

# Honorable Mention

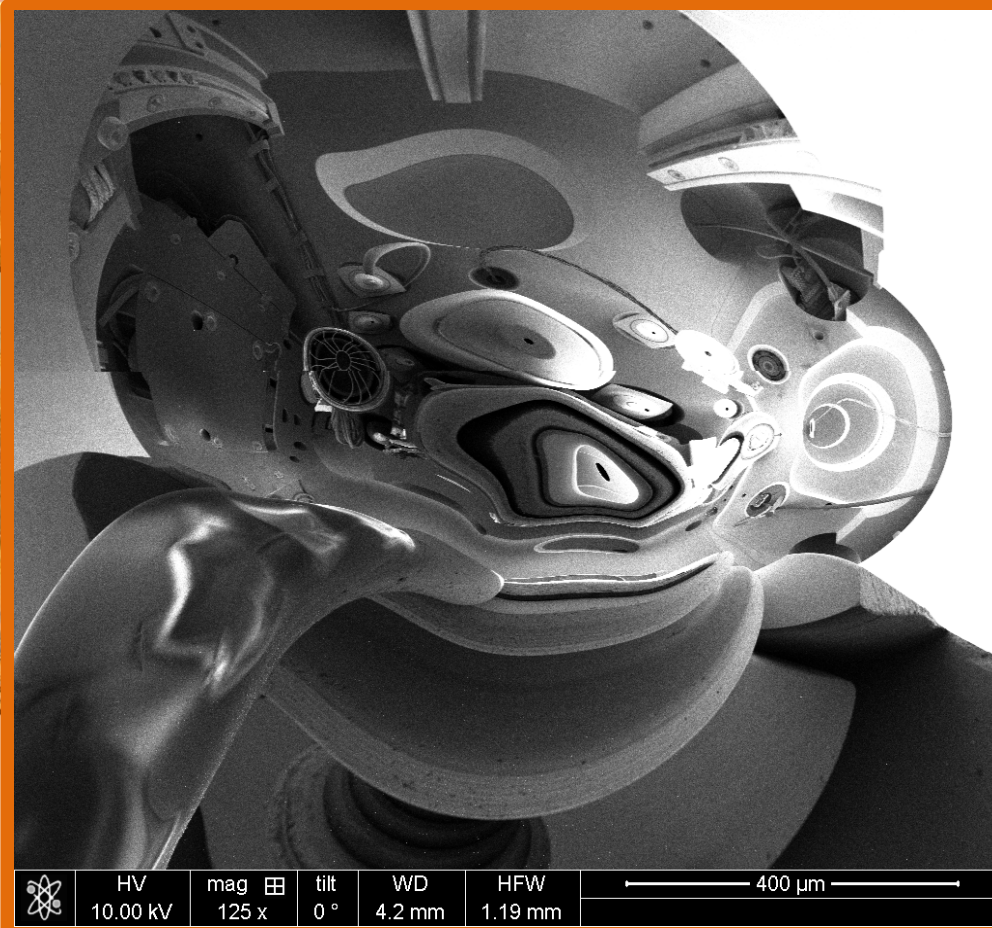
1

## “Picasso in the Chamber”

### Description:

This image is an artefact from the inside of the SEM

microscope chamber. It can be tentatively attributed to an electron mirror effect as a result of charge buildup on our electrically isolated sample



# MNE2015

Submitted by: Angelo Accardo

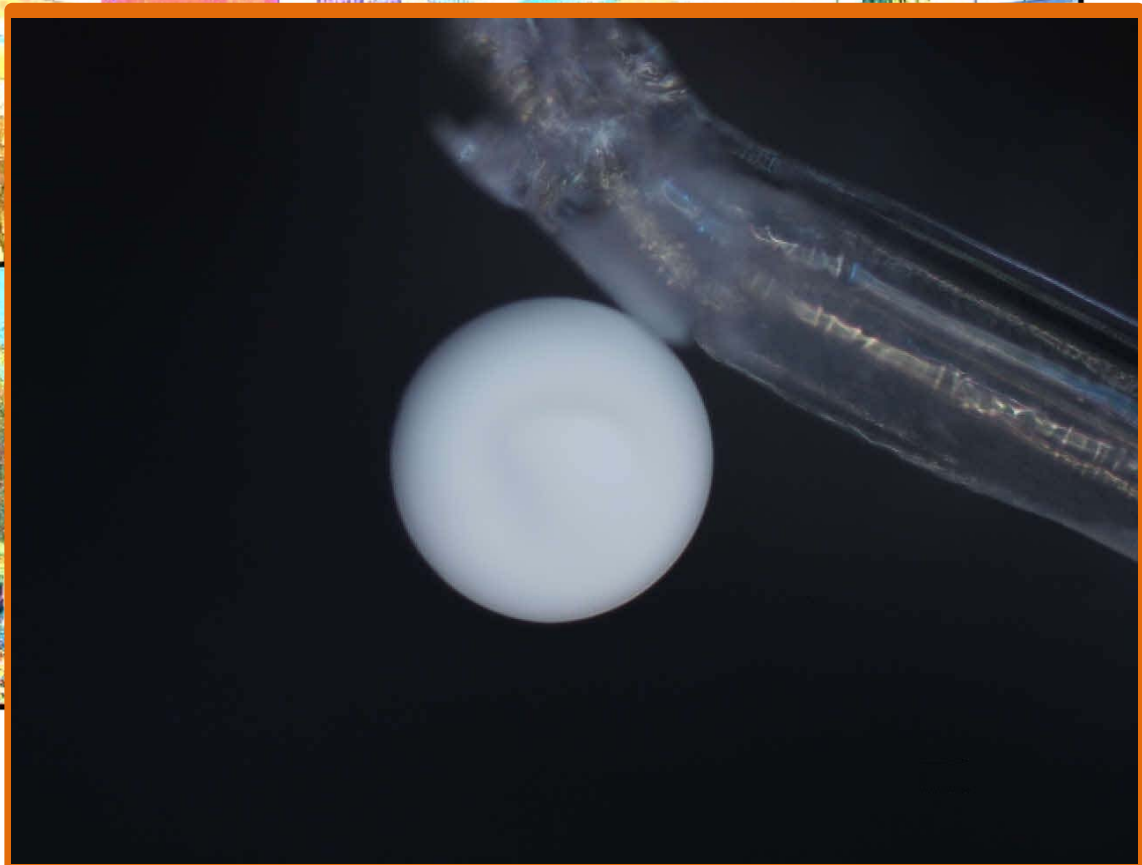
Affiliation: Istituto Italiano di Tecnologia

Instrument: FEI Helios Nanolab 600

Magnification: 125X

**2015 Micro-Nano Graph  
Contest**

2



**“Polymer Moonlight”**

**Description:**  
This full-moon portrait represents a free-standing residue (attached to a glass capillary tip) resulting from the assembly of Silica nanoparticles upon evaporation on a superhydrophobic substrate

Submitted by: Angelo Accardo  
Affiliation: Istituto Italiano di Tecnologia  
Instrument: Nikon Eclipse LV100  
Magnification: 5X

**MNE2015**

**2015 Micro-Nano Graph  
Contest**

**3**

**“Mascara Addiction”**

**Description:**

The eye-like residue is coming from

evaporation of CdSe nanowires on top of SU-8 micro-pillared surfaces where the droplet shrinking results in stretching of CdSe bundles



**MNE2015**

Submitted by: Angelo Accardo

Affiliation: Istituto Italiano di Tecnologia

Instrument: Nikon Eclipse LV100

Magnification: 5X

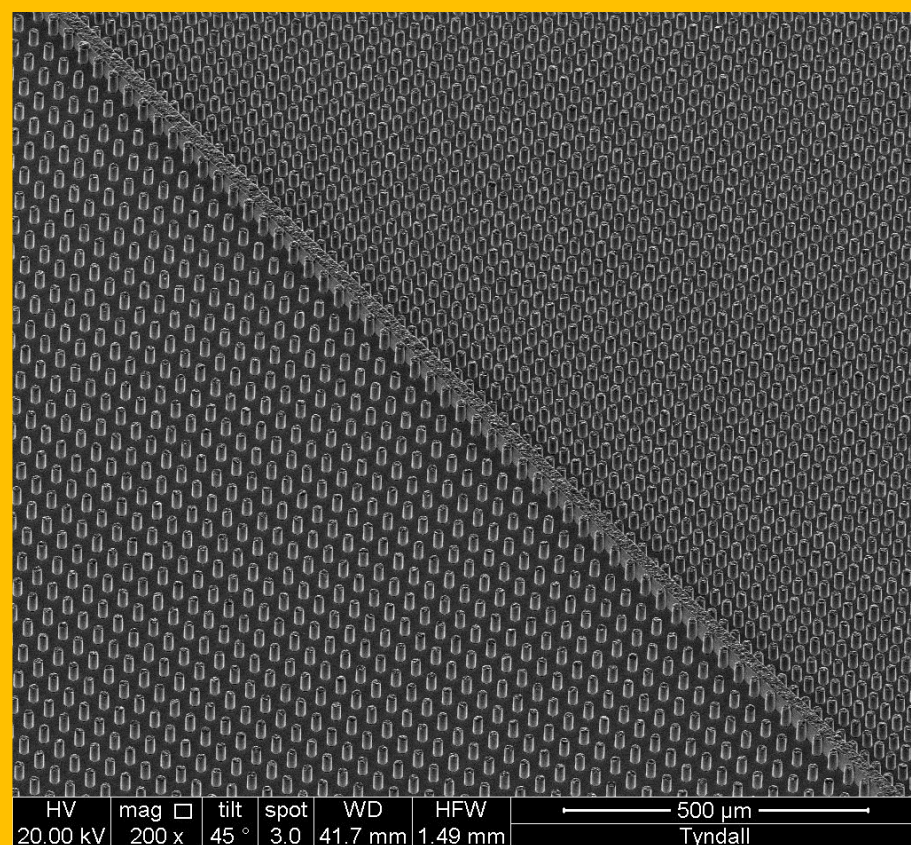
# 2015 Micro-Nano Graph Contest

4

## “Separated by Border, United by Nature”

### Description:

These pillars explore the surface-tension dominated phenomena on well-defined copper-based hierarchical surface architectures that take inspiration from natural surfaces. They are the first step in producing architectures with multiple length scales and wetting heterogeneity.



submitted by: Ricky Anthony, D. Casey, C. O Mathuna & J.F. Rohan

Affiliation: Tyndall National Institute

Instrument: Quanta FEG 650 & Digital matrix (SA/1B)

Magnification: 200 x

# MNE2015

# 2015 Micro-Nano Graph Contest

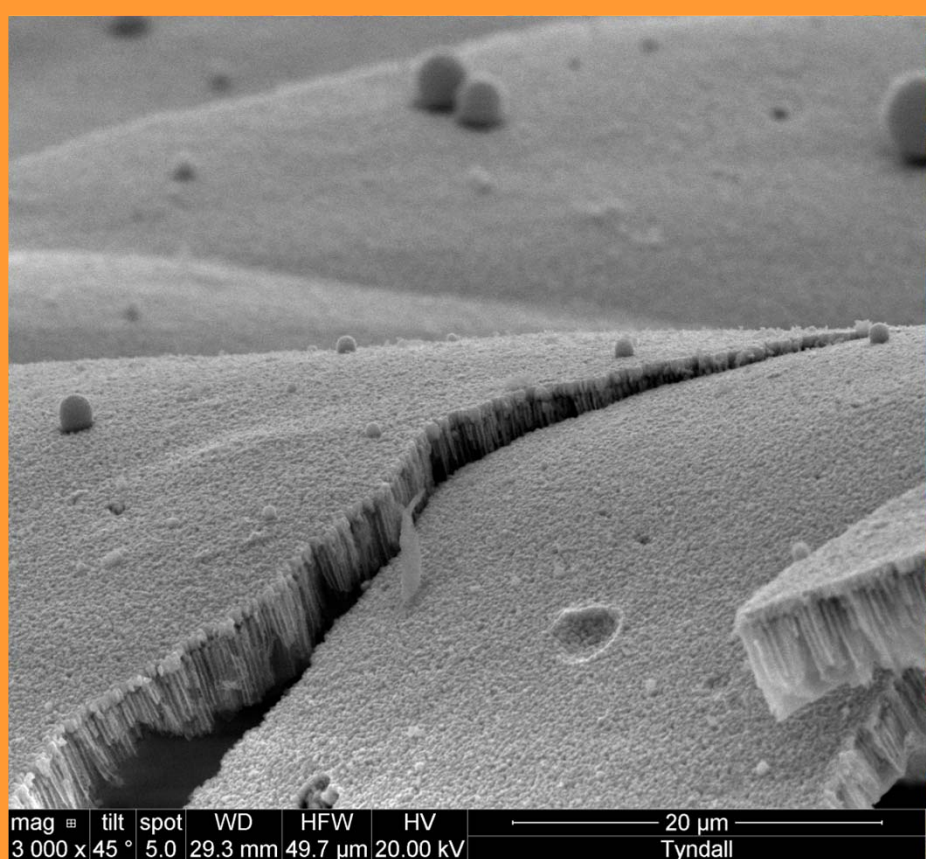
5

## “The Abandoned Terrain”

### Description:

We explored this abandoned terrain after permalloy nanowires were

deposited in AAO templates. This process could applications in high frequency integrated magnetics.



Submitted by: Ricky Anthony, D. Casey, C. O Mathuna & J.F. Rohan

Affiliation: Tyndall National Institute

Instrument: Quanta FEG 650 & Digital matrix (SA/1B)

Magnification: 3KX

# MNE2015

**2015 Micro-Nano Graph  
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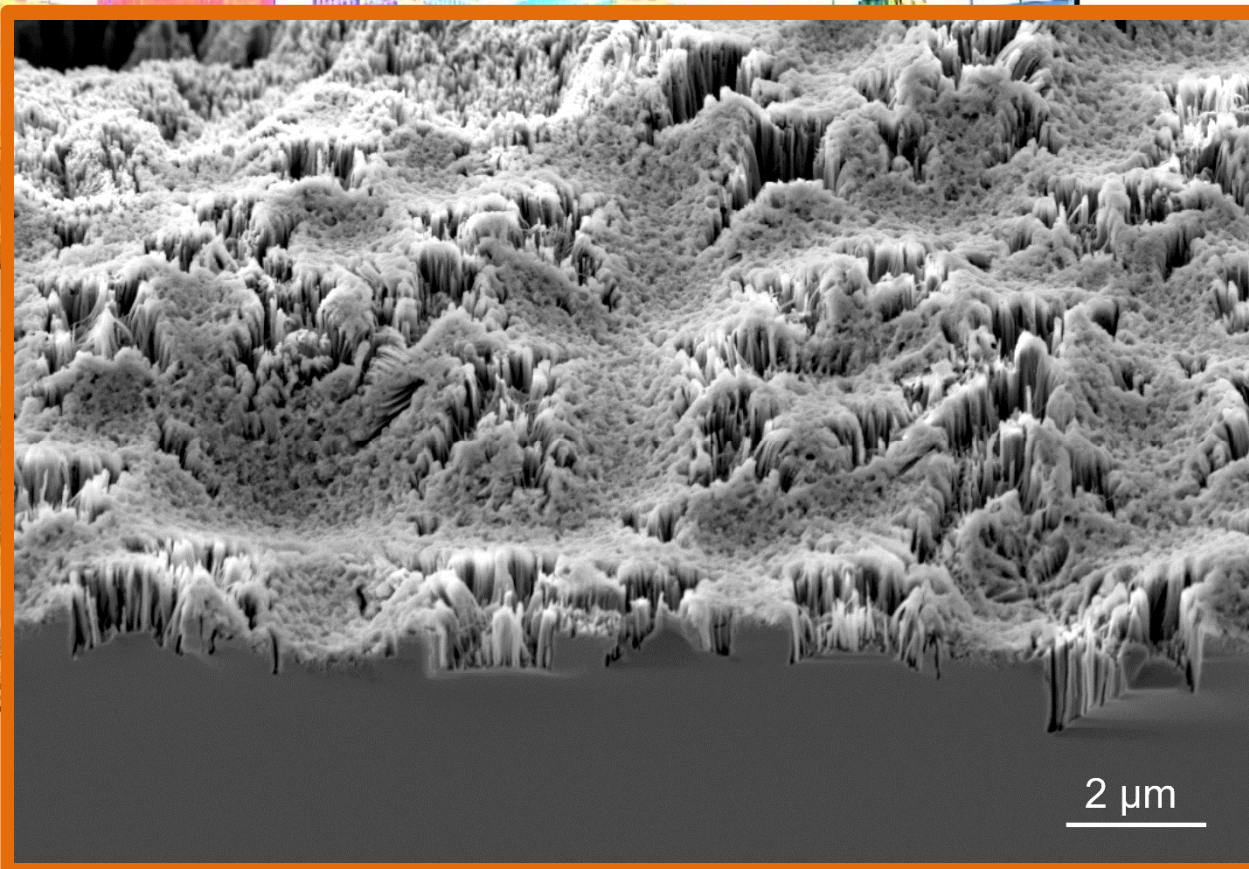
6

**“Snowy Alpine Nano-forest”**

**Description:**

This antireflective texture on a silicon surface that resembles a tiny alpine forest was

created by KOH etching of a silicon wafer to form micron-scale pyramids, followed by metal assisted chemical etching to form the nanowire forest.



**MNE2015**

Submitted by: Stuart Boden  
Affiliation: University of Southampton  
Instrument: Zeiss NVision40 FIBSEM  
Magnification: 6.42 KX

# 2015 Micro-Nano Graph Contest

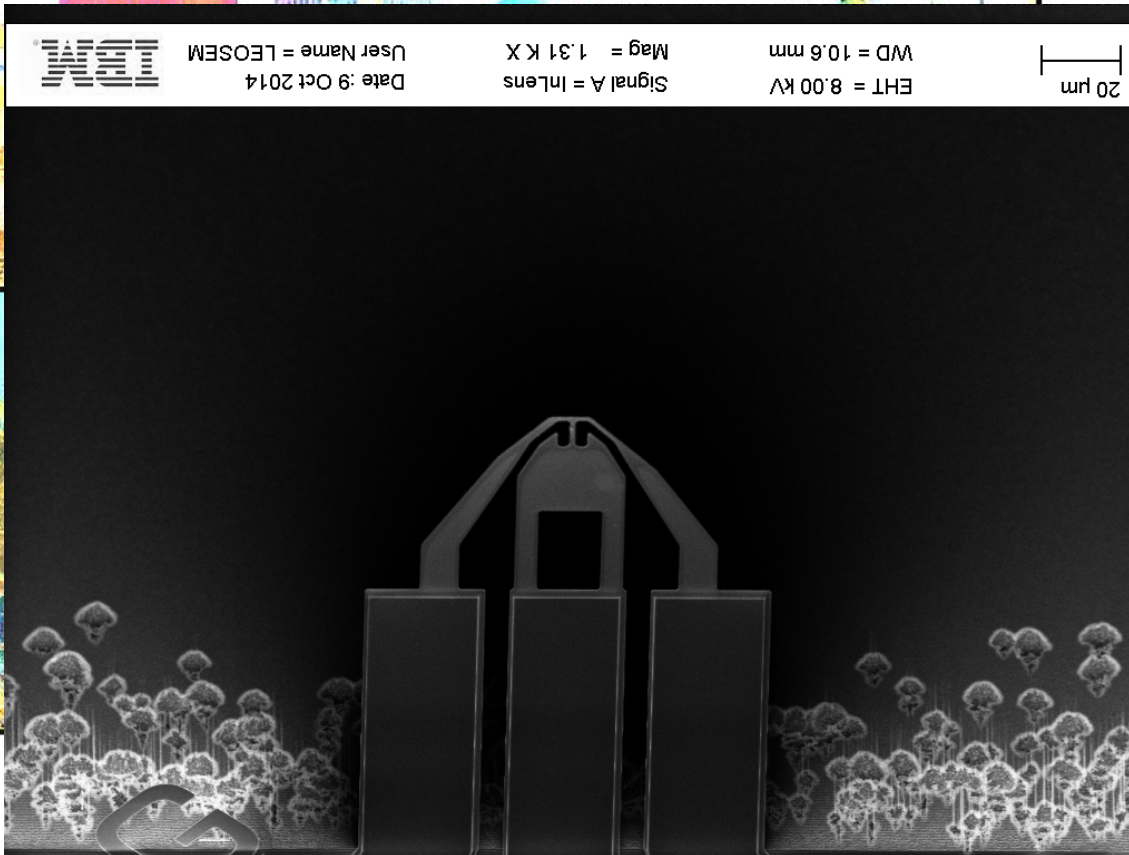
7

## “The Temple of Nano-Scientology”

### Description:

Wrong etching produced the

“jellyfishes” on the vertical wall of the cantilever chip. Also mask misalignment results in a suspended G next to the lever.



