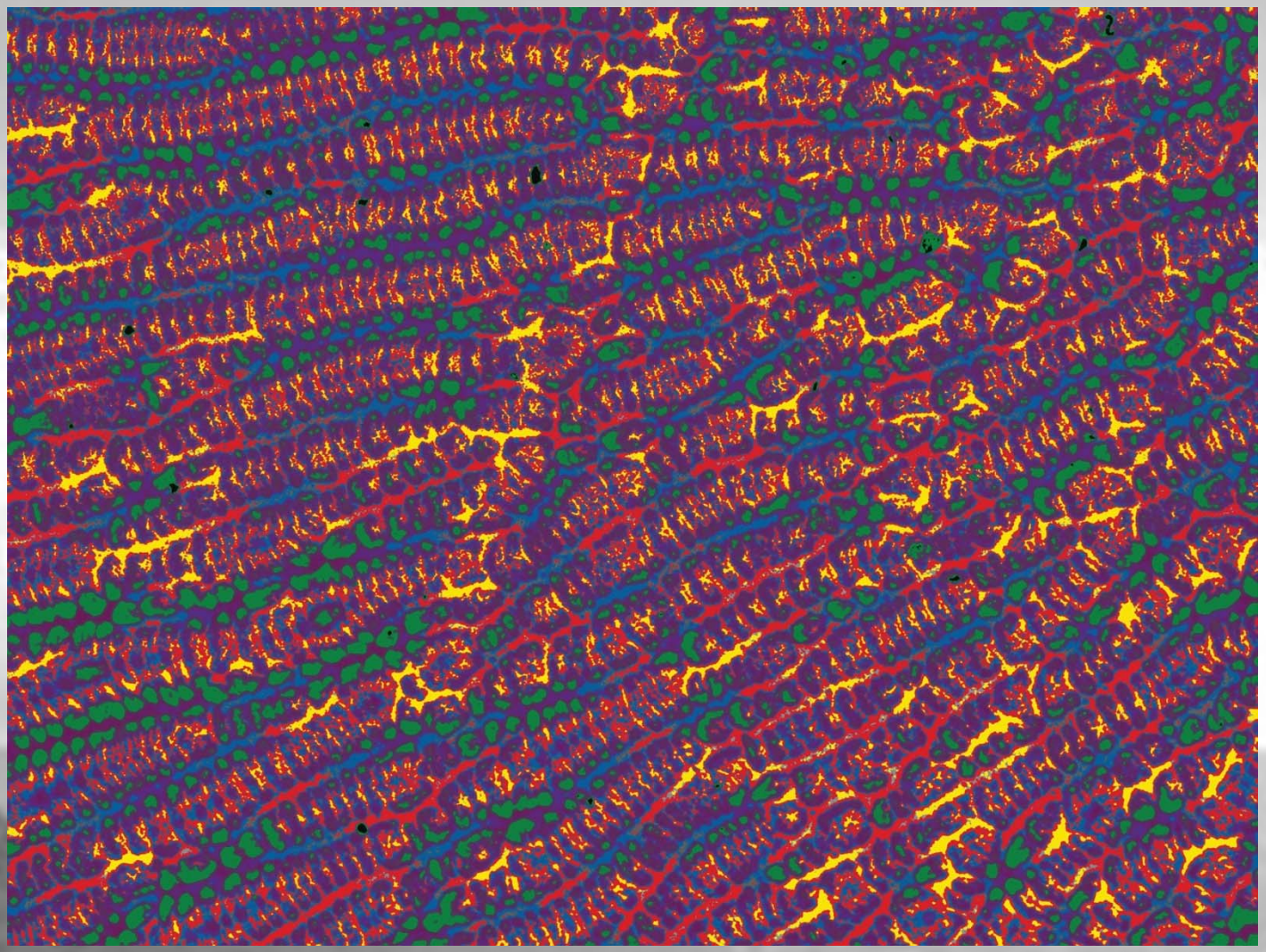
Micrograph Title:
Terminal 5

Description:
Sufonated polystyrene thin films mimic the terminal 5 of O'Hare airport.

Magnification : 100 X **Instrument: Olympus Polarizations Optical Microscope**

Submitted by: Muruganathan Ramanathan Affiliation: Center for Nanophase Materials Sciences, Oak Ridge National Laboratory, Oak Ridge, TN 37923.