Submitted by: Simon Bonanni

Affiliation: SwissLitho AG in collaboration with IBM  
(funding EU FP7/2007-2013 Grant Agreement No. 318806, (Single Nanometer Manufacturing for beyond CMOS devices, SNM )

Instrument: Zeiss SEM LEO 1550

Magnification: 370

MNE2015

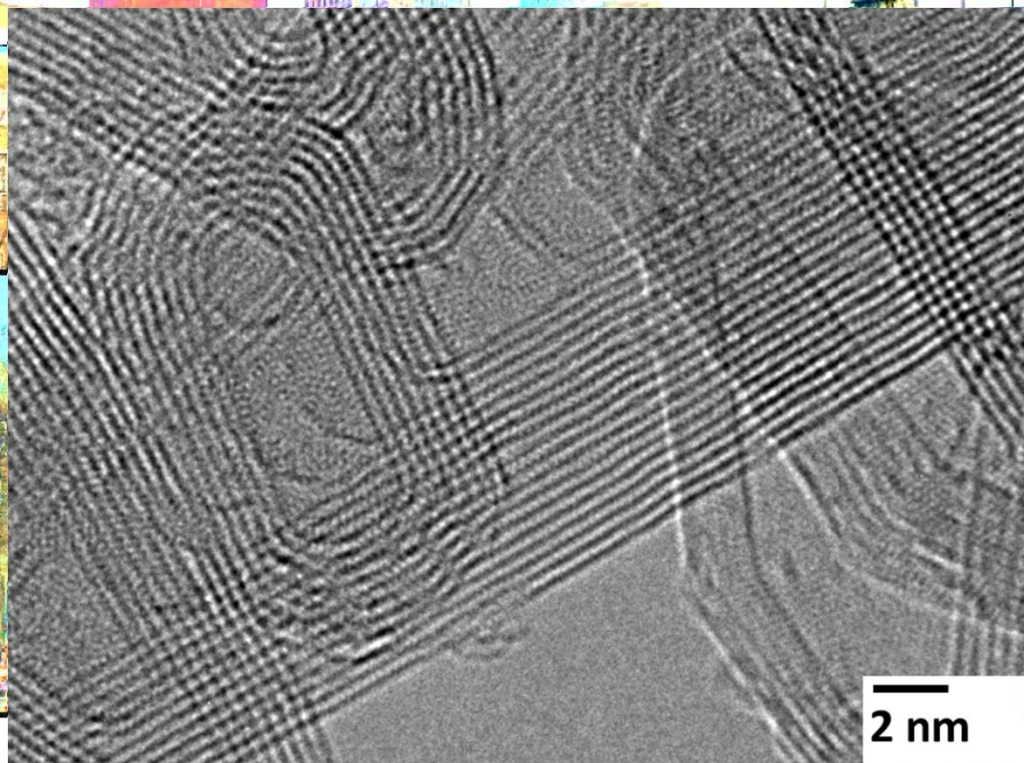
# People's Choice

8

## "Atomic Running Track"

**Description:**  
Running track  
with just the right  
size for atoms,

which is made up  
of carbon onion  
with 0.369 nm gap  
between each  
track (layer).



2 nm

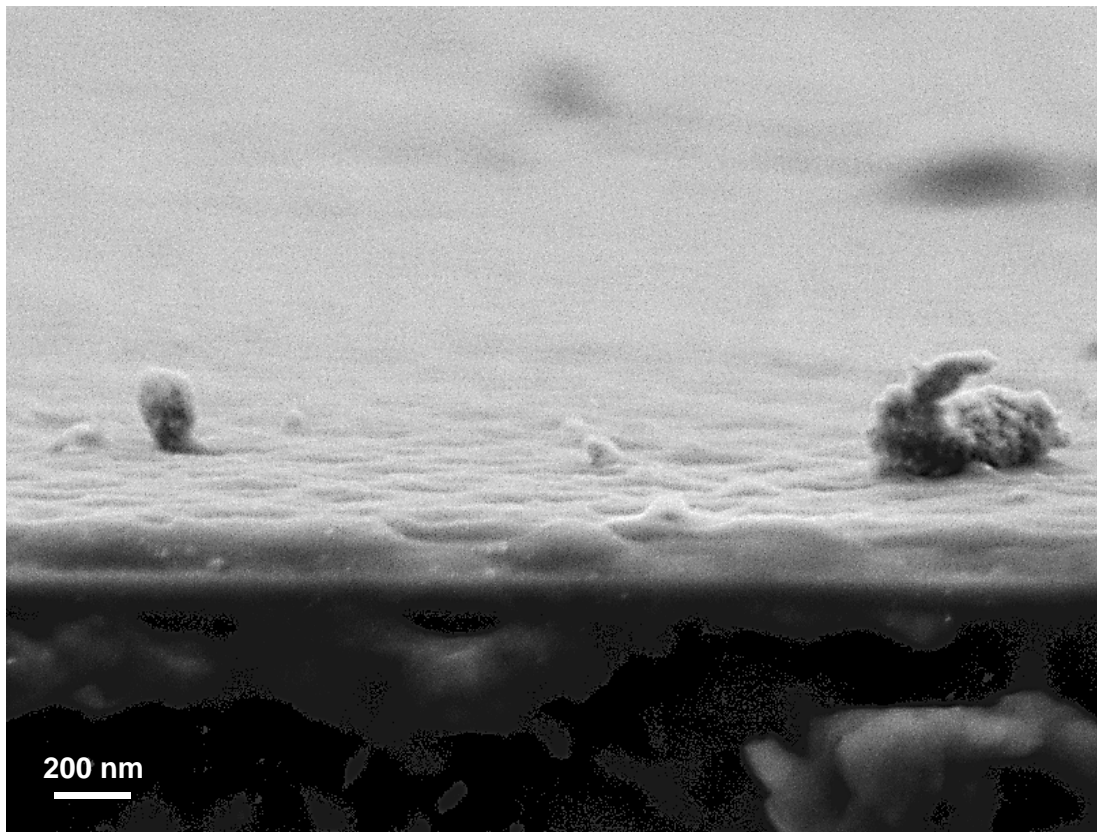
Submitted by: Tso-Fu Mark Chang  
Affiliation: Tokyo Institute of Technology  
Instrument: JEOL JEM2100  
Magnification: 500K

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Contest**

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**“Nano-bunny finds  
carrot”**

**Description:**  
Nano-Bunny  
results from  
accidentally gold  
coated dust  
particles on nano-  
imprinted glass  
substrates.

Submitted by: Jürgen Danzberger  
Affiliation: Profactor GmbH  
Instrument: FE-SEM Zeiss LEO SUPRA-35  
Magnification: 100 KX

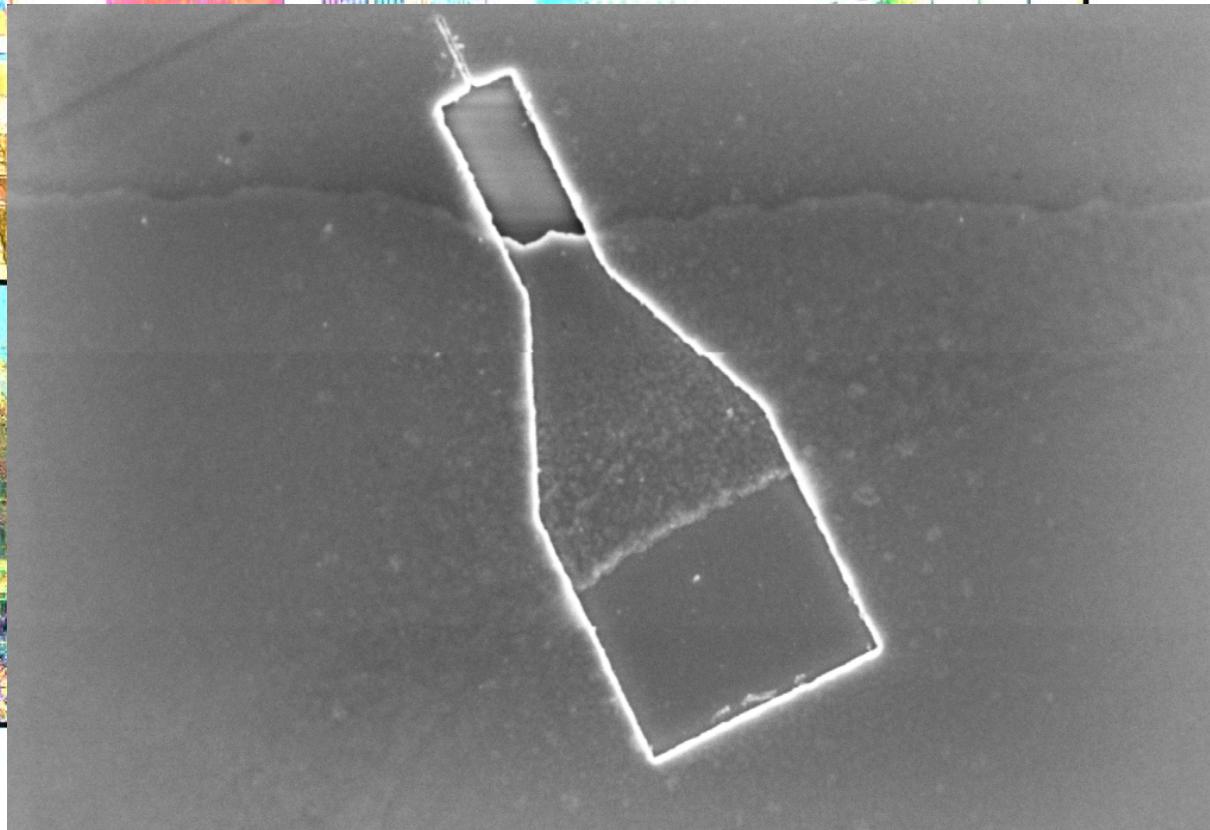
**MNE2015**

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10

**“A Bottle at Sea”**

**Description:  
The metal on the  
lift-off rolled over  
and stuck to the  
surface,  
overlapping  
another metal  
piece forming  
this floating  
bottle.**



Signal A = InLens	EHT = 3.00 kV	2 µm	Stage at T = 0.0 °	CRN2
Aperture Size = 30.00 µm	Mag = 15.86 K X		Tilt Angle = 0.0 °	Date : 22 Mar 2011
F924_SEM_Ap-Lift-Off_09.tif	WD = 7.7 mm		Tilt Corn. = Off	Time : 12:03:48

**MNE2015**

**Submitted by: Gabriel Droulers  
Affiliation: University of Sherbrooke  
Instrument: ZEISS LEO 1530 VP (SEM)  
Magnification: 16 kX**

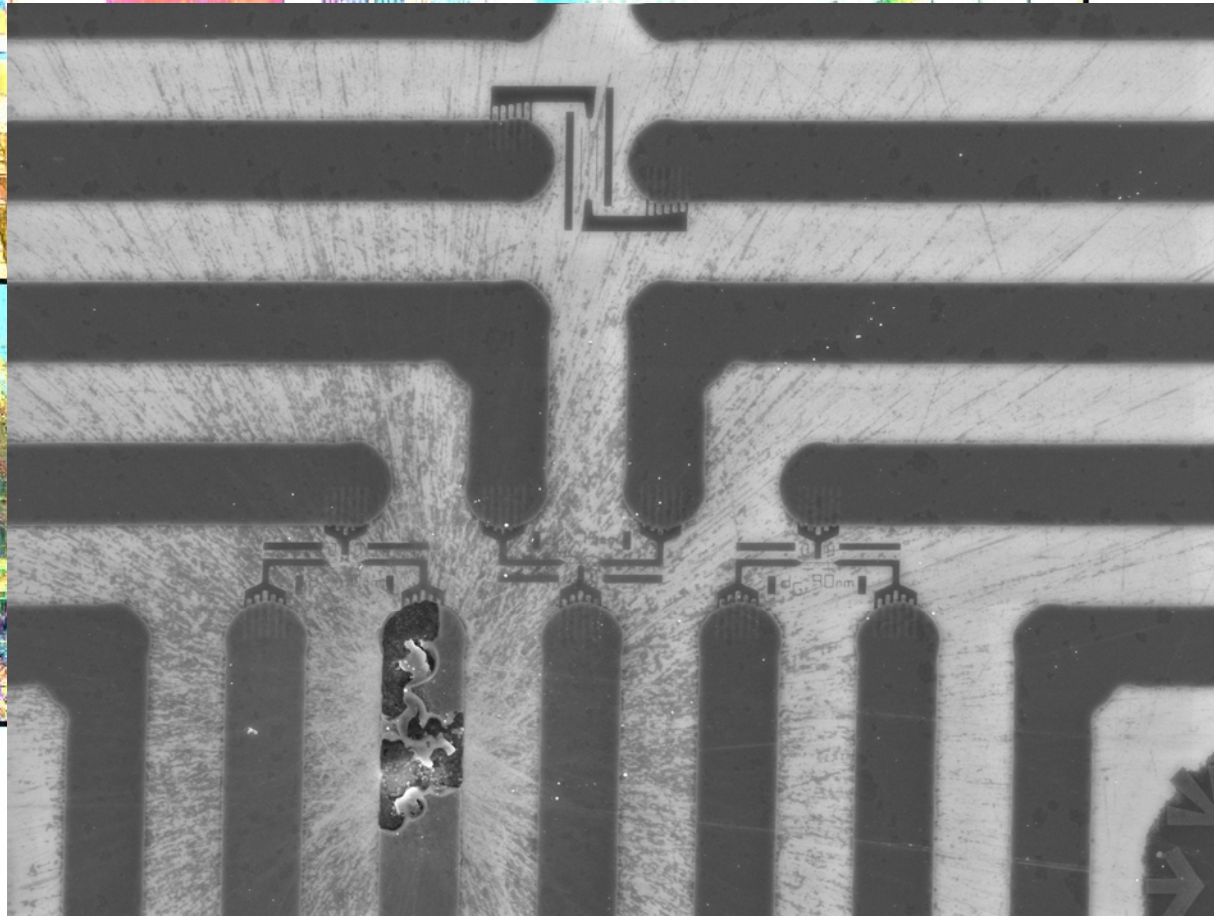
**2015 Micro-Nano Graph  
Contest**

11

**“Micro Explosion”**

**Description:**  
Explosion of an electrode by an electrostatic discharge.

Subsequent chemical mechanical polishing created the radial spread of metal residue destroying with it all other nearby devices!



**MNE2015**

Submitted by: Gabriel Droulers  
Affiliation: University of Sherbrooke  
Instrument: ZEISS LEO 1540 XB (SEM)  
Magnification: 3.7 kX

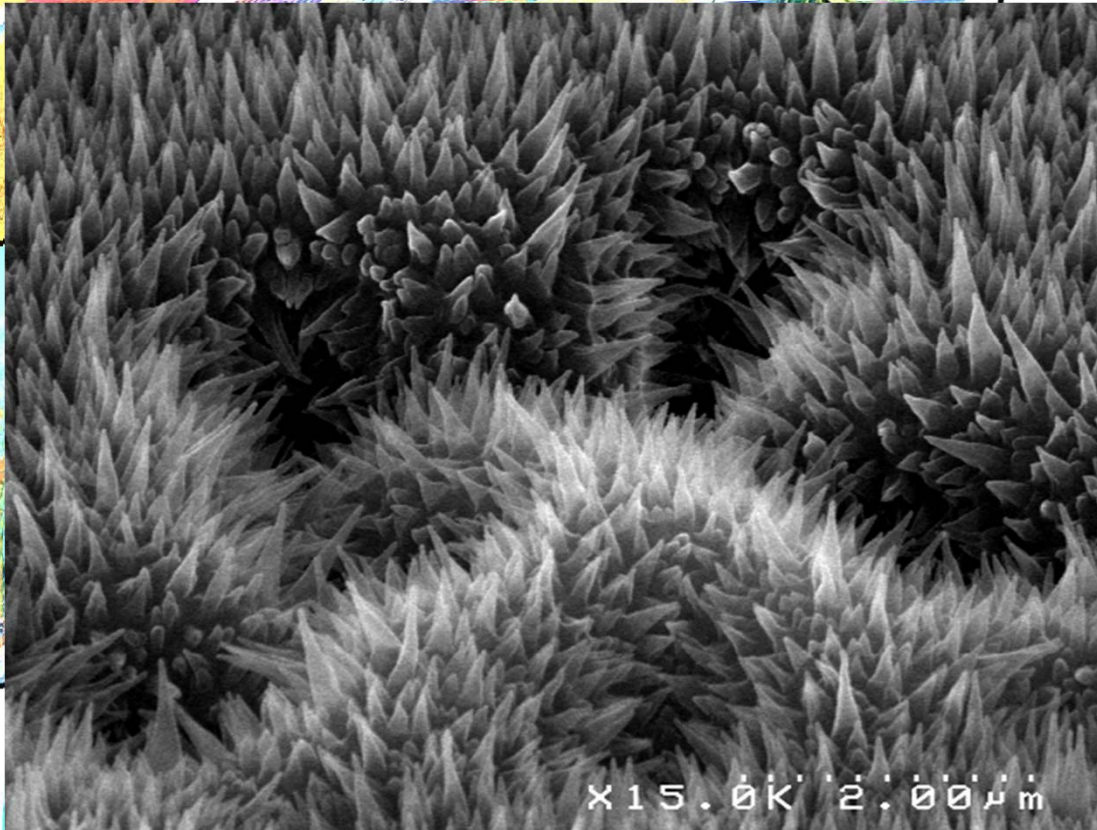
**2015 Micro-Nano Graph  
Contest**

**12**

# “Anemone”

**Description:**

**A polymer film  
was structured by  
plasma etching for  
superhydrophobic  
surface**



**Submitted by: Jérôme Durret**

**Affiliation: LTM - CNRS**

**Instrument: SEM Hitachi S 4100**

**Magnification: 15 KX**

**MNE2015**

**2015 Micro-Nano Graph  
Contest**

13

**“Snowball Effect”**

**Description:**  
The snowball  
effect on a  
polymer film

roughened by  
plasma etching



**Submitted by: Jérôme Durret**

**Affiliation: LTM - CNRS**

**Instrument: SEM Hitachi S 4100**

**Magnification: 1.30 KX**

**MNE2015**

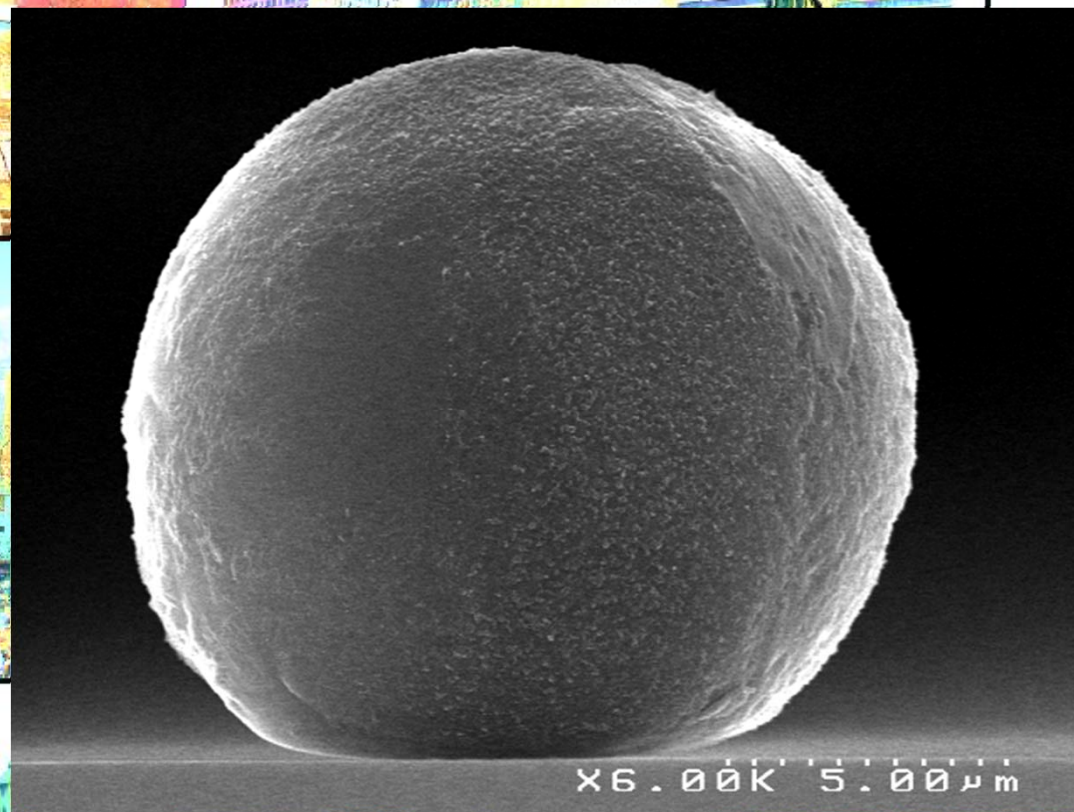
**2015 Micro-Nano Graph  
Contest**

14

# “MicroMoon”

**Description:**  
The MicroMoon  
increases in size in  
a snowballing

effect of  
polymeric  
materials.