2012 EIPBN MicroGraph Contest



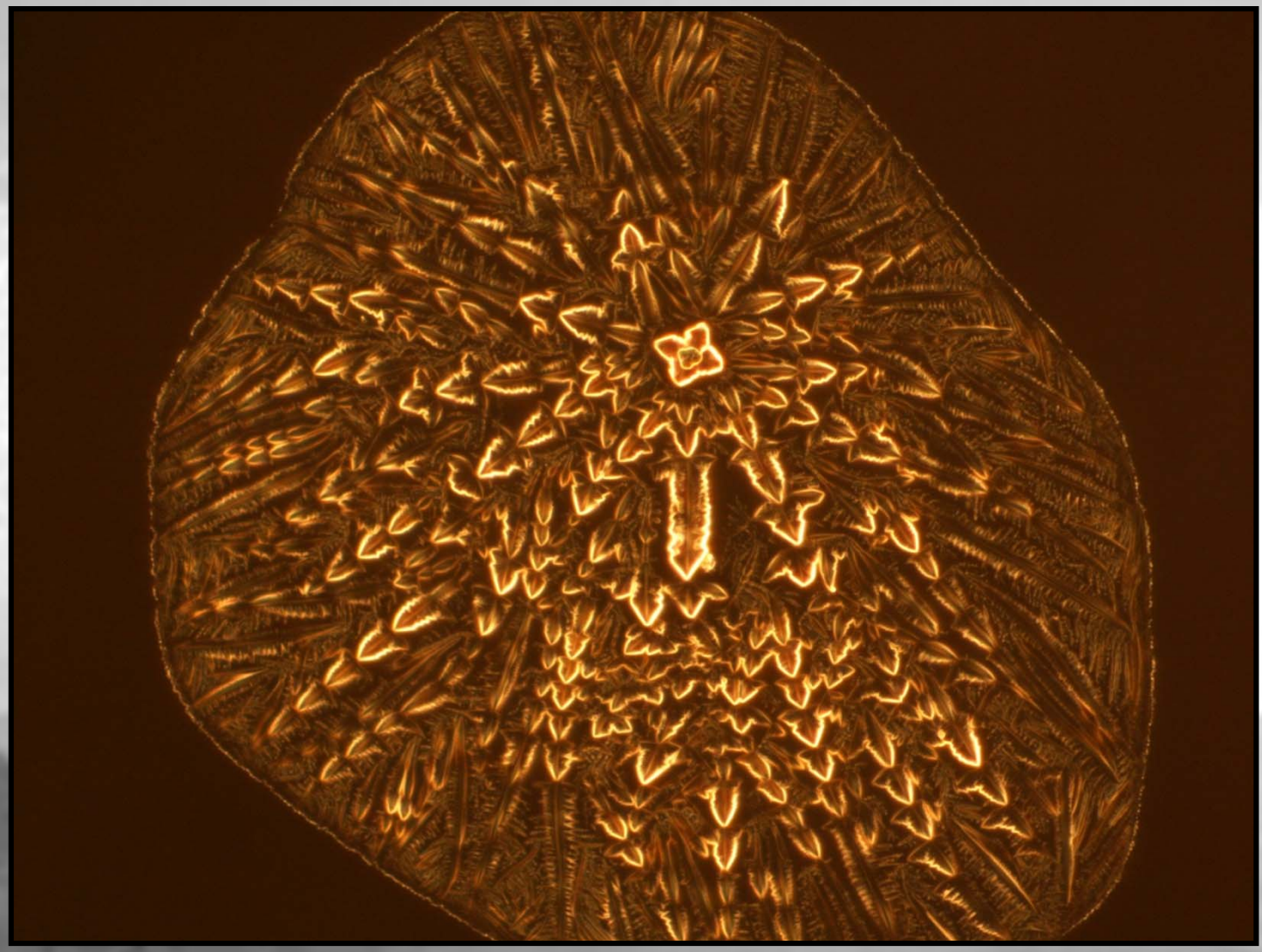
Micrograph Title:
Micro-worms

Description:
This false colored optical micrograph shows the worm-like structures in the thin film of sulfonated polystyrene.

Magnification : 40X **Instrument : Zeiss Optical Microscope**

Submitted by: Muruganathan Ramanathan Affiliation: Center for Nanophase Materials Sciences, Oak Ridge National Laboratory, Oak Ridge, TN 37923.

2012 EIPBN MicroGraph Contest

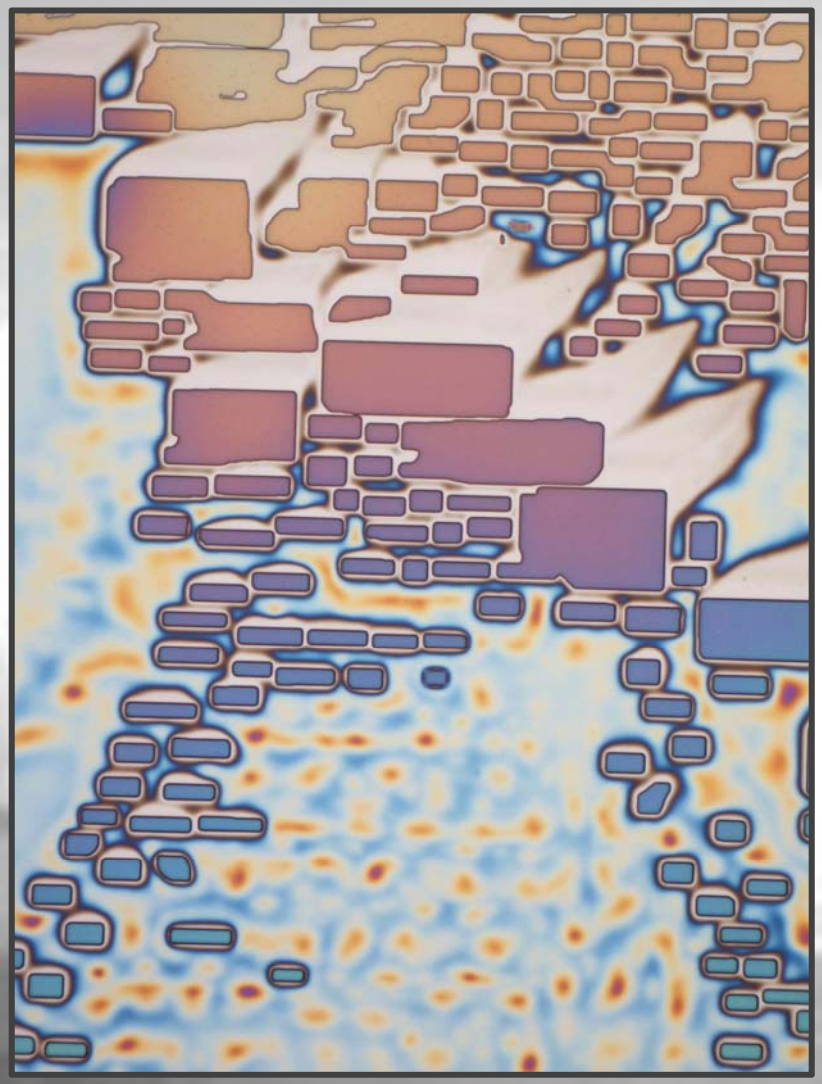


Micrograph Title:
Crystalline Christmas tree

Description:
Crystallisation during microcontact printing of a PBS/Streptavidin solution

Magnification (3"x4" image): x170 (450µm x 600µm image size)
Instrument (Make and Model):NIKON LV 150 optical microscope
Submitted by: Iris Bergmair / Andreas Rank Affiliation: PROFACTOR GmbH

2012 EIPBN MicroGraph Contest



Micrograph Title:

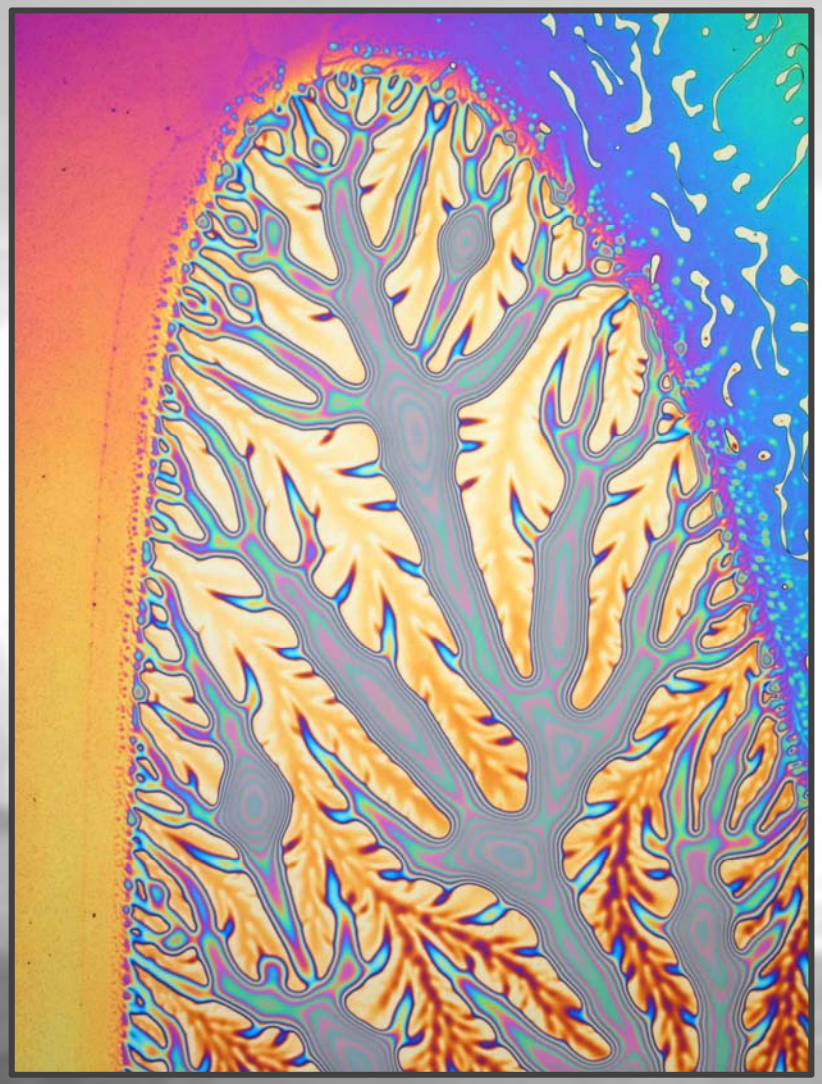
Another brick in the wall

Description:

Unfortunately it‘s not a building block for nano structures, but another brick in the wall of defects.

Magnification (3"x4" image): x850 (120µm x 90µm image size)
Instrument (Make and Model): Nikon Eclipse LV150 with DS-5M camera
Submitted by: Iris Bergmair / Lukas Häusler Affiliation: PROFACTOR GmbH

2012 EIPBN MicroGraph Contest



Micrograph Title:

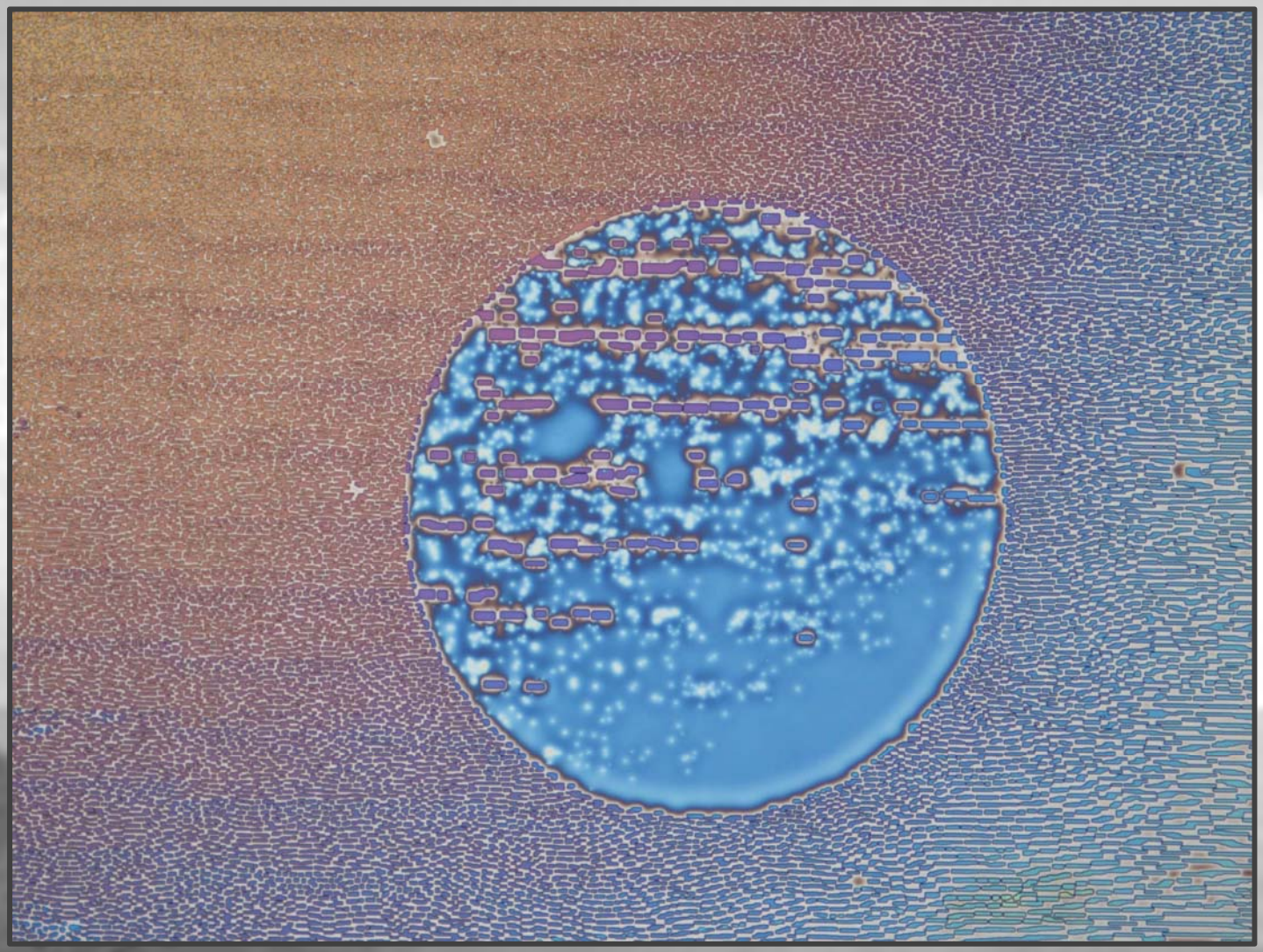
The Burning Bush

Description:

Inspired by the book Exodus. But we call him George.

Magnification (3"x4" image): x850 (120µm x 90µm image size)
Instrument (Make and Model): Nikon Eclipse LV150 with DS-5M camera
Submitted by: Iris Bergmair / Lukas Häusler Affiliation: PROFACTOR GmbH

2012 EIPBN MicroGraph Contest



Micrograph Title:

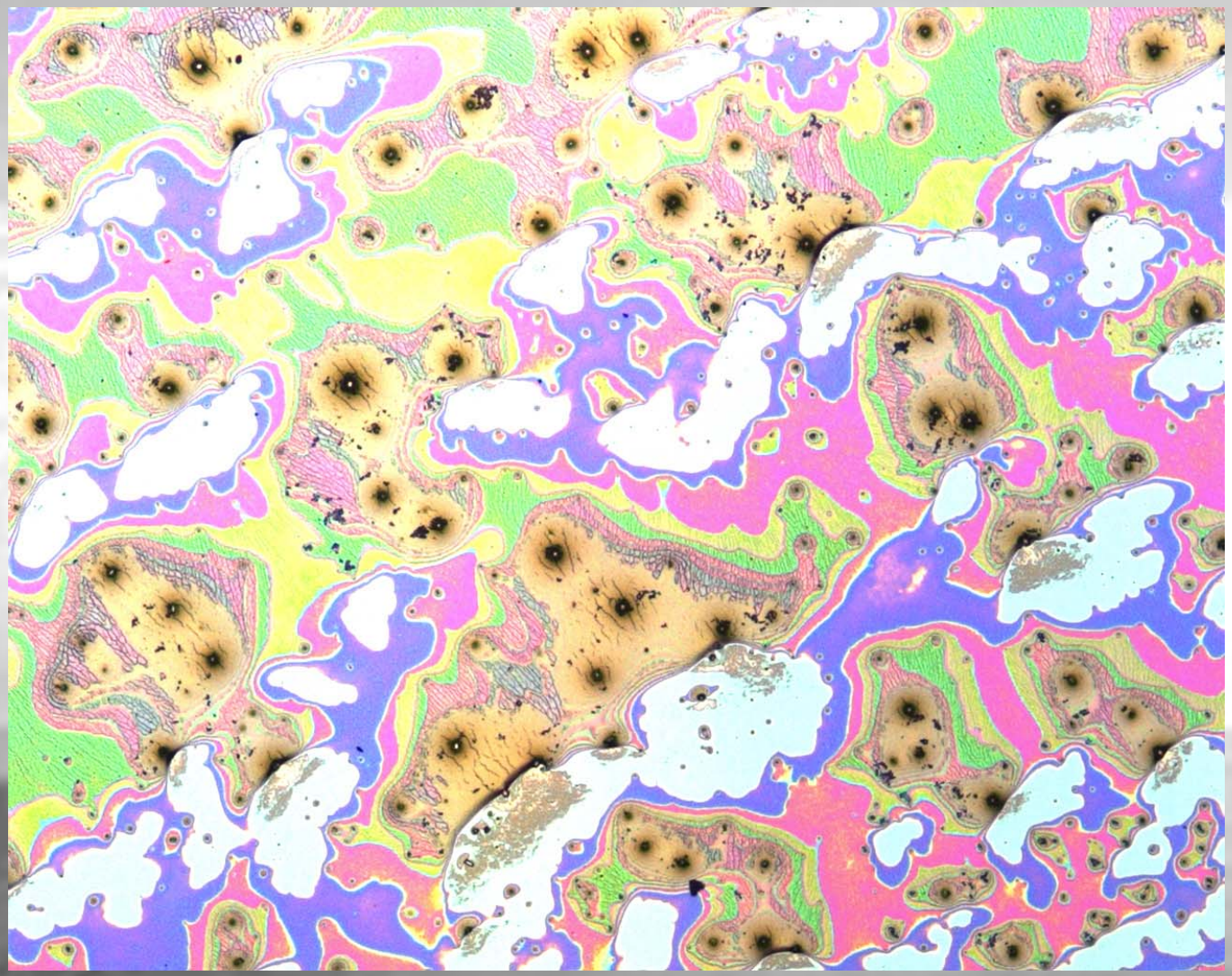
µDeath Star

Description:

Some time ago in a galaxy far too small scientists managed to get a glimpse on the Empire‘s new hope.