**Submitted by: Jérôme Durret**  
**Affiliation: LTM - CNRS**  
**Instrument: SEM Hitachi S 4100**  
**Magnification: 15.00 KX**

**MNE2015**

**2015 Micro-Nano Graph  
Contest**

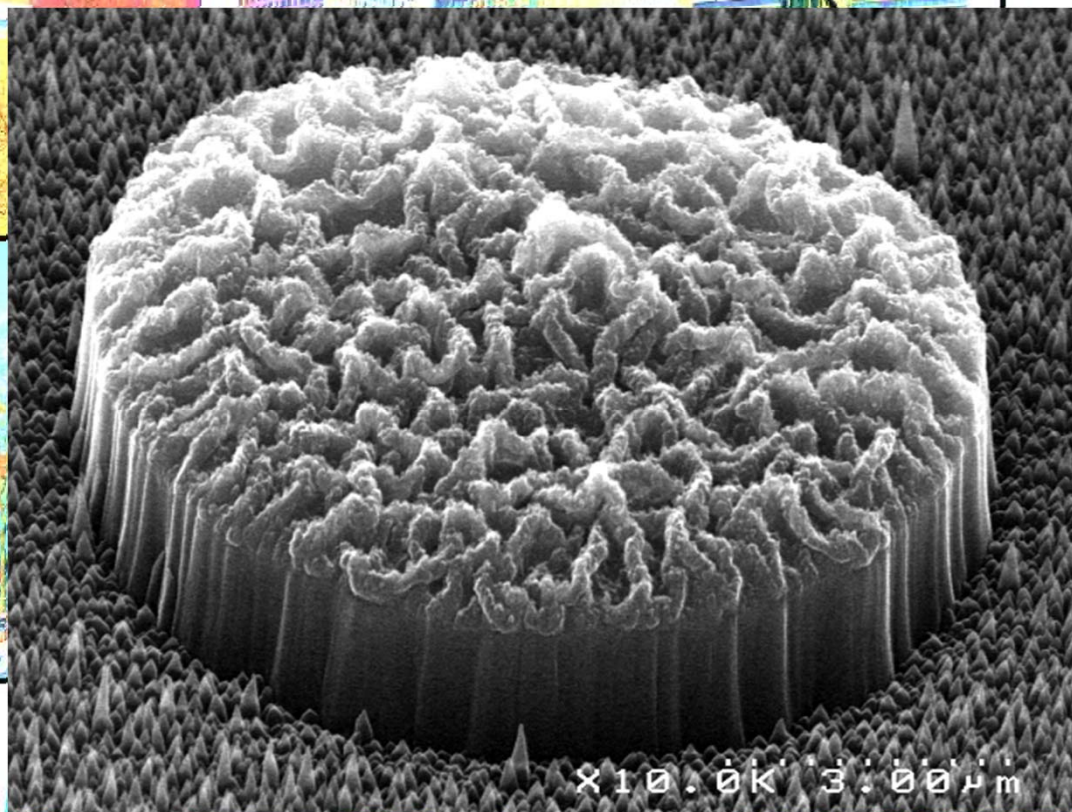
15

# “Brain Cake”

**Description:**

The Brain Cake is probably the most famous

micro culinary dish and its recipe is the most closely guarded secret



Submitted by: Jérôme Durret

Affiliation: LTM - CNRS

Instrument: SEM Hitachi S 4100

Magnification: 10.00 KX

**MNE2015**

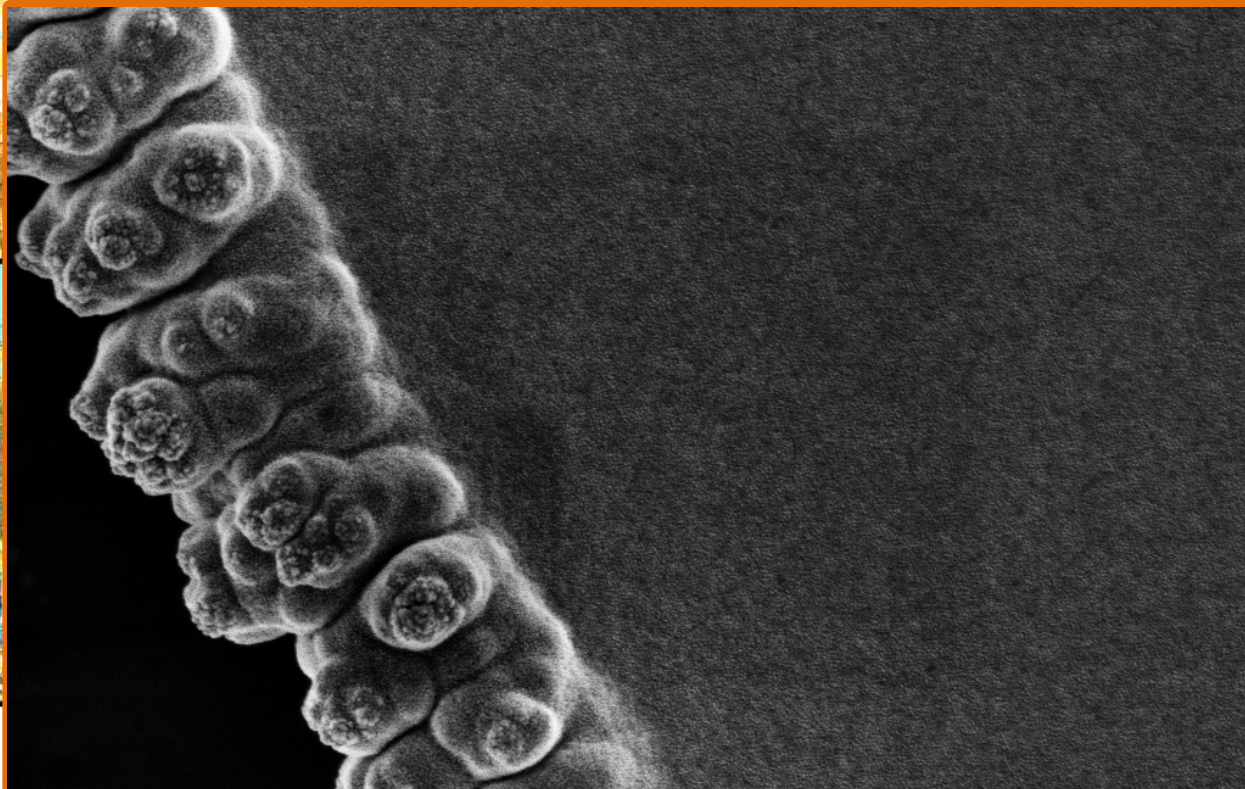
**2015 Micro-Nano Graph  
Contest**

16

**“Caterpillar lost in a  
cruel Microworld”**

**Description:  
Edge of Nickel  
electroplated  
structure. Looks**

**like caterpillar  
about to fall to  
the abyss of a  
cruel and lonely  
micro and  
nanoworld.**



200 nm EHT = 2.00 kV Signal A = InLens Mag = 84.63 K Stage at T = 0.0° WD = 5.5 mm Date : 8 Sep 2015  
File Name = 150908\_M5mask\_p20\_e0\_nickel.tif Aperture Size = 20.00 μm Time : 17:33:29

**Submitted by: Roberto Fallica, Elizabeth Buitrago, Tero  
Kulmala**

**Affiliation: Paul Scherrer Institute**

**Instrument: Zeiss Supra VP55 high resolution field  
emission scanning electron microscope**

**Magnification: 84,000**

**MNE2015**



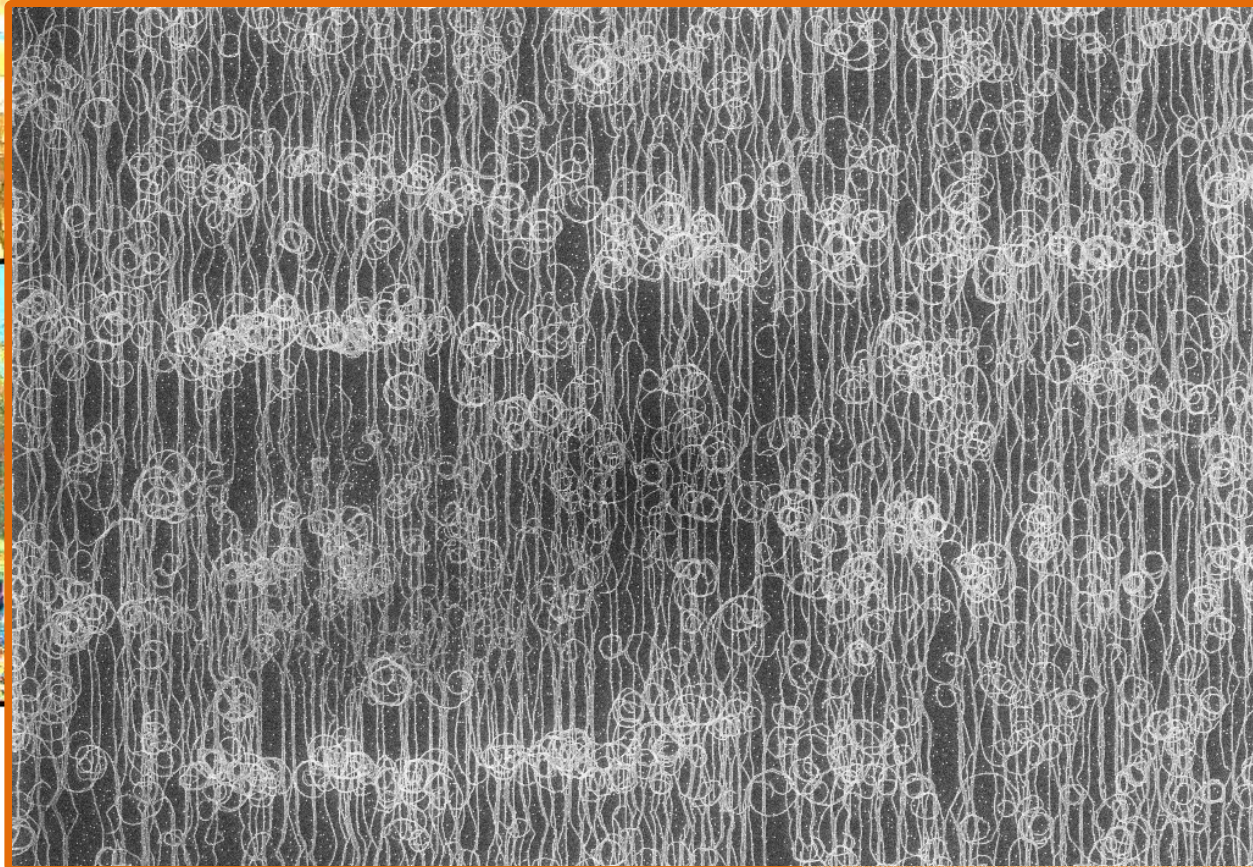
**2015 Micro-Nano Graph  
Contest**

17

**“Spaghetti photoresist”**

**Description:**

A thin photoresist film meant to be patterned into a dense lines/space array. As the dose was too low, the lines partially detached and curled up in a spaghetti-like shape.



**Submitted by: Roberto Fallica, Elizabeth Buitrago, Tero Kulmala**

**Affiliation: Paul Scherrer Institut**

**Instrument: Zeiss Supra VP55 FE-SEM**

**Magnification: 21.840x**

**MNE2015**

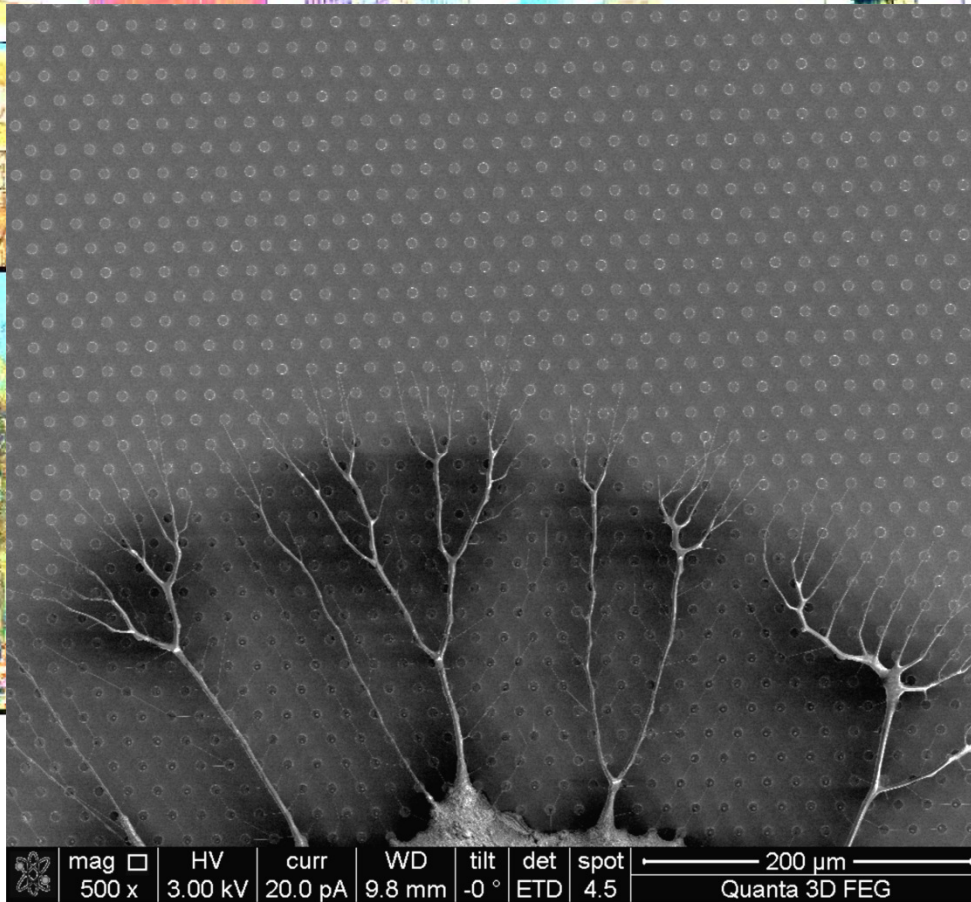
# 2015 Micro-Nano Graph Contest

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## “The roots of life”

### Description:

Branched DNA after stretching on superhydrophobic surface



Submitted by: Marco Francardi

Affiliation: KAUST, Thuwal, Saudi Arabia

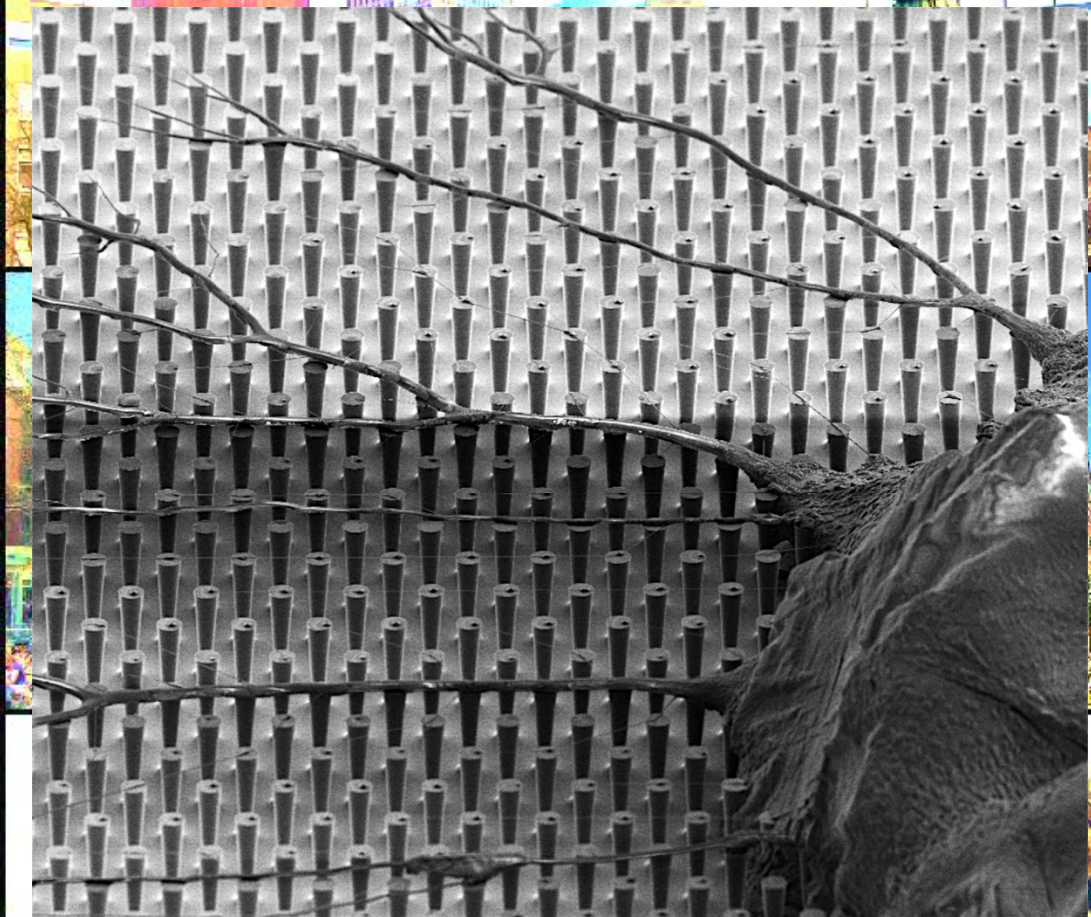
Instrument: FEI – Quanta 3D

Magnification: 0.5KX

# MNE2015

**2015 Micro-Nano Graph  
Contest**

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	mag <input type="checkbox"/>	HV	curr	WD	tilt	det	spot	50 $\mu$ m	
1 200 x		3.00 kV	20.0 pA	9.9 mm	60 °	ETD	4.5	Quanta 3D FEG	

**“Baobab tree”**



**Description:**

DNA bundles  
stretched on Super  
Hydrophobic Surface



Submitted by: **Marco Francardi**  
Affiliation: KAUST, Thuwal,  
Saudi Arabia

Instrument: FEI – Quanta 3D  
Magnification: 1.2KX

**MNE2015**



2015 Micro-Nano Graph  
Contest

20


“Life preserver in a sea of pillars”

Description:

Collapsed drop on a super hydrophobic surface

Submitted by: Marco Francardi  
Affiliation: KAUST, Thuwal,  
Saudi Arabia

Instrument: FEI – Quanta 3D  
Magnification: 1.4KX

	mag <input type="checkbox"/>	HV	curr	WD	tilt	det	spot	50 $\mu$ m	
	1 391 x	30.0 kV	140 pA	9.6 mm	60 °	ETD	5.0	Quanta 3D FEG	

MNE2015

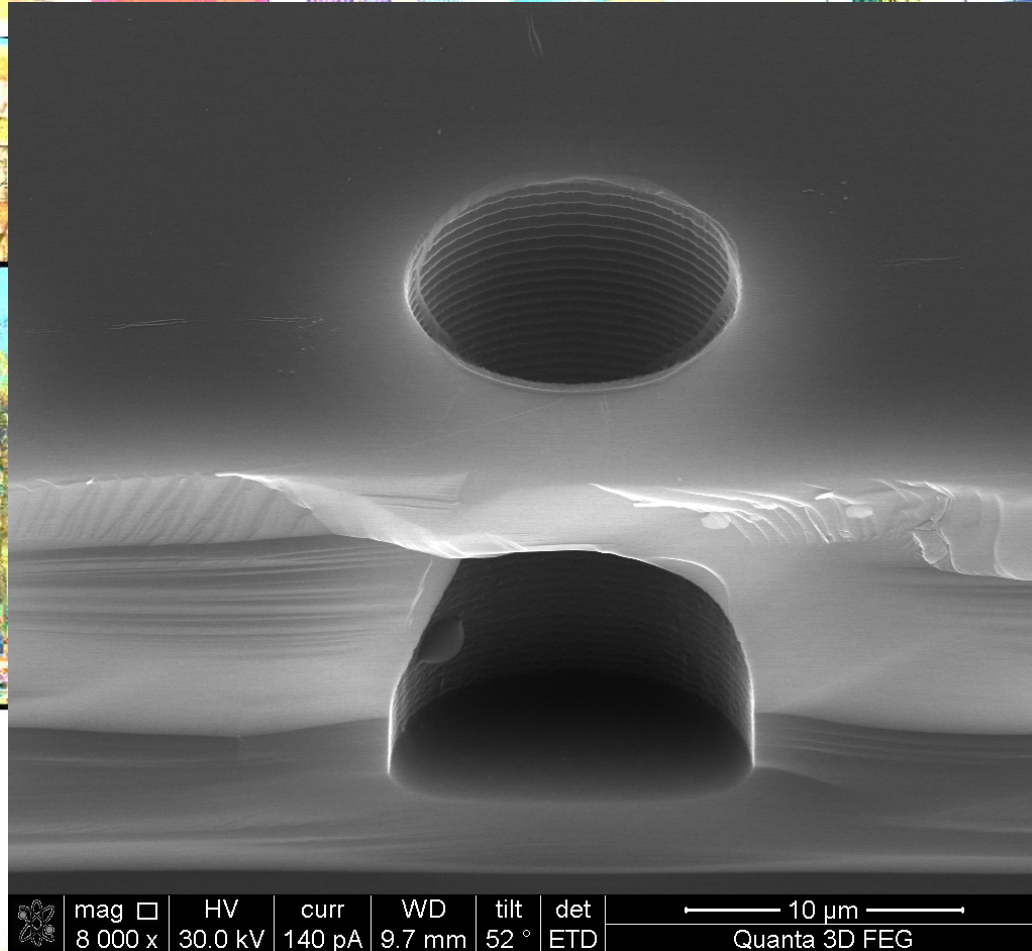
**2015 Micro-Nano Graph  
Contest**

21

**“A broken  
hourglass has lost  
its time”**

**Description:**

This picture comes from a bosch process for the fabrication of a mold for imprinting application



**Submitted by: Marco Francardi  
Affiliation: KAUST, Thuwal,  
Saudi Arabia**

**Instrument: FEI – Quanta 3D  
Magnification: 8KX**

**MNE2015**

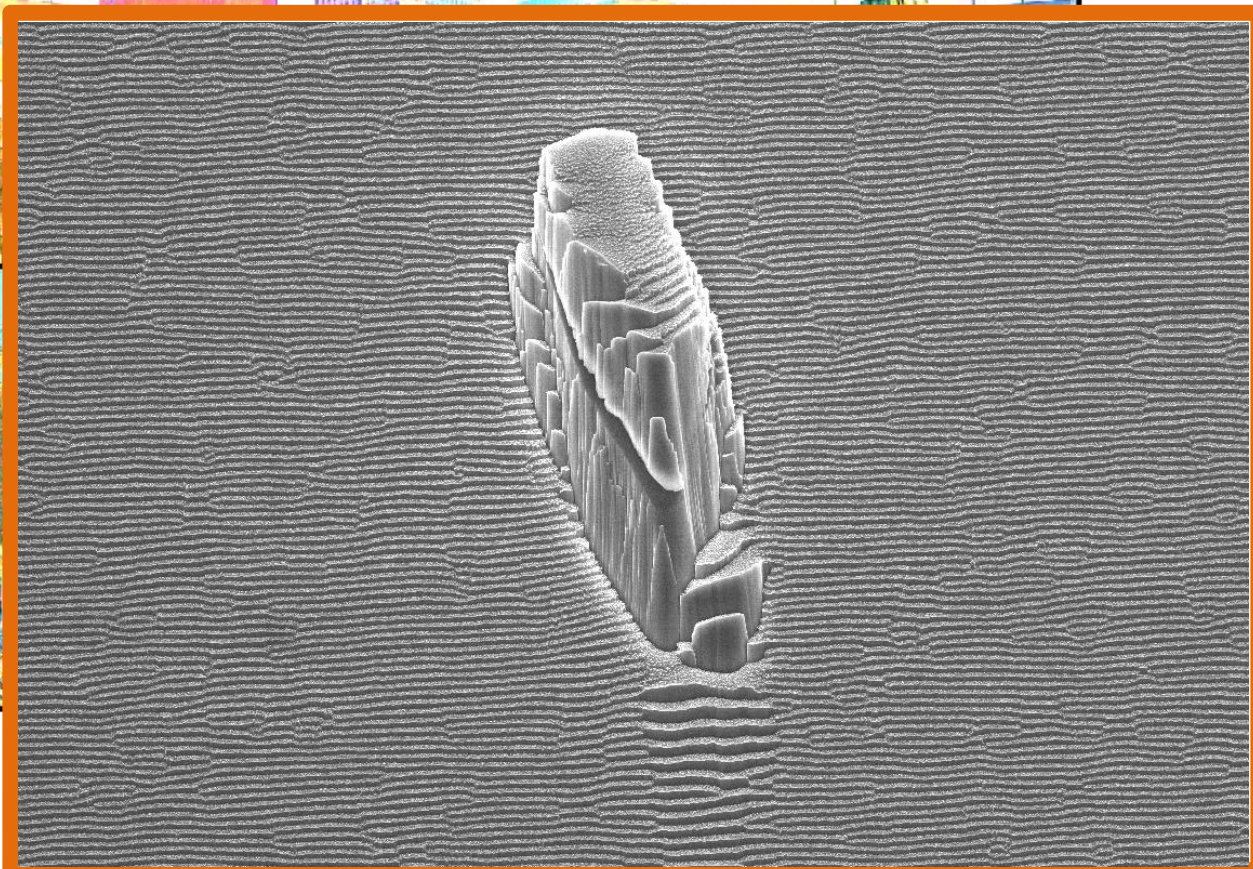
# Honorable Mention

22

**“Awaiting the nano-Titanic”**

**An islet on Ge surface modified by**

**low energy heavy ions beam.**



**MNE2015**

Submitted by: Erica Iacob

Affiliation: Fondazione Bruno Kessler

Instrument: SEM Jeol JSM7401F

Magnification: 3000X

**2015 Micro-Nano Graph  
Contest**

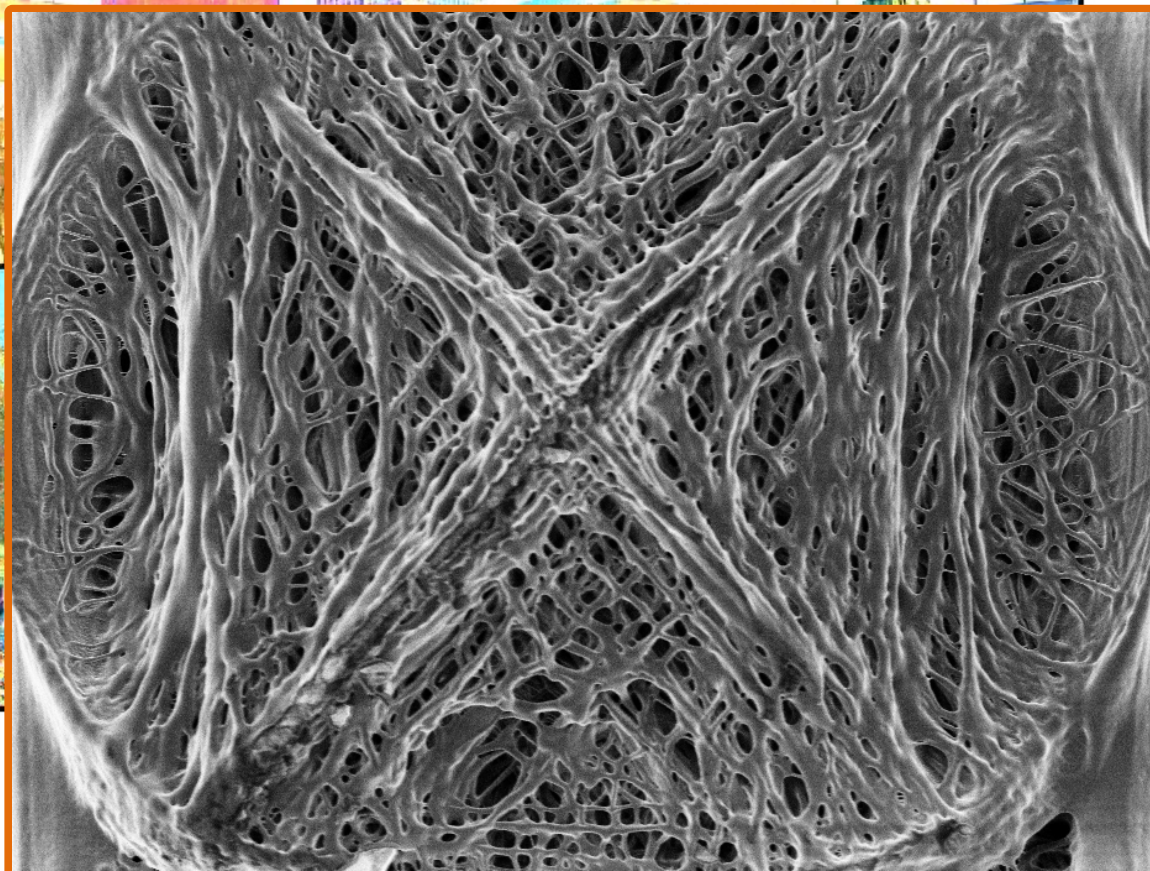
23

**“Inside the death star”**

**Description:**

**Polymerized  
network formed**

**by random  
trajectories during  
2-photon-laser-  
lithography**



**MNE2015**

**Submitted by: Robert Kirchner  
Affiliation: Paul Scherrer Institut  
Instrument: Zeiss Supra 55 VP  
Magnification: 8.73 kX**

**2015 Micro-Nano Graph  
Contest**

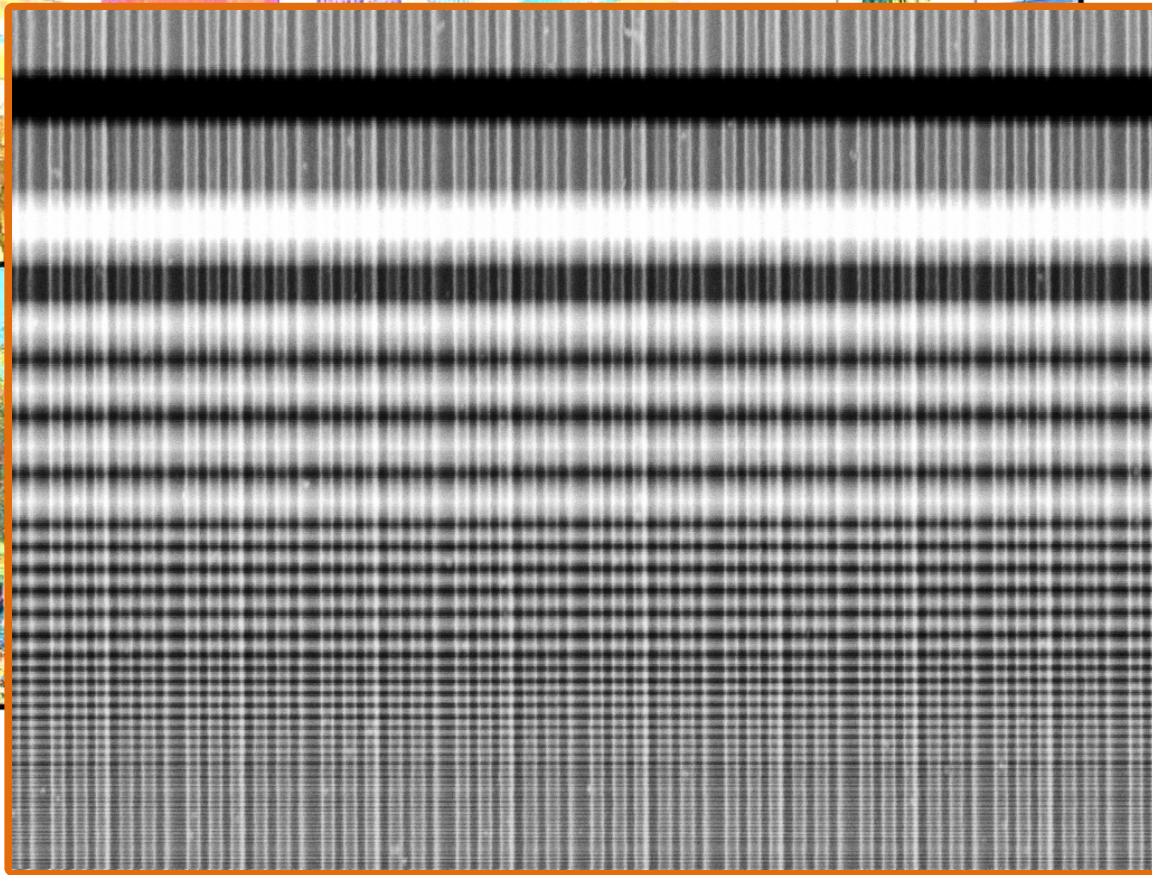
24

**“SEM test pattern”**

**Description:**

**Vertical line-space  
pattern in PMMA**

**resist overlaid  
during SEM-line  
scan with a  
contrast  
modulation**



**MNE2015**

**Submitted by: Robert Kirchner  
Affiliation: Paul Scherrer Institut  
Instrument: Zeiss Supra 55 VP  
Magnification: 36.30 kX**



**2015 Micro-Nano Graph  
Contest**

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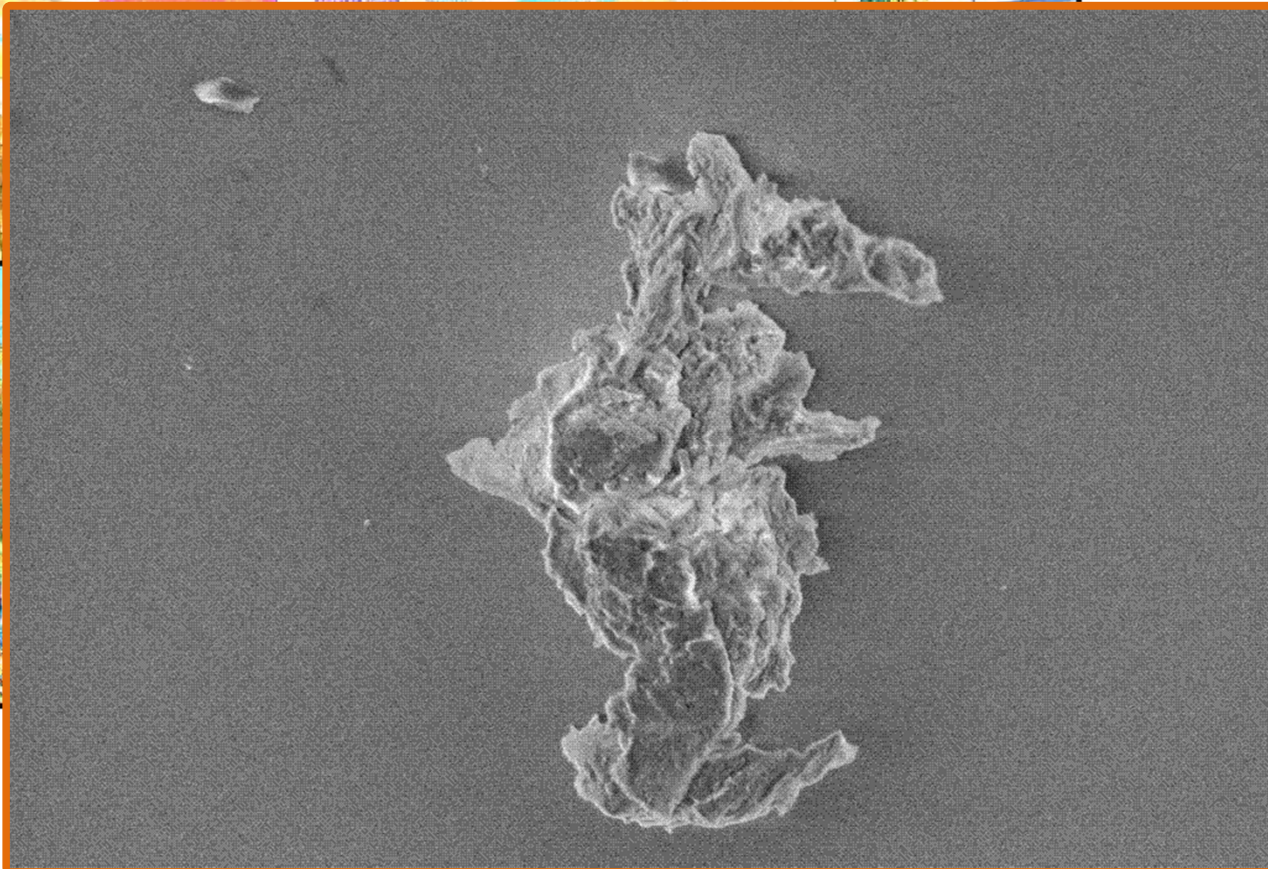
**“Dancing Nanosaur”**

**Description:**

**Artistic particle on  
a silicon substrate**

**charged during  
imaging leading to  
slight feature  
displacement  
within 2  
subsequent**

**images**



**Submitted by: Robert Kirchner  
Affiliation: Paul Scherrer Institut  
Instrument: Zeiss Supra 55 VP  
Magnification: 60.63 kX**

**MNE2015**

**2015 Micro-Nano Graph  
Contest**

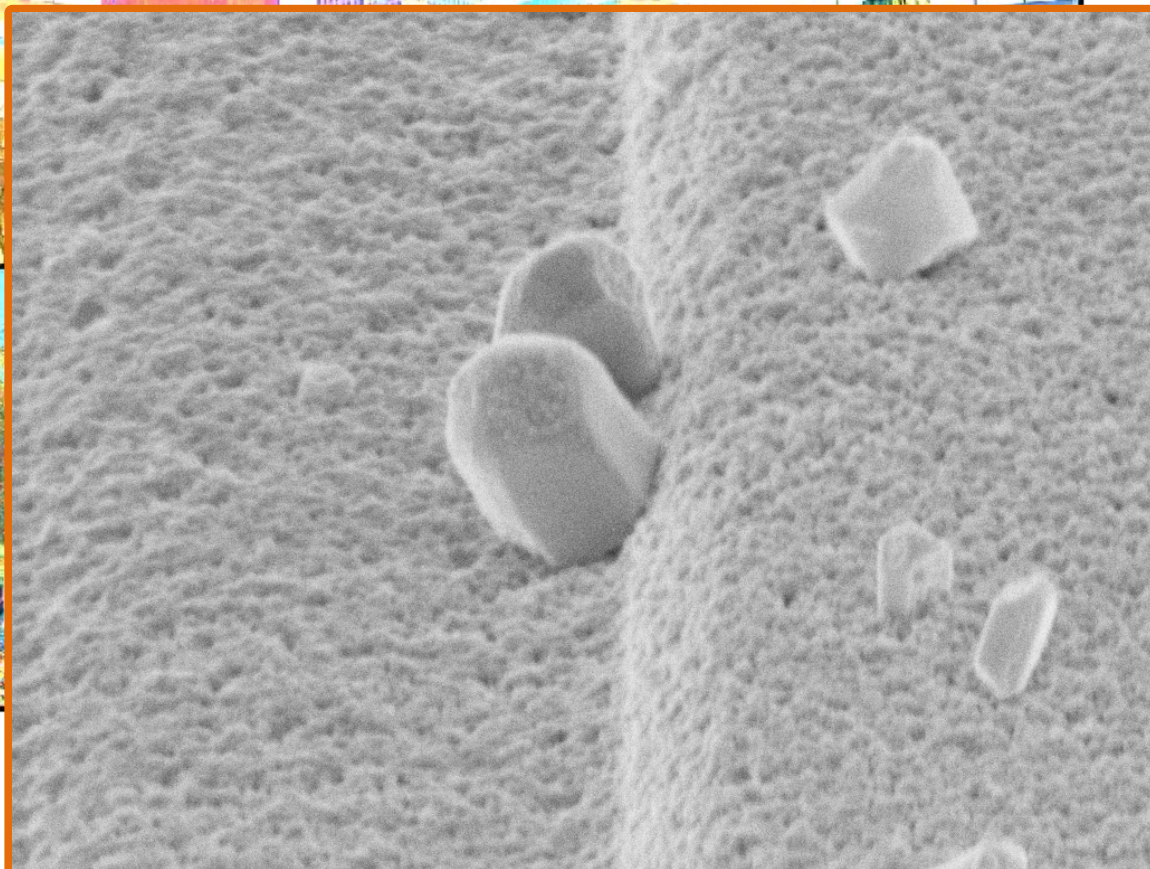
26

**“Lonely crystals surfing”**

**Description:**

**Crystals on a  
rough surface**

**after non-  
buffered etching  
of a spin-on-glass  
with HF**



**MNE2015**

**Submitted by: Robert Kirchner  
Affiliation: Paul Scherrer Institut  
Instrument: Zeiss Supra 55 VP  
Magnification: 120.56 kX**

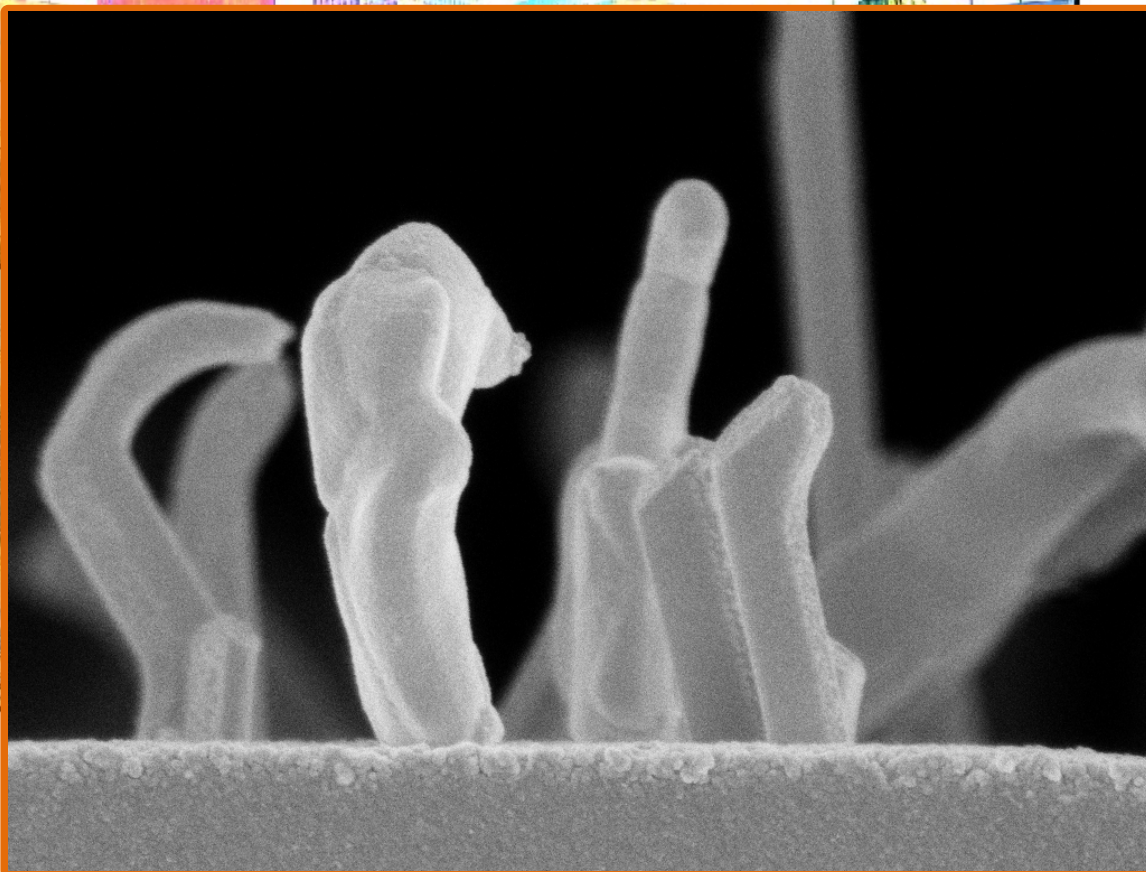
# Honorable Mention

27

**“The Person and The  
Finger”  
Description:**

**Standing crystals  
on a rough surface**

**after non-  
buffered etching  
of a spin-on-glass  
with HF**



**Submitted by: Robert Kirchner  
Affiliation: Paul Scherrer Institut  
Instrument: Zeiss Supra 55 VP  
Magnification: 118.06 kX**