Magnification (3"x4" image): x170 (450µm x 600µm image size)
Instrument (Make and Model): Nikon Eclipse LV150 with DS-5M camera
Submitted by: Iris Bergmair / Lukas Häusler Affiliation: PROFACTOR GmbH

2012 EIPBN MicroGraph Contest



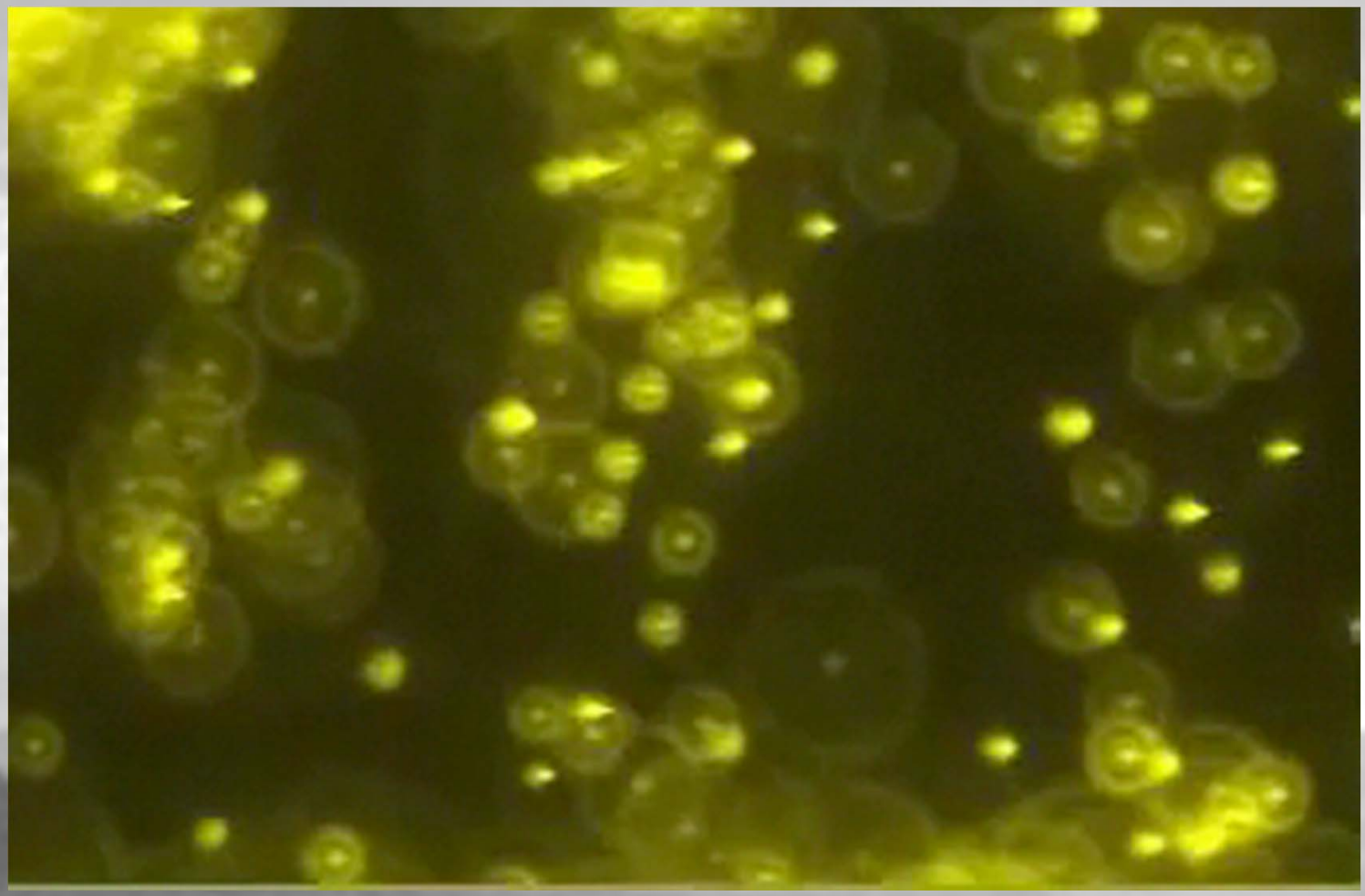
Micrograph Title:
Colors from nanospheres

Description:
Interference of light at layers of 200nm small polystyrene nanospheres

Magnification (3"x4" image): 50x
Submitted by: Silke Christiansen

Instrument: Zeiss Axio Imager
Affiliation: MPL for the Science of Light

2012 EIPBN MicroGraph Contest



Micrograph Title:Synthetically created DNA-Protein interactions

Description: see word document

Magnification (3"x4" image): 100x

Instrument (Make and Model): Nikon Ti Series

Submitted by: Ashwin Panday

Affiliation: L. Jay Guo, University of Michigan

2012 EIPBN MicroGraph Contest

Micrograph Title:

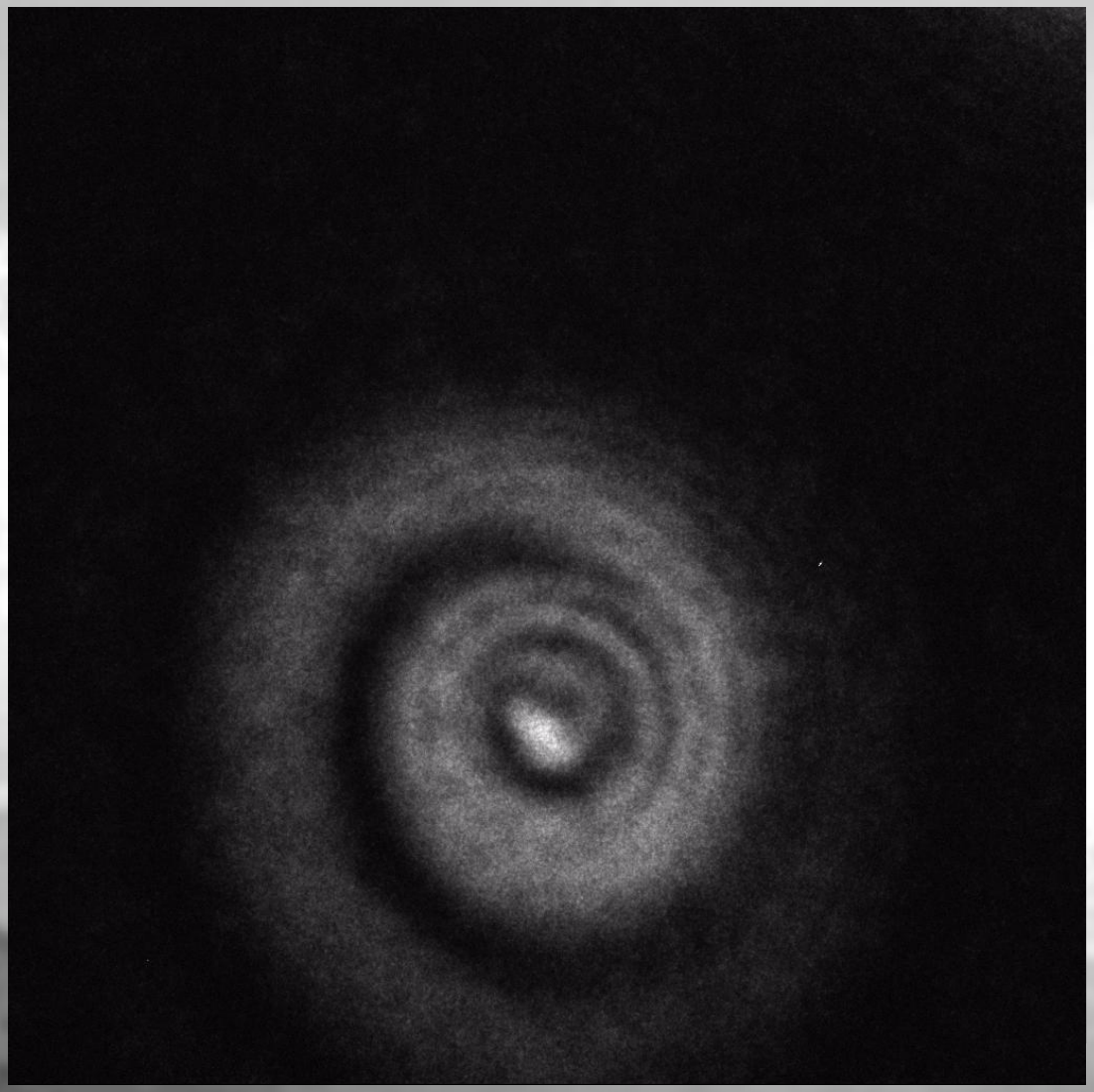
Neon Atoms Dancing on the Point of a Needle?

Description: This video shows the interesting synchronized motion of neon atoms that are adsorbed onto the underlying crystal.

Magnification : 20 MX (!) **Instrument: Zeiss Field Ion Microscope**

Submitted by: Milton Rahman, John Notte **Affiliation: Zeiss**

2012 EIPBN MicroGraph Contest



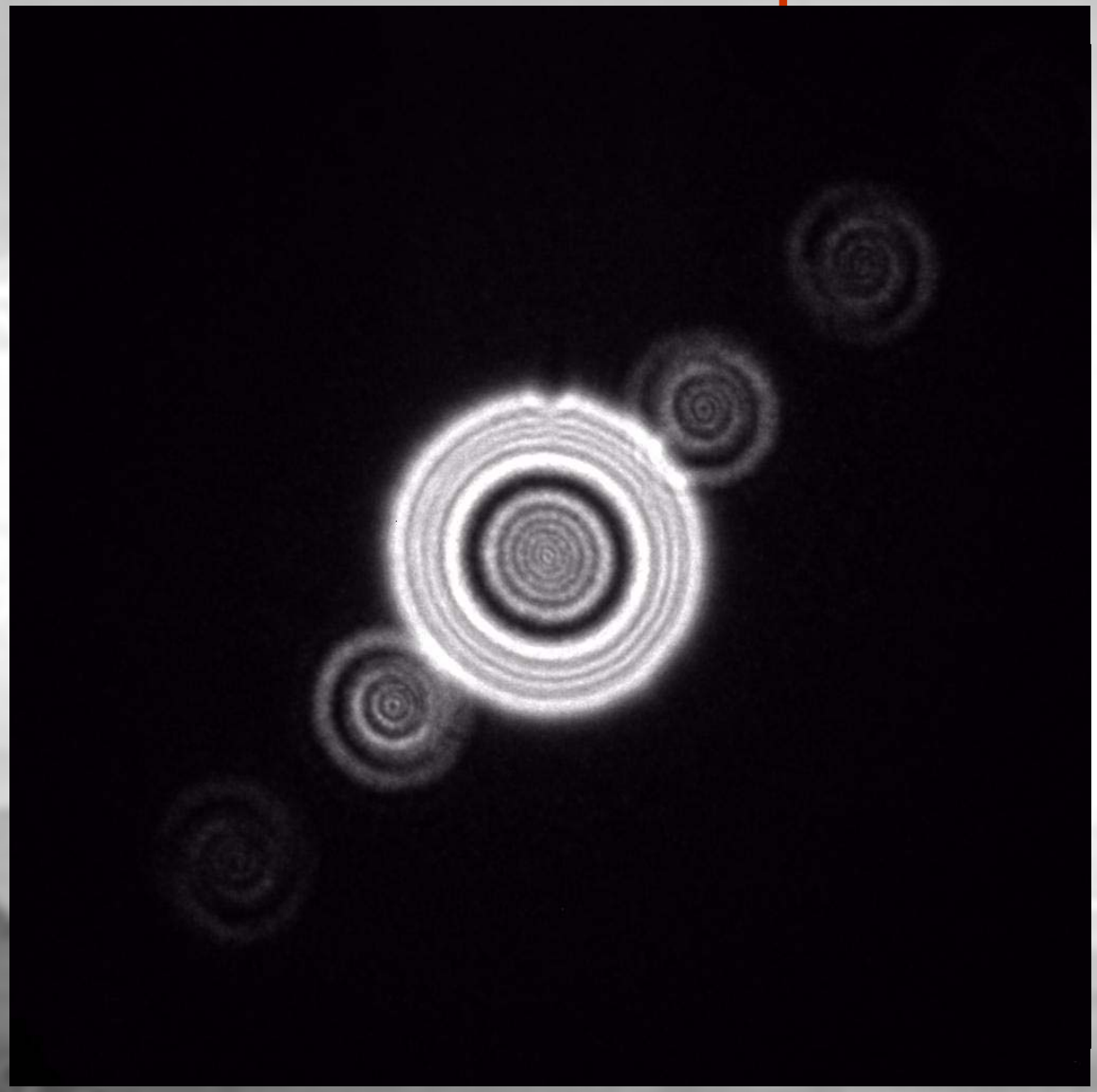
Micrograph Title: You're Getting Veeeerrrry Sleepy