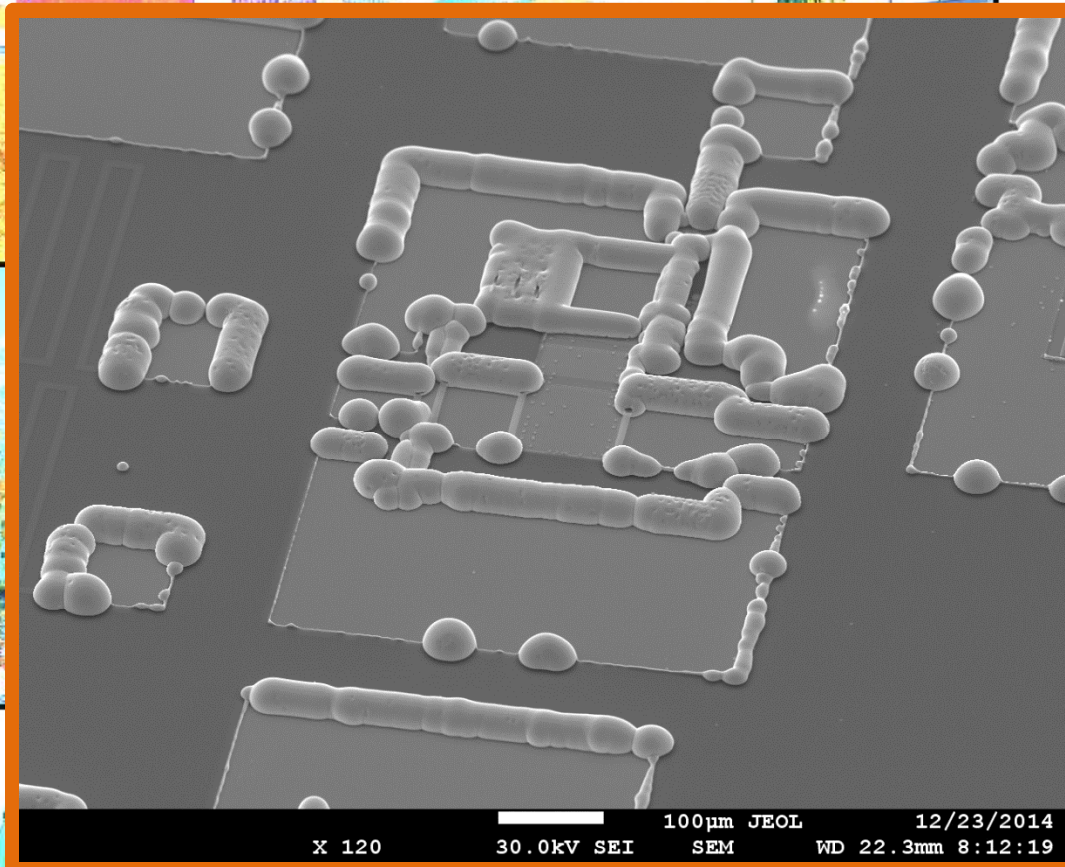
**MNE2015**

# 2015 Micro-Nano Graph Contest

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## “Copper beads”

**Description:**  
Wrong voltage polarity was applied during first few seconds of Cu electroplating process. Then polarity was changed and process was finished. But those few seconds were enough to etch-out seed layer, and copper was grown only on edges of structures.



**Submitted by:** Roman Kirtaev  
**Affiliation:** MIPT  
**Instrument:** JEOL JSM 7001-F  
**Magnification:** x120

**MNE2015**

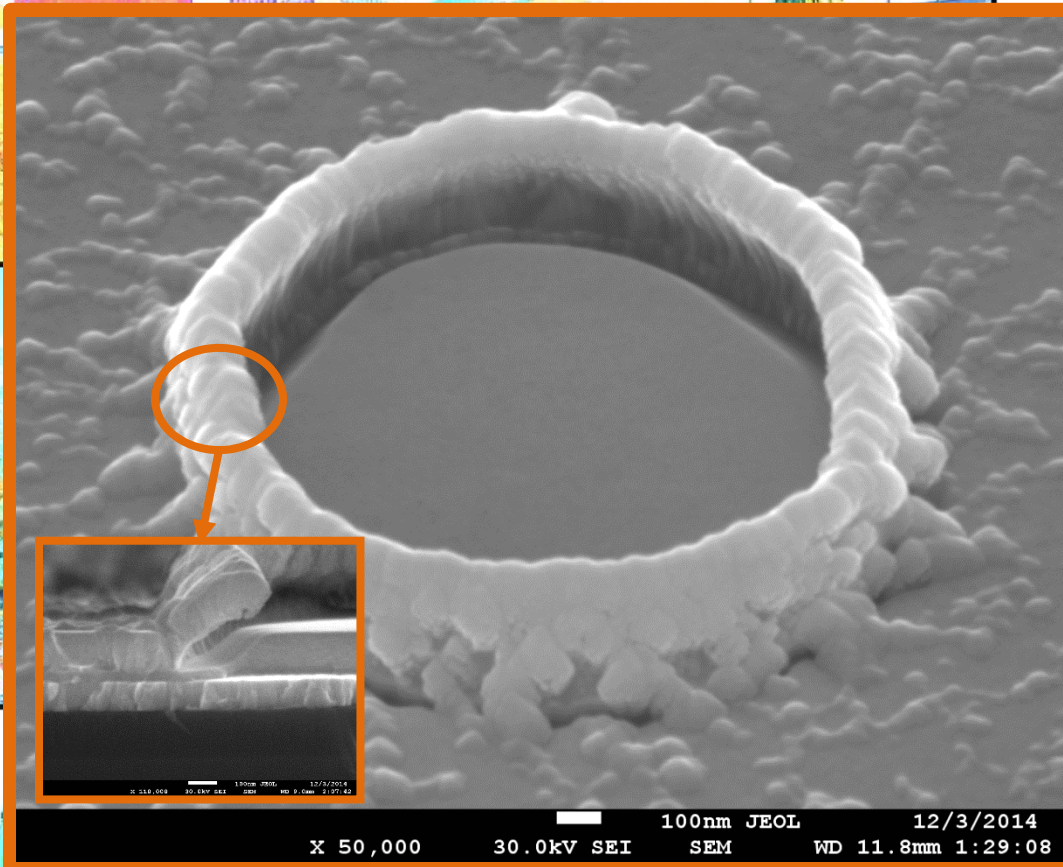
# 2015 Micro-Nano Graph Contest

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## “Somewhere on the Moon”

**Description:**  
A resist layer  
was't stripped

properly before  
metal layer  
deposition. This  
led to formation  
of such a “crater”.  
Also a cross  
section of edge is  
shown.



Submitted by: Roman Kirtaev  
Affiliation: MIPT  
Instrument: JEOL JSM 7001-F  
Magnification: x50000 (x110000)

# MNE2015

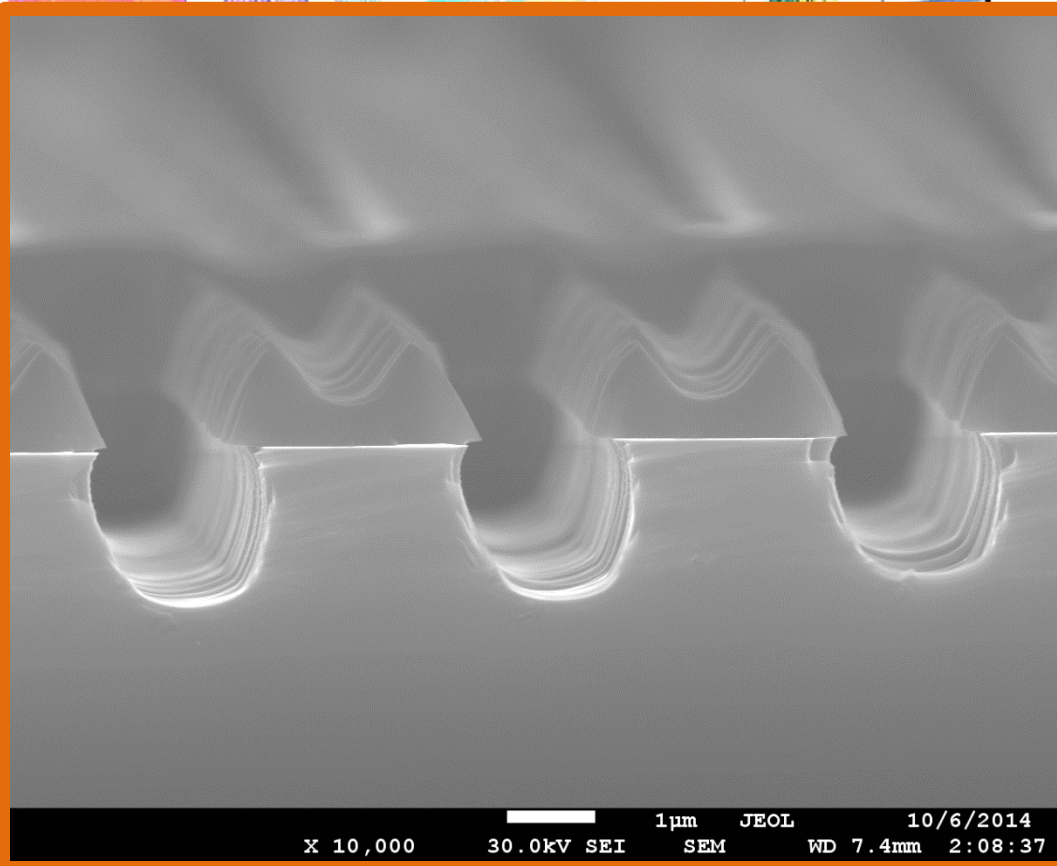
**2015 Micro-Nano Graph  
Contest**

30

**“Almost the Kremlin  
Wall”**

**Description:  
Just trenches in  
silicon with “M”-**

**shaped  
photoresist which  
looks like peaks  
on Moscow  
Kremlin Wall.**



**MNE2015**

**Submitted by: Roman Kirtaev  
Affiliation: MIPT  
Instrument: JEOL JSM 7001-F  
Magnification: x10000**

# Honorable Mention

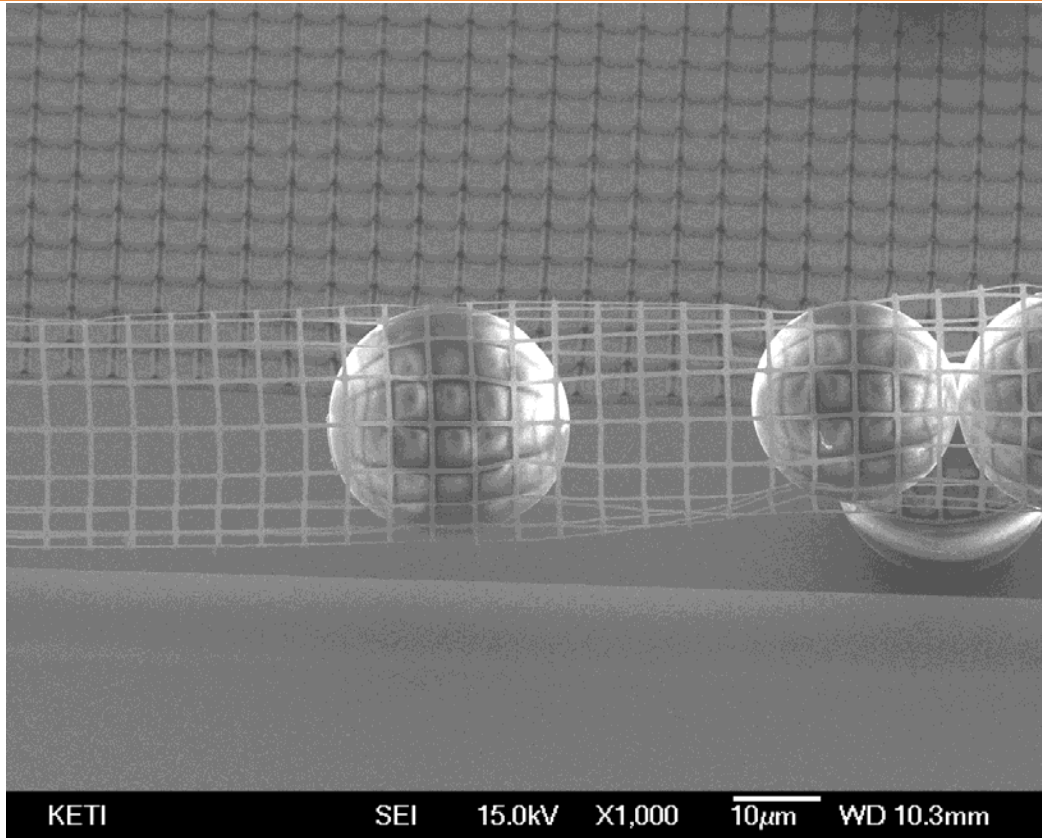
31

**“Microsphere in the net border!”**

## Description:

Micro metal grid mesh was fabricated by the self-rolling of

metal/SiO<sub>2</sub> bifilm stress. Polystyrene microparticles were inserted into the micro grid net during self-rolling of the microtube or micro grid net.



Submitted by: Kook-Nyung Lee

Affiliation: Korea Electronics Technology Institute

Instrument: JEOL FESEM (JEOL JSM-7000F)

Magnification: X 1,000

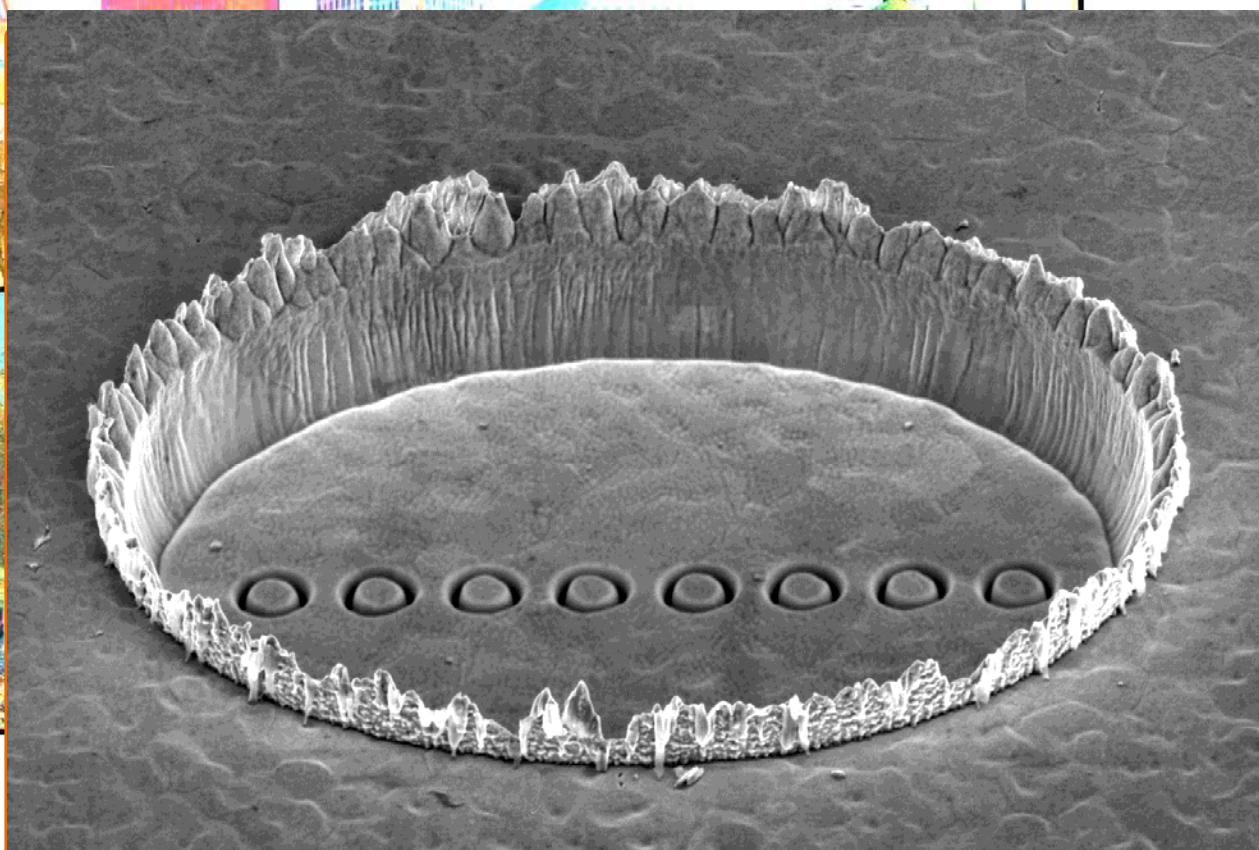
**MNE2015**

# Honorable Mention

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## “Ring of Plasmonics”

Description:  
Eight plasmonic ring structures were milled with a FIB system into an existing ellipse in a gold layer. The plasmonic signal should be enhanced.



	HV	curr	dwell	det	mode	WD	tilt	mag	HPW	1 μm
	2.00 kV	0.10 nA	100 μs	TLD	SE	3.9 mm	52 °	35 000 x	5.92 μm	TU Kaiserslautern NSC T. Loeber

# MNE2015

Submitted by: Thomas Loeber  
Affiliation: NSC, TU Kaiserslautern, Germany  
Instrument: FEI Helios 650 Dualbeam  
Magnification: 35 KX



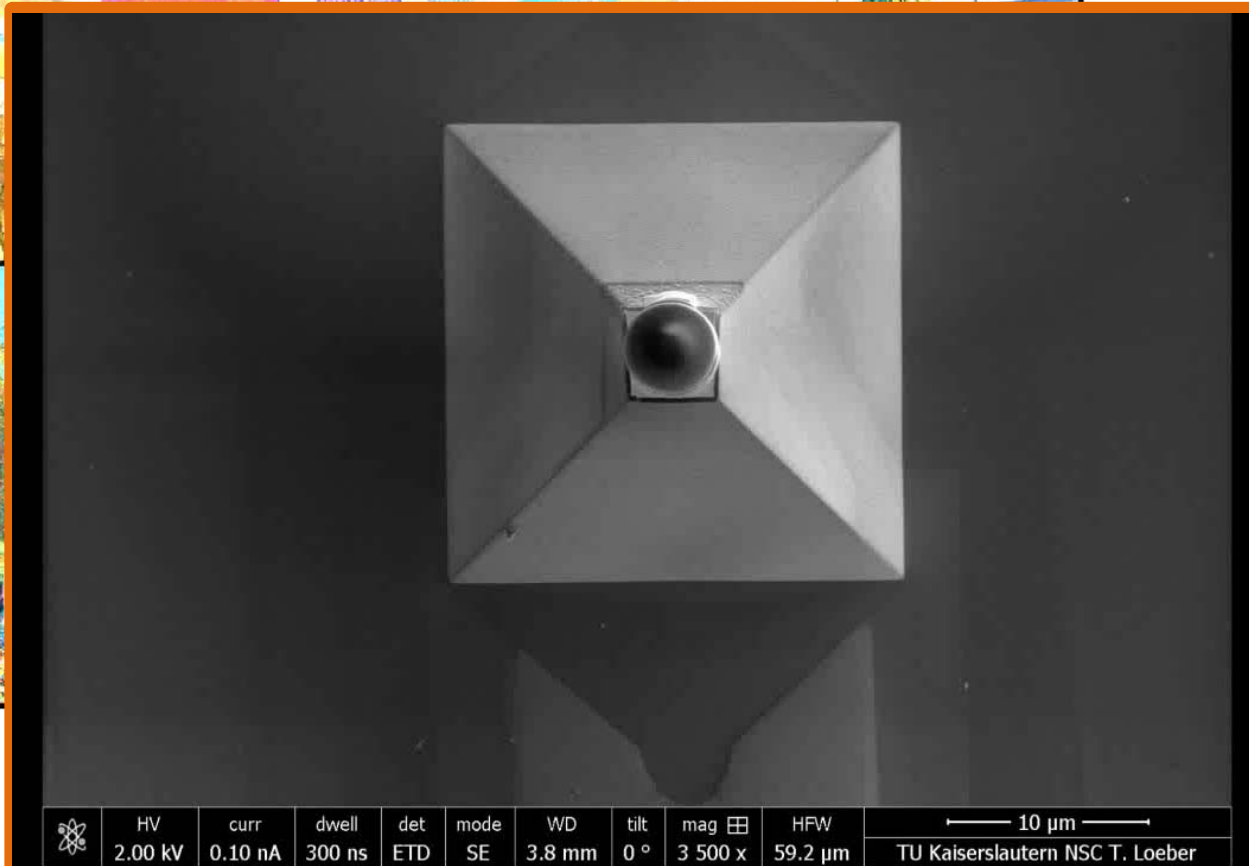
**2015 Micro-Nano Graph  
Contest**

33

**“SNOM snowman”**

**Description:  
Glass spheres  
were mounted  
on a SNOM**

**cantilever for  
diffuse light  
scattering. The  
3D position of  
the spheres was  
observed from  
all directions.**



**MNE2015**

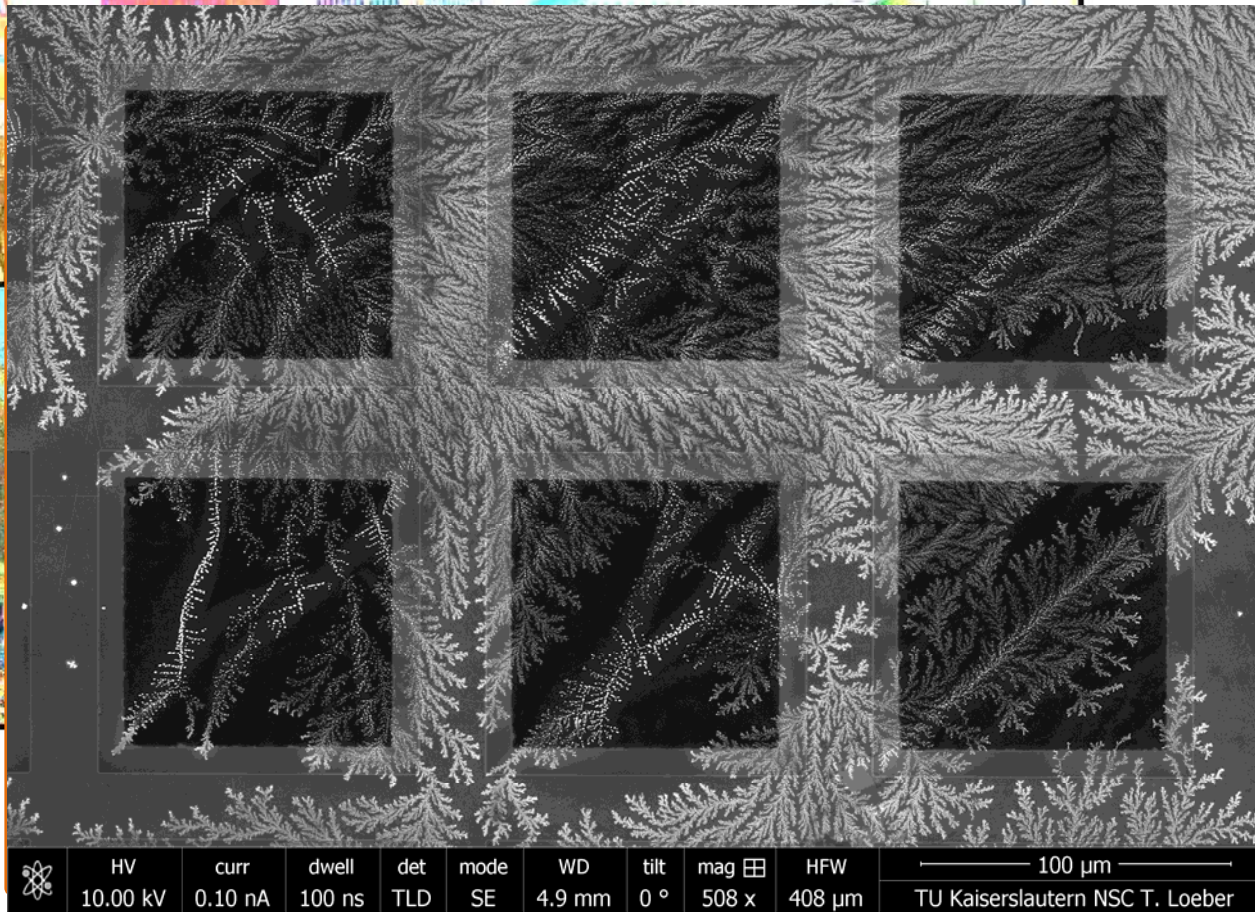
**Submitted by: Thomas Loeber  
Affiliation: NSC, TU Kaiserslautern, Germany  
Instrument: FEI Helios 650 Dualbeam  
Magnification: 3.5 KX**

# Honorable Mention

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**“Winter is coming”**

**Description:**  
**Biological cells were cultivated in salt water and this solution was dripped onto a TEM grid for analysis of the cells. The dried NaCl crystals built this snow flake like structures.**



**MNE2015**

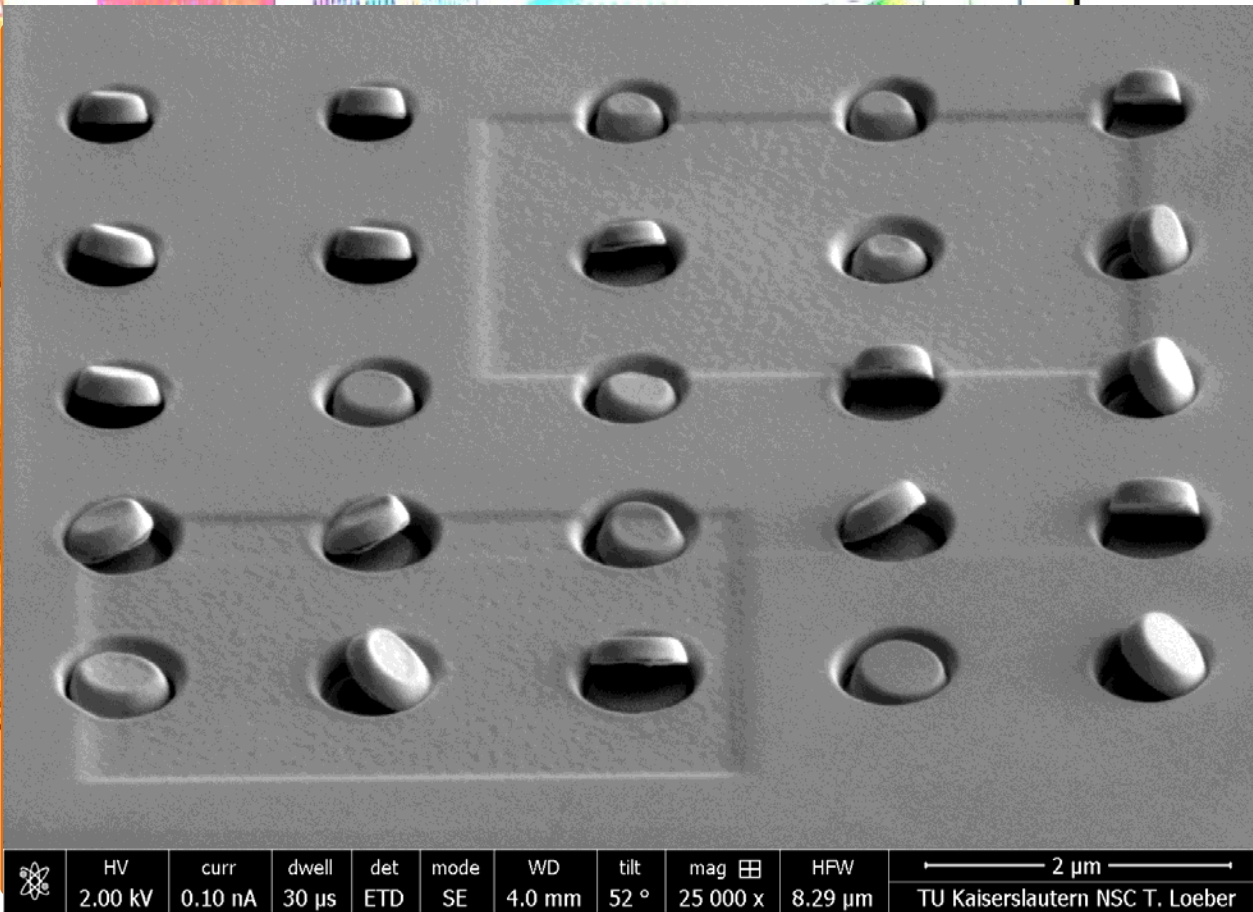
**Submitted by: Thomas Loeber**  
**Affiliation: NSC, TU Kaiserslautern, Germany**  
**Instrument: FEI Helios 650 Dualbeam**  
**Magnification: 508 X**

**2015 Micro-Nano Graph  
Contest**

35

**“Turning tables”**

**Description:**  
An array of plasmonic ring structures was milled into a thin gold layer. The milling dose was too large and some disks flipped over.



**MNE2015**

**Submitted by: Thomas Loeber**  
**Affiliation: NSC, TU Kaiserslautern, Germany**  
**Instrument: FEI Helios 650 Dualbeam**  
**Magnification: 25 KX**

**2015 Micro-Nano Graph  
Contest**

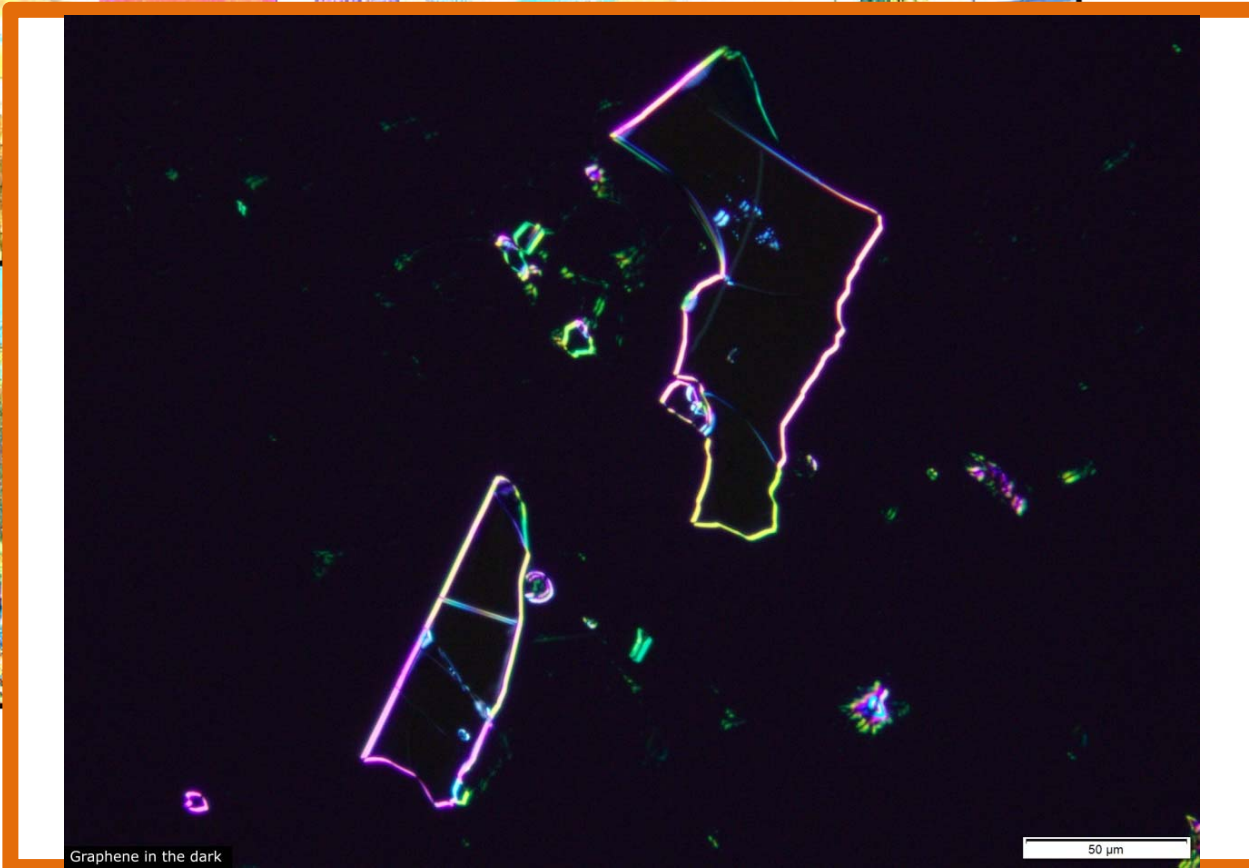
36

**“Graphene in the Dark”**

**Description:**

The cosmic image  
was given by  
differential

interference  
contrast image of  
multilayer  
graphene &  
graphite flat  
surface on  $\text{SiO}_2$   
substrate.



Submitted by: Etsuo Maeda  
Affiliation: The University of Tokyo  
Instrument: BX51  
Magnification: 20x

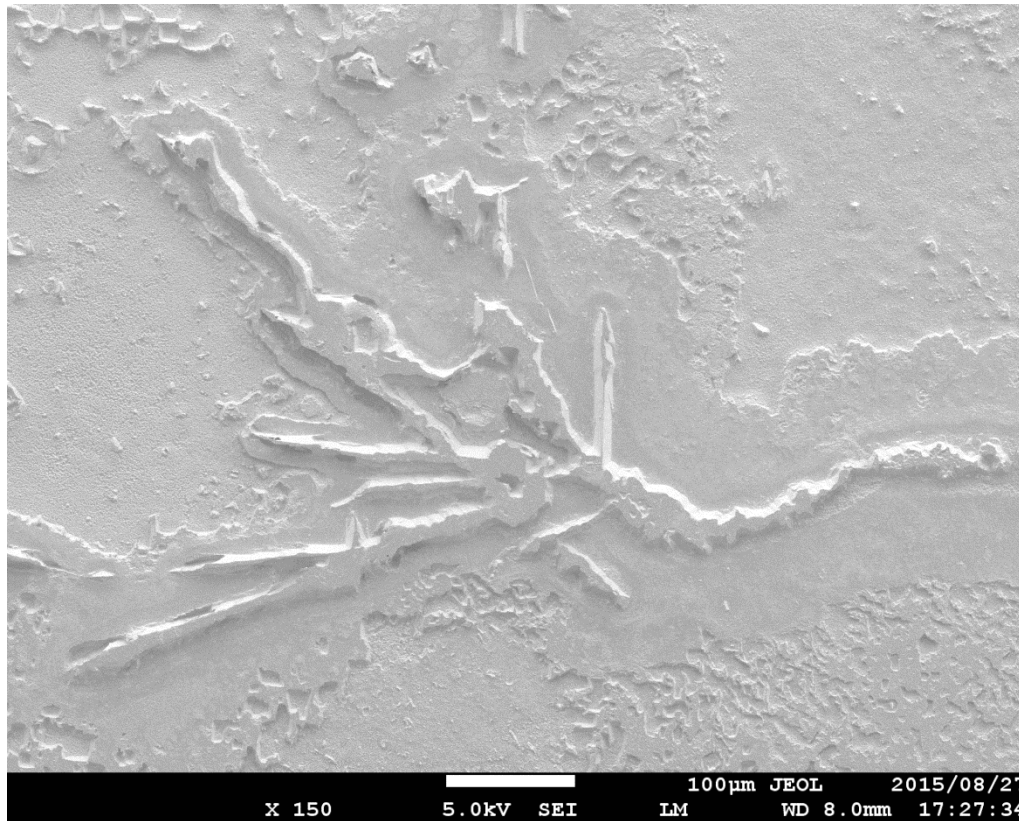
**MNE2015**

**2015 Micro-Nano Graph  
Contest**

37

**“micro  
Archaeopteryx”**

**Description:  
Fossil of micro  
Archaeopteryx,  
including wings  
,tail and head.**



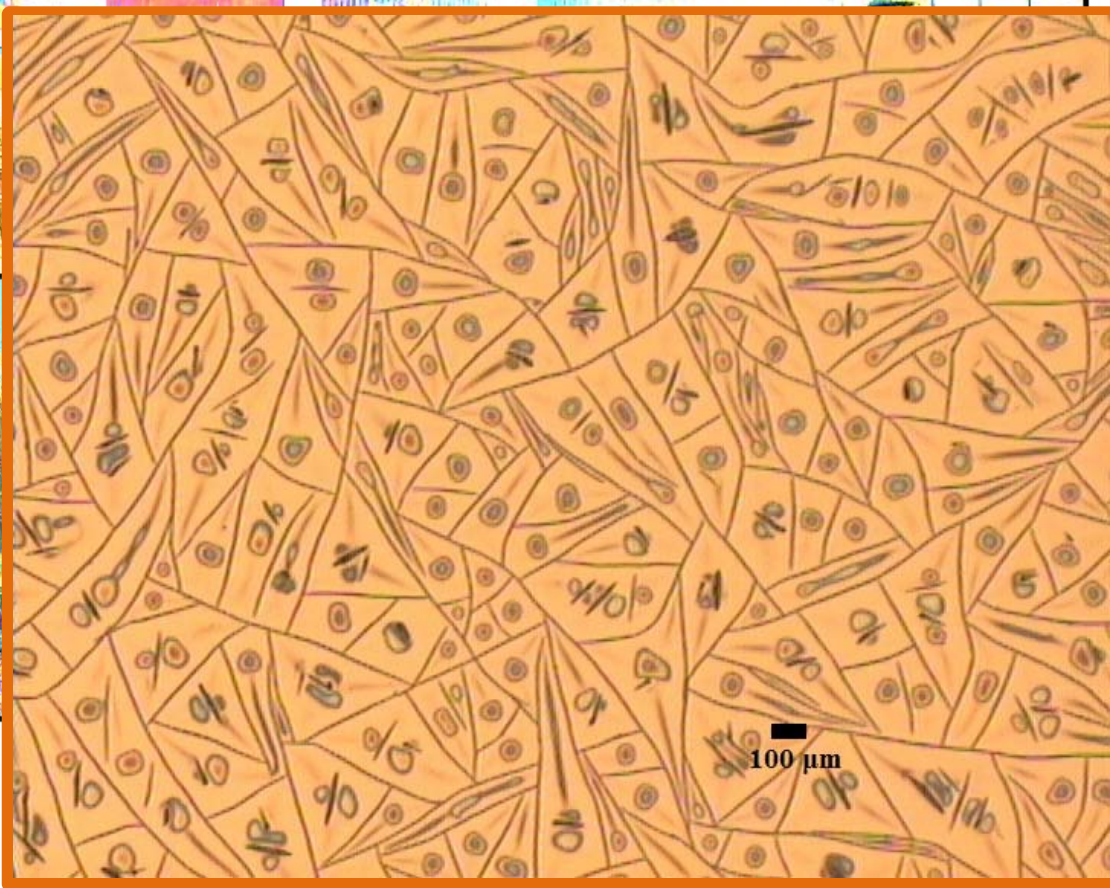
**Submitted by: Etsuo Maeda  
Affiliation: The University of Tokyo  
Instrument: BX51  
Magnification: 20x**

**MNE2015**

**1<sup>st</sup> Prize**

**38**

**“Abstract expressionism  
in polymer  
microphases”**



**Description:**

**Phase separation  
induced by the  
degradation of  
the polymer**

**MNE2015**

**Submitted by: Theodoros Manouras  
Affiliation: Institute of Electronic Structure  
and Laser (IESL)  
Instrument: OLYMPUS MX51-F  
Magnification: 10X**