Description: Instead of imaging a sample, in this video a TEM is being used to image the beam electrons themselves. This TEM focal series shows the evolution of the spiral phase of an electron vortex.

Magnification (3"x4" image): 300 000X
Submitted by: Ben McMorran

Instrument (Make and Model): Philips CM300
Affiliation: University of Oregon

2012 EIPBN MicroGraph Contest



Micrograph Title:
Crazy Train

Description:
Instead of imaging a sample, in this video a TEM is being used to image electrons themselves. This TEM focal series shows the evolution of the spiral phase of several electron vortex beams.

Magnification (3"x4" image): 42 000x
Instrument (Make and Model): Philips CM300
Submitted by: Ben McMorran
Affiliation: University of Oregon

2012 EIPBN MicroGraph Contest

Micrograph Title:
Don Knotts

Description:
FIB written
Bowtie antennas

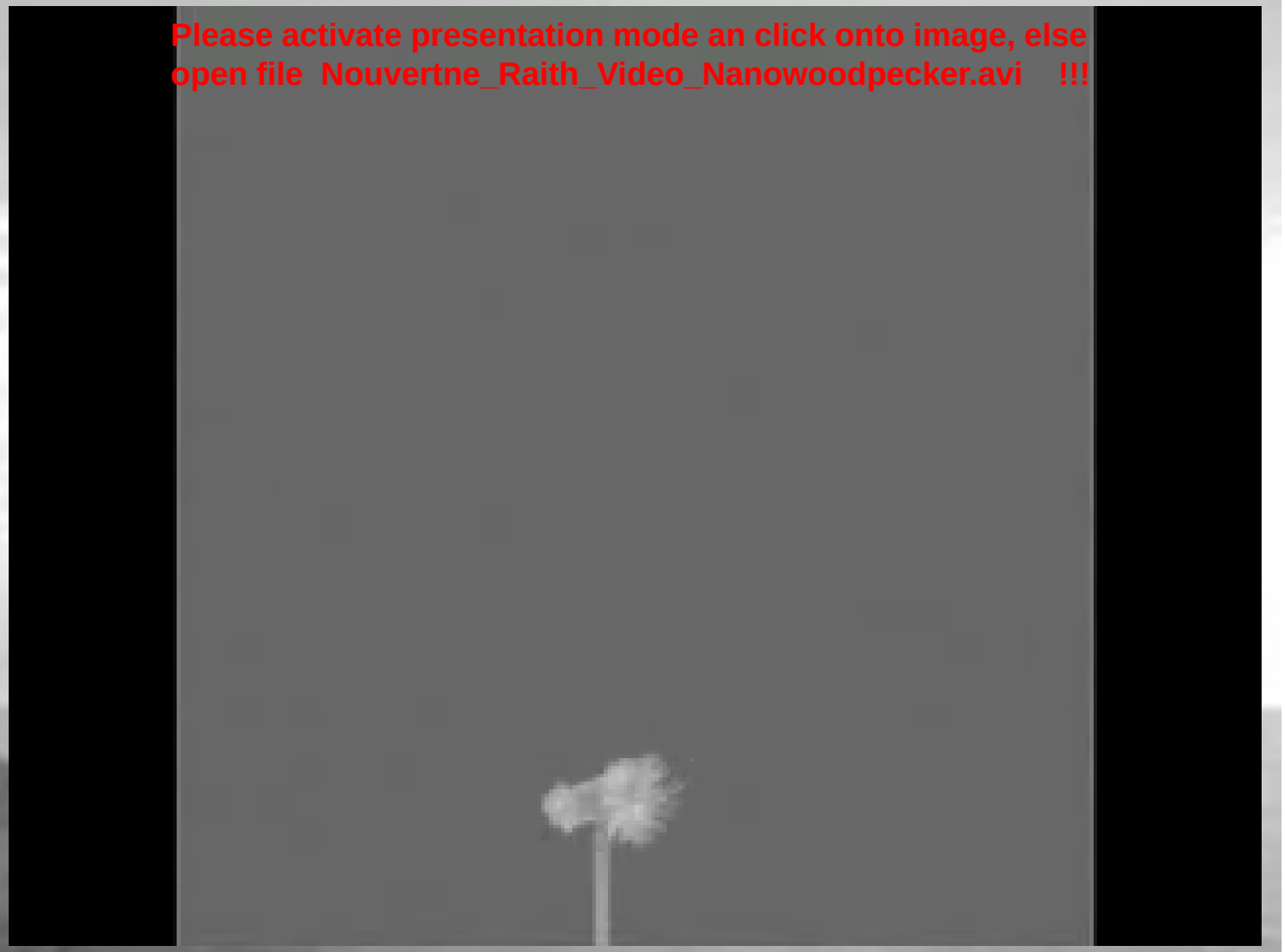
Magnification (3"x4" image): 91.8 kx
Instrument: Tescan Lyra 3
Submitted by: Silke Christiansen
Affiliation: MPL for the Science of Light