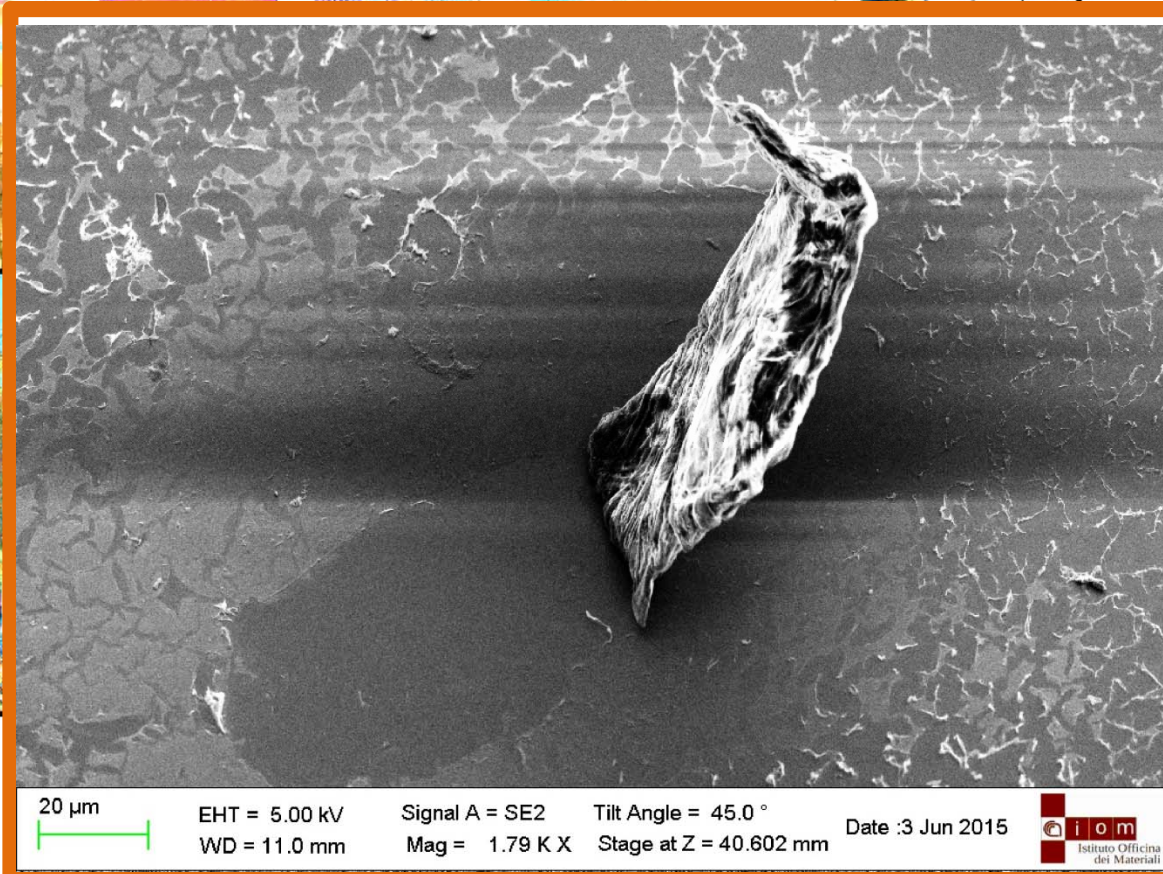
**2015 Micro-Nano Graph  
Contest**

39

**“Graphene penguin”**

**Description:  
Graphene and  
Titanium residuals  
on a Silicon**

**substrate relieved  
from the  
substrate.**



**MNE2015**

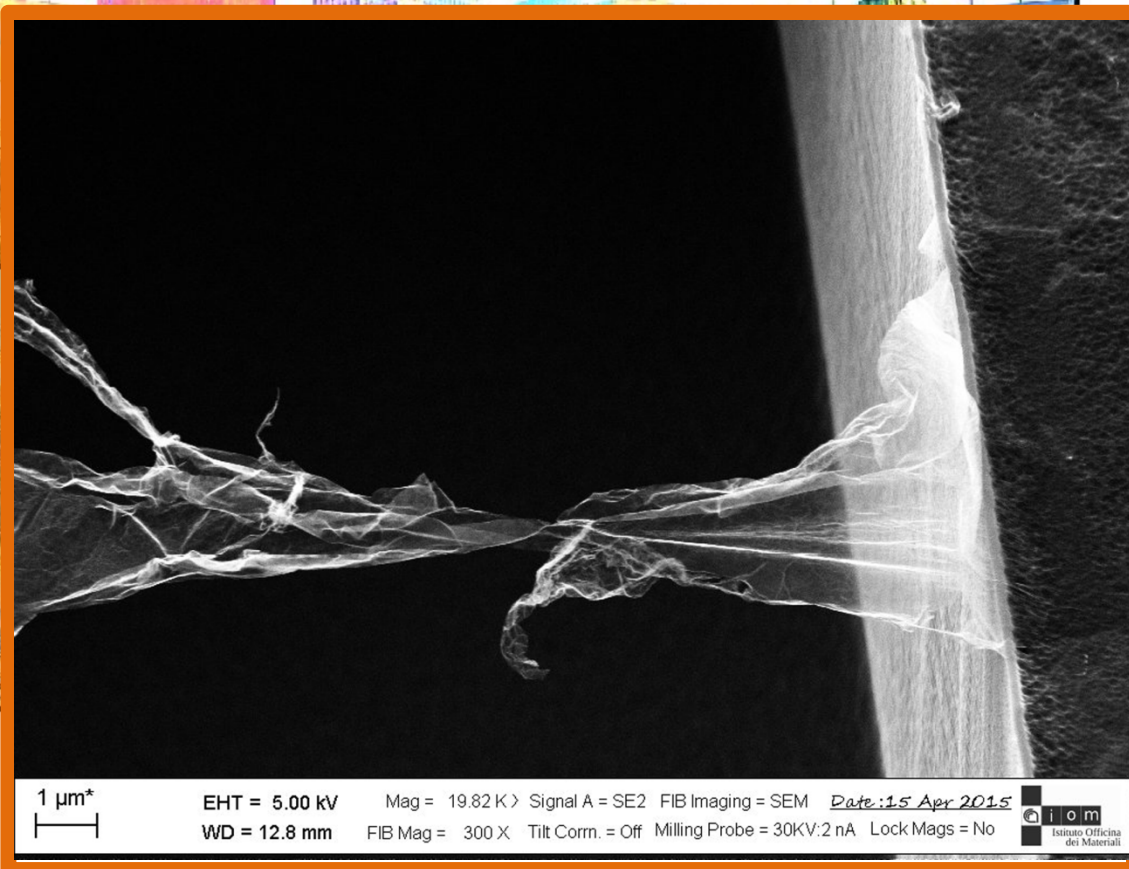
**Submitted by: Alessia Matruglio  
Affiliation: IOM-CNR Trieste, Italy  
Instrument: Zeiss Gemini 1540 XB  
Magnification: 1.79 KX**

# 2015 Micro-Nano Graph Contest

40

## “Don't let me go”

**Description:**  
Broken Graphene  
stripe suspended  
between Silicon  
grooves.



**Submitted by: Alessia Matruglio**  
**Affiliation: IOM-CNR Trieste, Italy**  
**Instrument: Zeiss Gemini 1540 XB**  
**Magnification: 19.82 KX**

# MNE2015



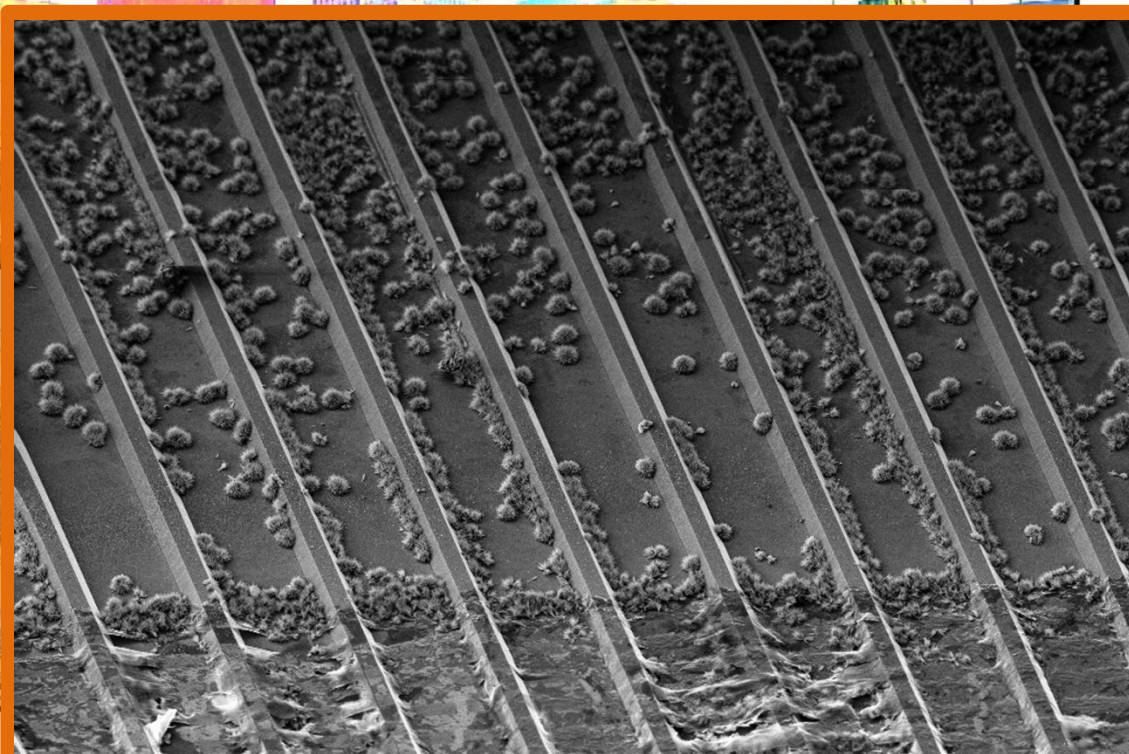
# 2015 Micro-Nano Graph Contest

41

“Silver traffic on the  
highway”

Description:  
Silver and  
Graphene  
residuals on a

Silicon grating of  
micrometric  
grooves.



20  $\mu\text{m}^*$



EHT = 5.00 kV

WD = 15.1 mm

Signal A = SE2

Aperture Size = 30.00  $\mu\text{m}$

Date :19 Mar 2015

Mag = 672 X

ZEISS

Submitted by: Alessia Matruglio  
Affiliation: IOM-CNR Trieste, Italy  
Instrument: Zeiss Gemini 1540 XB  
Magnification: 672 X

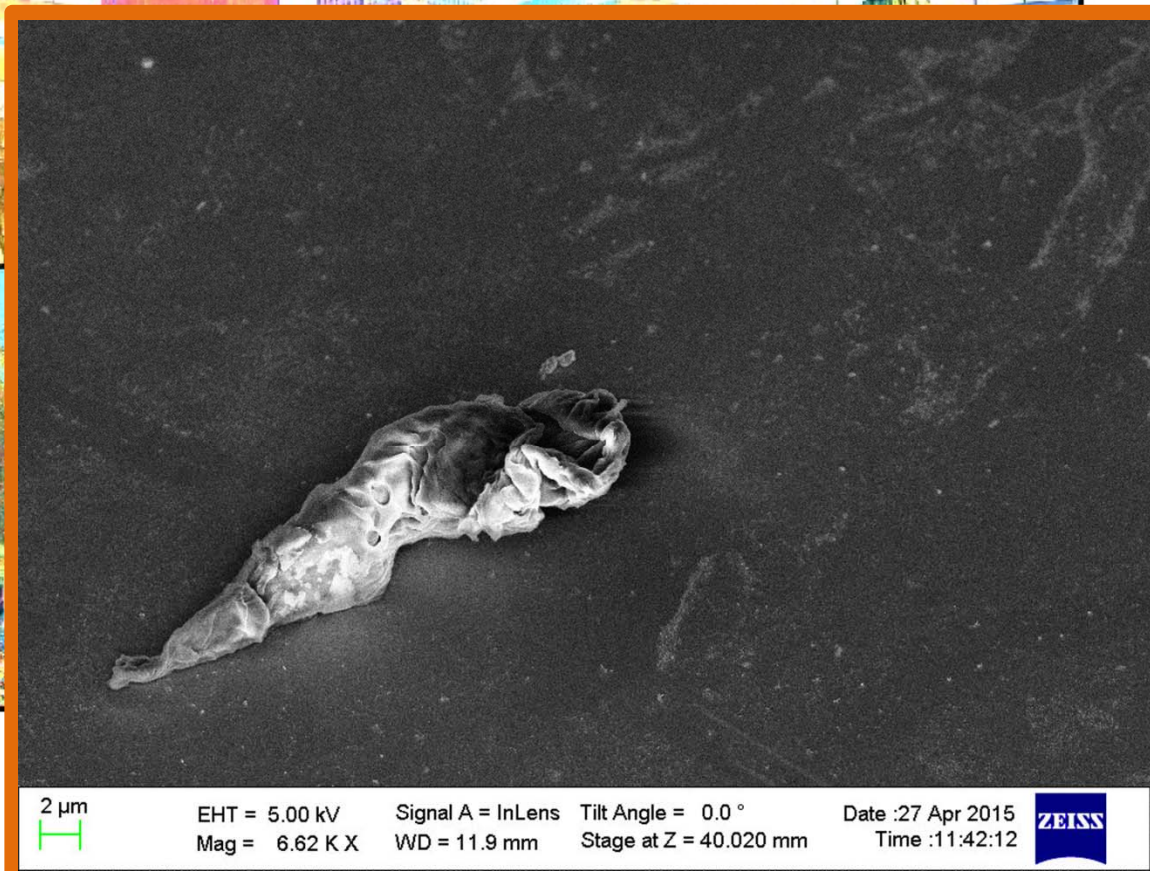
MNE2015

# 2015 Micro-Nano Graph Contest

42

## “Micro worm”

Description:  
PMMA and  
Graphene  
residuals on a  
Silicon substrate.



Submitted by: Alessia Matruglio  
Affiliation: IOM-CNR Trieste, Italy  
Instrument: Zeiss Gemini 1540 XB  
Magnification: 6.62 KX

MNE2015

**2015 Micro-Nano Graph  
Contest**

43

**“Nano-Roses”**

**Description:**

“Nano-Roses” are “grown” in SiO<sub>2</sub> plasma etching chamber.

The “roses” are small and can be used as “hard” mask to make nano-pillars for variable applications (e.g. anti-reflection and super-hydrophobic or super-hydrophilic surfaces etc.)



Submitted by: Lei Chen

Affiliation: National Institute of Standards and  
Technology (NIST), USA

Instrument: Plasma-Therm 790 Etcher

Magnification: 200k

**MNE2015**

**2015 Micro-Nano Graph  
Contest**

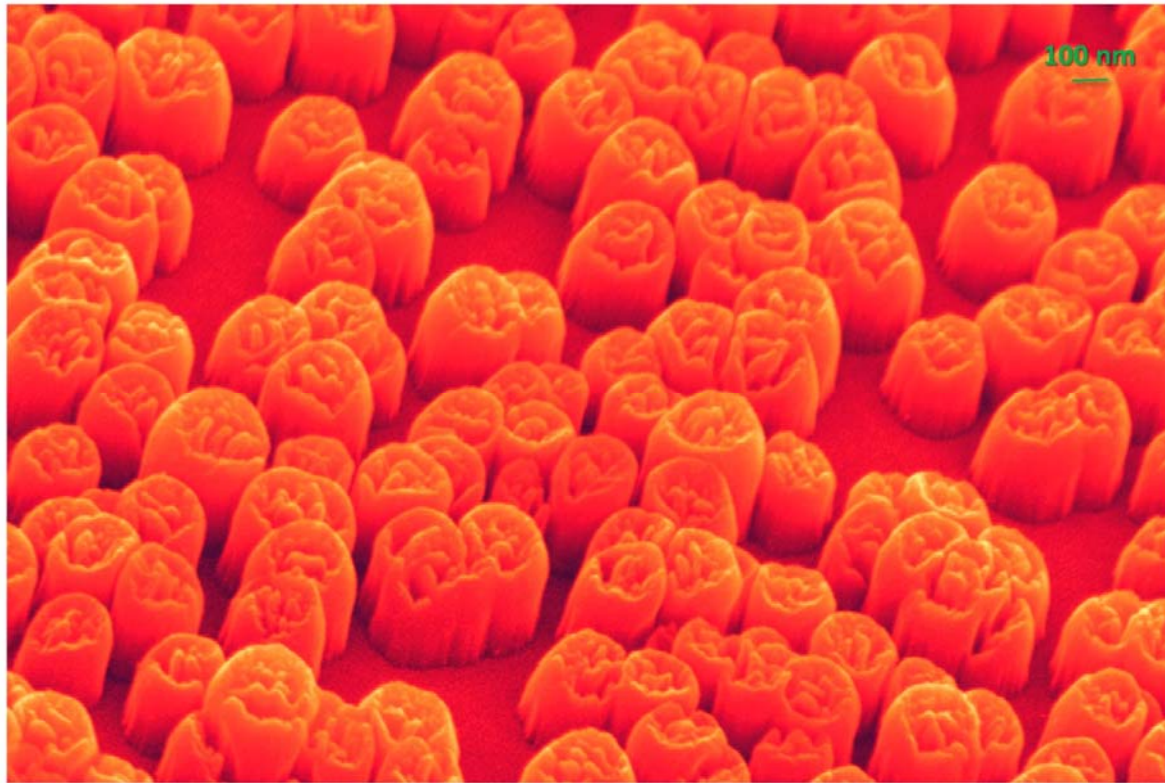
44

**“Nano-Roses”**

**Description:**

“Nano-Roses” are “grown” in SiO<sub>2</sub> plasma etching chamber.

The “roses” are small and can be used as “hard” mask to make nano-pillars for variable applications (e.g. anti-reflection and super-hydrophobic or super-hydrophilic surfaces etc.)



Submitted by: Lei Chen

Affiliation: National Institute of Standards and Technology (NIST), USA

Instrument: Plasma-Therm 790 Etcher

Magnification: 100k

**MNE2015**

## Honorable Mention

45

### “Nanopore fabrication process”

This video shows the strong variation experienced by the pH at the pore formation moment, precisely at the equivalence point, because the proposed method is based on specific neutralization using HCl to neutralize etching process of silicon wafer with KOH.

**Submitted by:** Milena Vega

**Affiliation:** Special Coating by Plasma Processing Techniques, National Technological University (UTN), 1706 Buenos Aires, Argentina

**Instrument:** Olympus BX51 microscope

**Magnification:** video 640x480 px

MNE2015

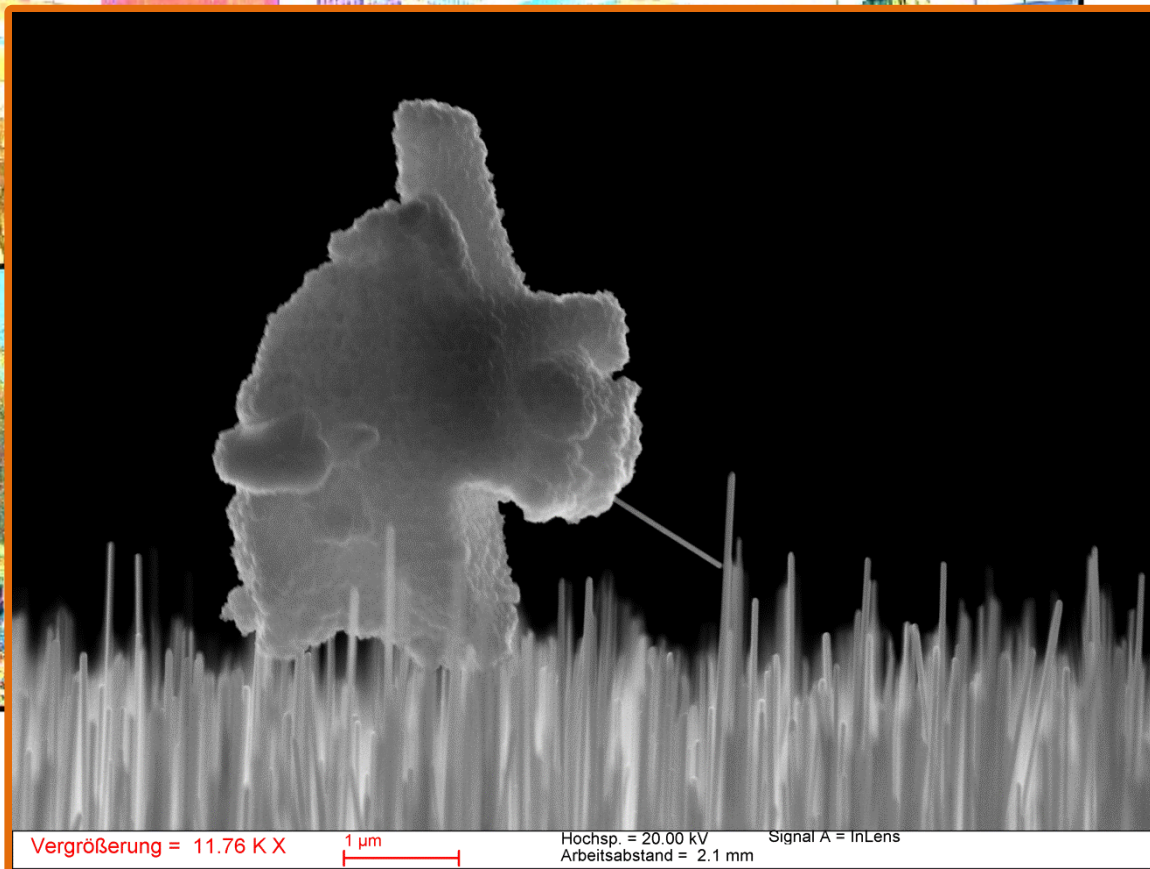
# 2015 Micro-Nano Graph Contest

46

## “Take a walk”

**Description:**  
Upper region of  
InAs nanowires  
with a particle

carrying a  
nanowire cane  
“walking” over it.



Submitted by: Torsten Rieger  
Affiliation: Forschungszentrum Jülich  
Instrument: Zeiss Gemini 1550  
Magnification: 11.7KX

# MNE2015

**3<sup>rd</sup> Prize**

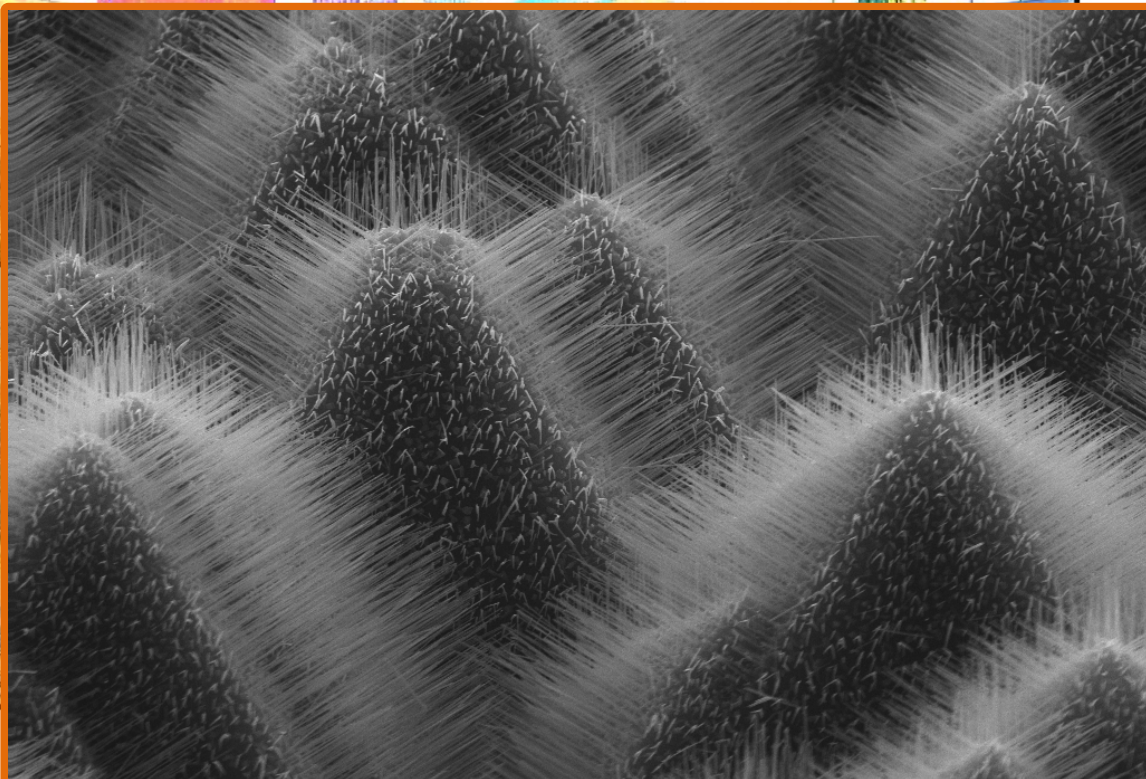
**47**

## “Hairy pyramids”

### Description:

InAs nanowires grown on KOH-textured Si (100)

substrates. The nanowires grow perpendicular on the side facets of the Si pyramids.