2012 EIPBN MicroGraph Contest

VIDEO Title:
"Lazy Nanowoodpecker"

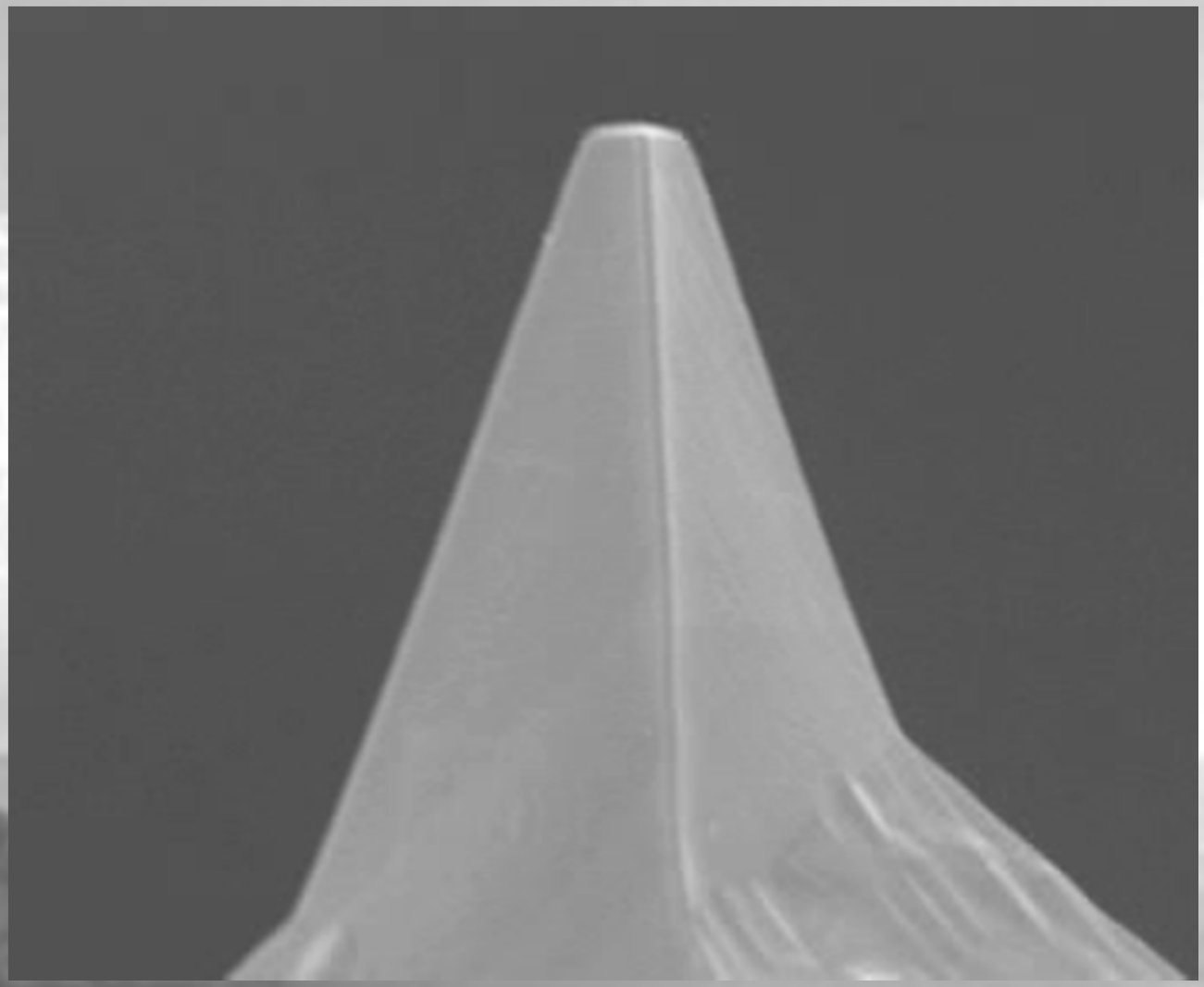
Description:
Free standing "Nanowoodpecker", fabricated on the edge of an SOI substrate - applying a sequential electron beam induced deposition (EBID) process. Tungsten nanoprobes for ac-field application make him move around
Also see notes below

Please activate presentation mode an click onto image, else open file Nouvertne_Raith_Video_Nanowoodpecker.avi !!!



Magnification (3"x4" image): ~5000 **Instrument (Make and Model): Raith eLiNE plus**
Submitted by: F. Nouvertné, A. Rudzinski **Affiliation: Raith GmbH**

2012 EIPBN MicroGraph Contest



Micrograph Title: 3 (Dancing) Beams

Description: An effort to make a nanomechanical relay ended up with the fixed electrodes dancing in the imaging ebeam and beam intended to move stationary

Magnification (3"x4" image): 20000x
Instrument (Make and Model):FEI Strata 235DB
Submitted by: J Provine & Scott Lee
Affiliation: Stanford University