Mag = 10.00 K X

2  $\mu\text{m}^{\ast}$

EHT = 20.00 kV

Signal A = InLens

WD = 2.5 mm

Tilt Angle = 0.0 °

FZJ

**MNE2015**

Submitted by: Torsten Rieger

Affiliation: Forschungszentrum Jülich

Instrument: Zeiss Gemini 1550

Magnification: 10.0KX

**2015 Micro-Nano Graph  
Contest**

48

**“Glowing nanowire  
crosshatch pattern”**

**Description:**

**InAs nanowires  
grown on  
prepatterned Si**

**(100) substrates in  
order to obtain  
nanowire  
junctions.**

**Substrate was  
cleaved for the  
analyzes.**



Mag = 10.35 K X

2  $\mu$ m

WD = 1.8 mm

EHT = 20.00 kV

Signal A = InLens

HNF

**MNE2015**

**Submitted by: Torsten Rieger**

**Affiliation: Forschungszentrum Jülich**

**Instrument: Zeiss Gemini 1550**

**Magnification: 10.35KX**



**2015 Micro-Nano Graph  
Contest**

49

**“Nanowire mikado”**

**Description:**  
GaAs/InSb core-shell nanowires after wet chemical treatment in citric acid. Capillary forces detach the nanowires from the substrate, resulting in an arbitrary positioning



Mag = 11.64 K X

2  $\mu$ m

WD = 3.0 mm

EHT = 20.00 kV

Signal A = InLens

HNF

**MNE2015**

Submitted by: Torsten Rieger

Affiliation: Forschungszentrum Jülich

Instrument: Zeiss Gemini 1550

Magnification: 11.64KX

**2015 Micro-Nano Graph  
Contest**

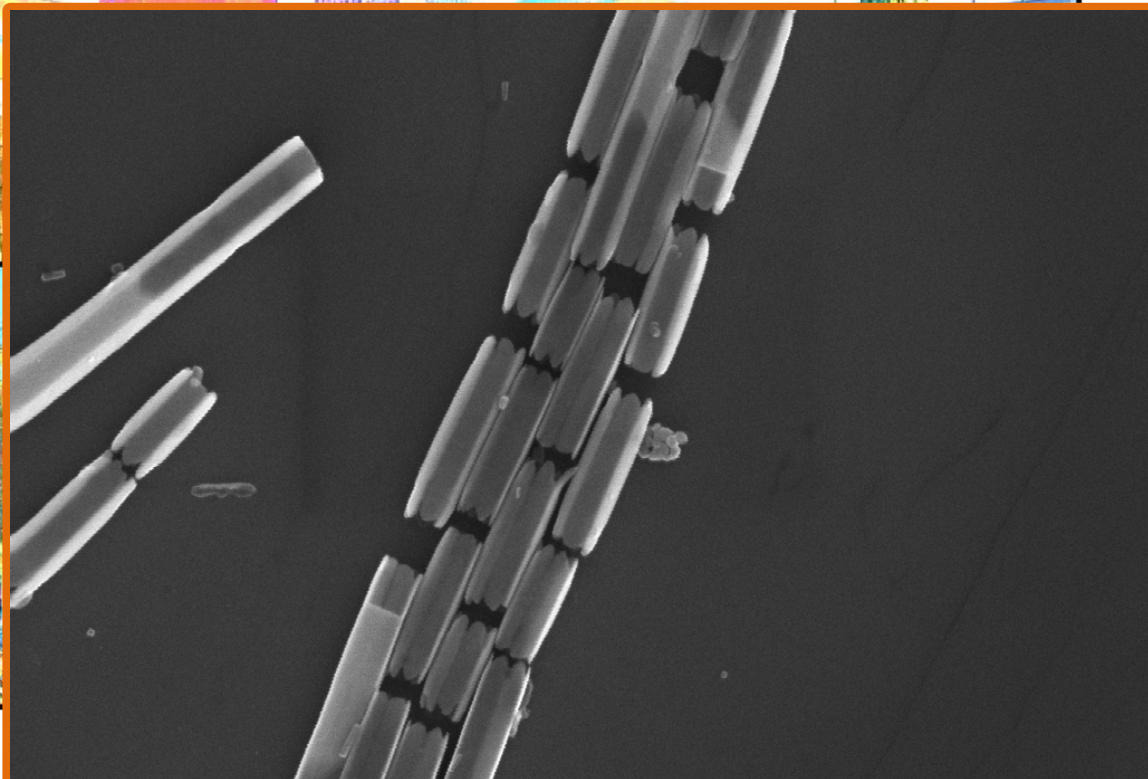
50

**“Traffic jam at the  
nanoscale”**

**Description:**

**InAs nanotubes  
obtained from  
GaAs/InAs core-**

**shell nanowires  
aligned like pearls  
on a string**



Mag = 72.48 K X

200 nm\*

EHT = 20.00 kV

Signal A = InLens

WD = 2.1 mm

Tilt Angle = 0.0 °

FZJ

**MNE2015**

**Submitted by: Torsten Rieger**

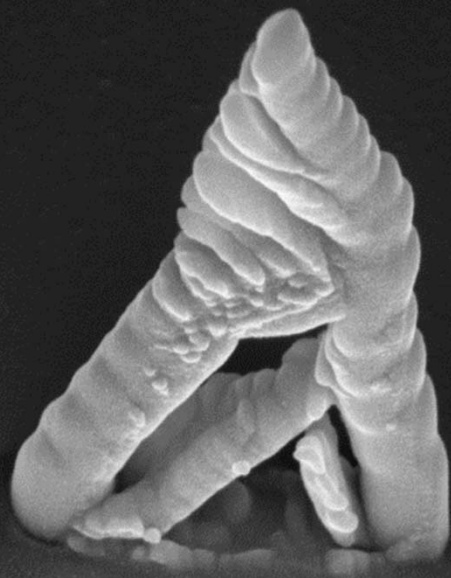
**Affiliation: Forschungszentrum Jülich**

**Instrument: Zeiss Gemini 1550**

**Magnification: 72.48KX**

**2015 Micro-Nano Graph  
Contest**

51



200 nm



**“Nano Thumbs”**

**Description:**

3D complex gold nanostructures deposited by Focused Electron

beam induced deposition (FE-BID). This image shows the versatility of an electron microscope – from nanofabrication to imaging.

Submitted by: Mostafa Moonir Shawrav  
Affiliation: Vienna University of Technology  
Instrument: Zeiss LEO 1530 VP  
Magnification: 100 K X

**MNE2015**

**2015 Micro-Nano Graph  
Contest**

52

**“Diatom”**

**Description:**

Diatom collected  
from river sand.

Dispersed river sand  
on a Si sample.

Combination of life  
science and electron  
microscopy.

4  $\mu\text{m}$

Submitted by: Mostafa Moonir Shawrav

Affiliation: Vienna University of Technology

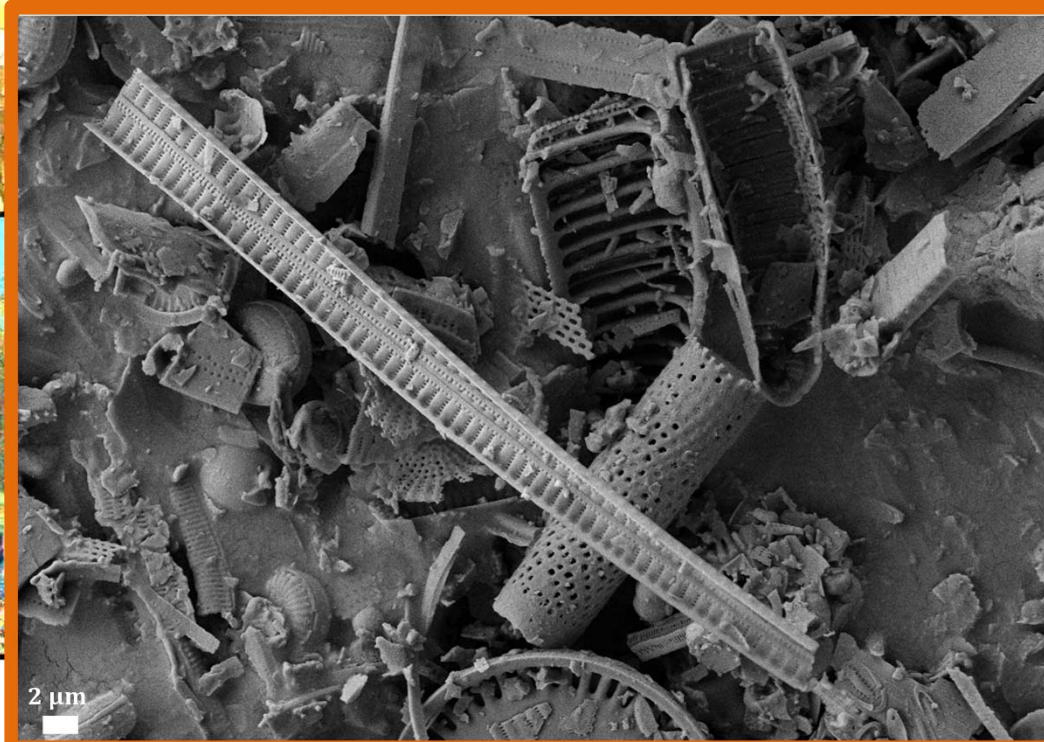
Instrument: Zeiss LEO 1530 VP

Magnification: 100 K X

**MNE2015**

**2015 Micro-Nano Graph  
Contest**

53



**“DiatomWorld”**

**Description:**

Diatom of various shapes and sizes collected from river sand. The beauty of nature can be seen from this electron micrographs.

The beauty of nature can be seen from this electron micrographs.

Submitted by: Mostafa Moonir Shawrav  
Affiliation: Vienna University of Technology  
Instrument: Zeiss LEO 1530 VP  
Magnification: 5.2 K X

**MNE2015**

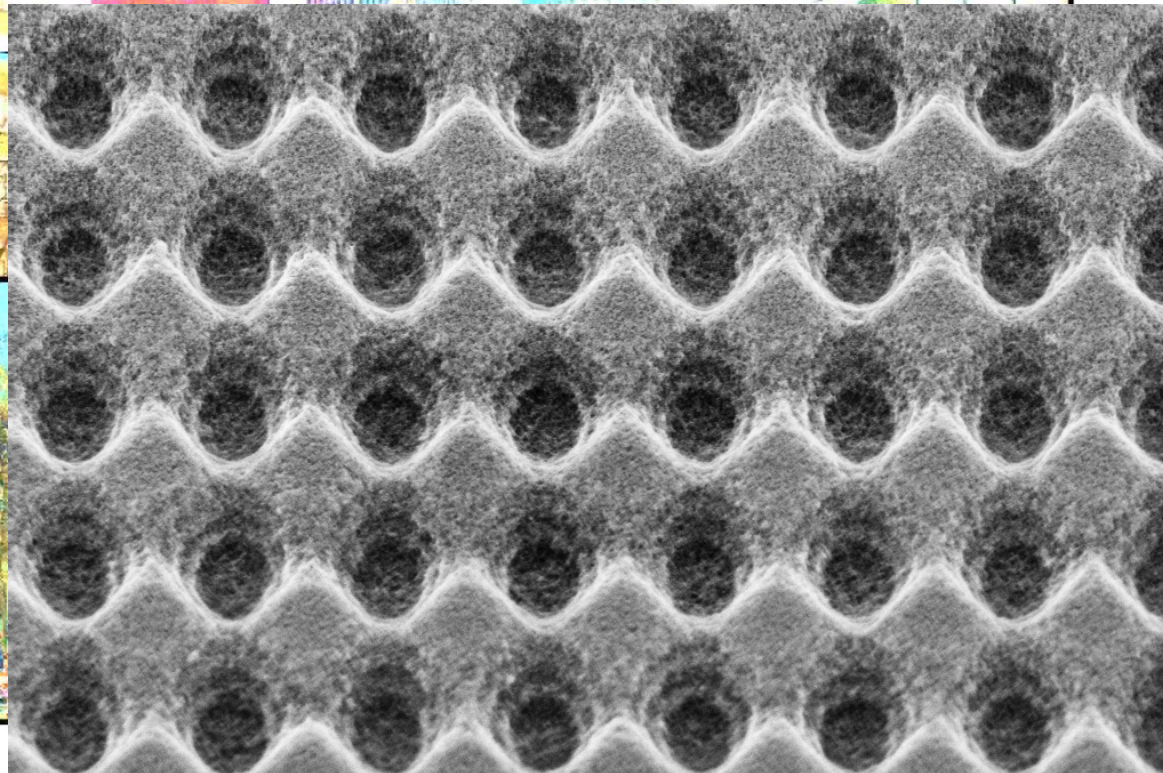
**2015 Micro-Nano Graph  
Contest**

54

**“A box for... nano-eggs”**

**Description:**  
The nano-egg box  
results from the  
unwanted

overexposure of a  
positive  
photoresist using  
2-beam laser  
interference  
lithography



1  $\mu$ m

EHT = 2.00 kV  
WD = 5.2 mm

Signal A = InLens  
Mag = 50.00 K X

Stage at T = 45.0 °  
Stage at Z = 45.000 mm

Date : 11 Sep 2015



**MNE2015**

**Submitted by: Sonato Agnese**

**Affiliation: National Laboratory CNR – IOM  
Institute (Trieste-Italy)**

**Instrument: SEM (ZEISS SUPRA 40)**

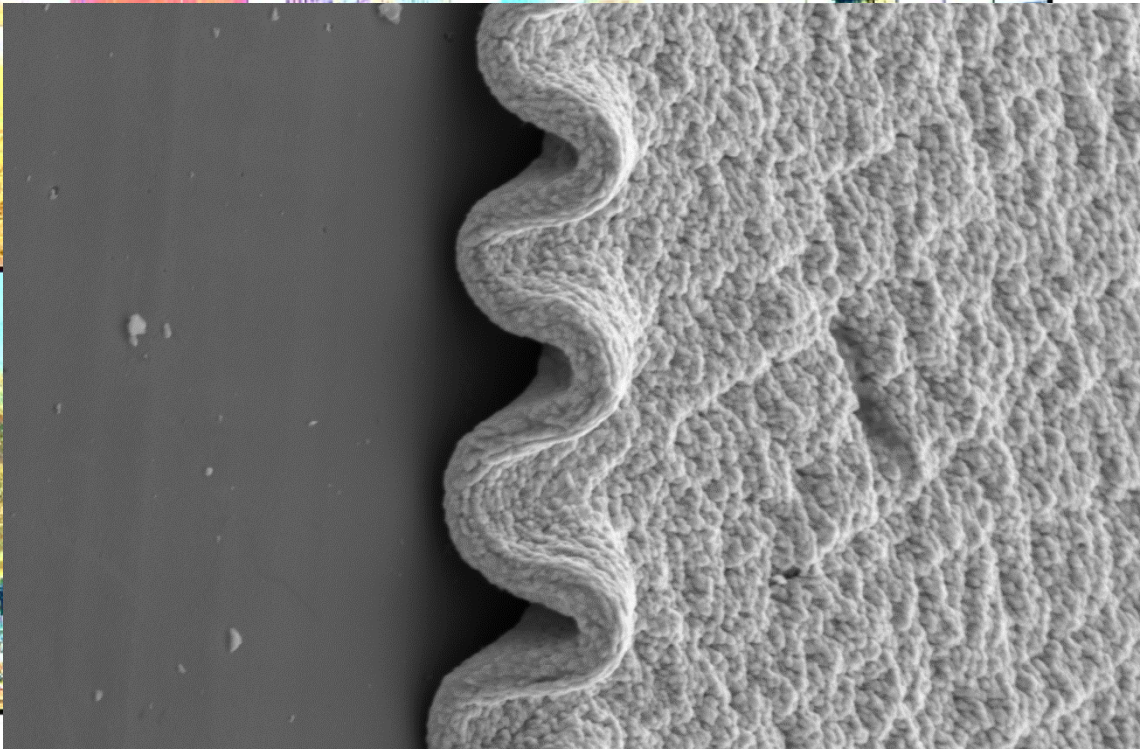
**Magnification: 50.00 K X**

**2015 Micro-Nano Graph  
Contest**

55

**“Where time stops, waves freeze”**

**Description:  
Edge of a ripple  
pattern, fabricated  
by electric field  
driven liquid Ga  
flow on gold track.**



2  $\mu$ m

EHT = 5.00 kV

Signal A = SE2

Date :15 Jun 2013

WD = 17.4 mm

Mag = 22.27 K X

Time :16:19:46



**MNE2015**

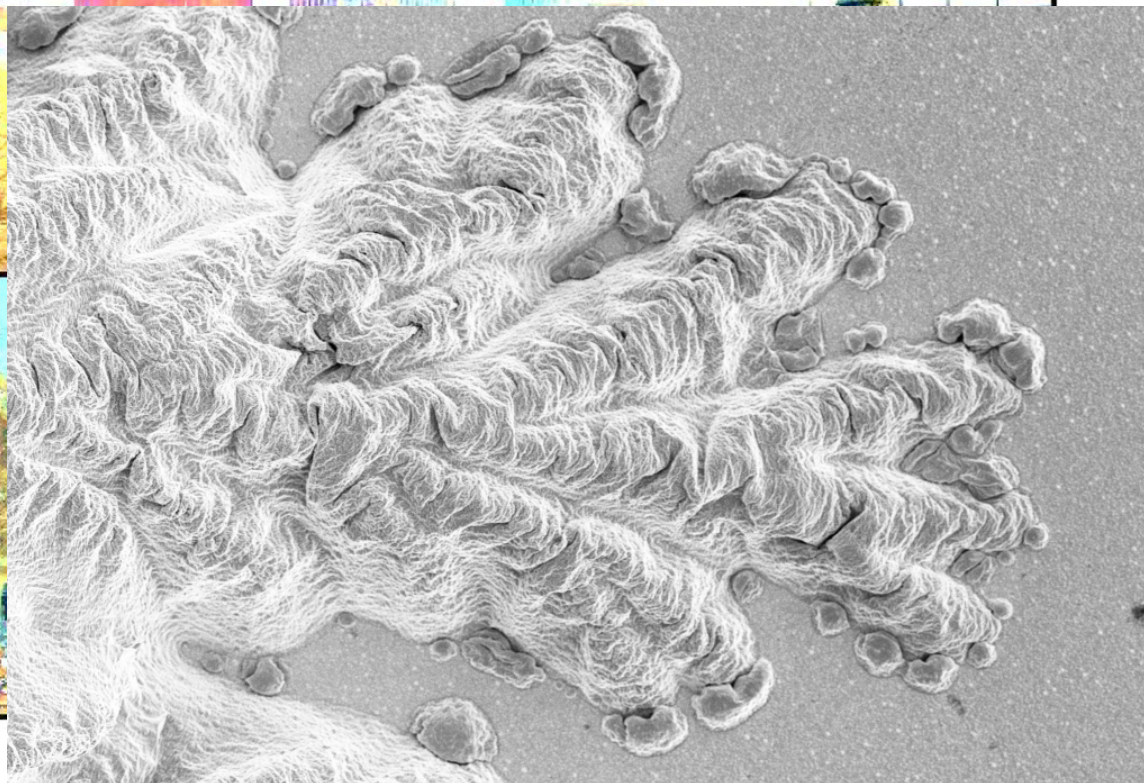
**Submitted by: Santanu Talukder  
Affiliation: Indian Institute of Science  
Instrument: Zeiss ULTRA 55  
Magnification: 7550**

**2015 Micro-Nano Graph  
Contest**

56

**“Godzilla’s foot”**

**Description:**  
Flow splitting at the  
flow-front of the Ga  
stream, driven by  
electric field



20  $\mu$ m

EHT = 5.00 kV

Signal A = SE2

Date :12 Sep 2012

ZEISS

WD = 23.2 mm

Mag = 1.98 K X

Time :16:34:33

**MNE2015**

**Submitted by: Santanu Talukder**  
**Affiliation: Indian Institute of Science**  
**Instrument: Zeiss ULTRA 55**  
**Magnification: 725**



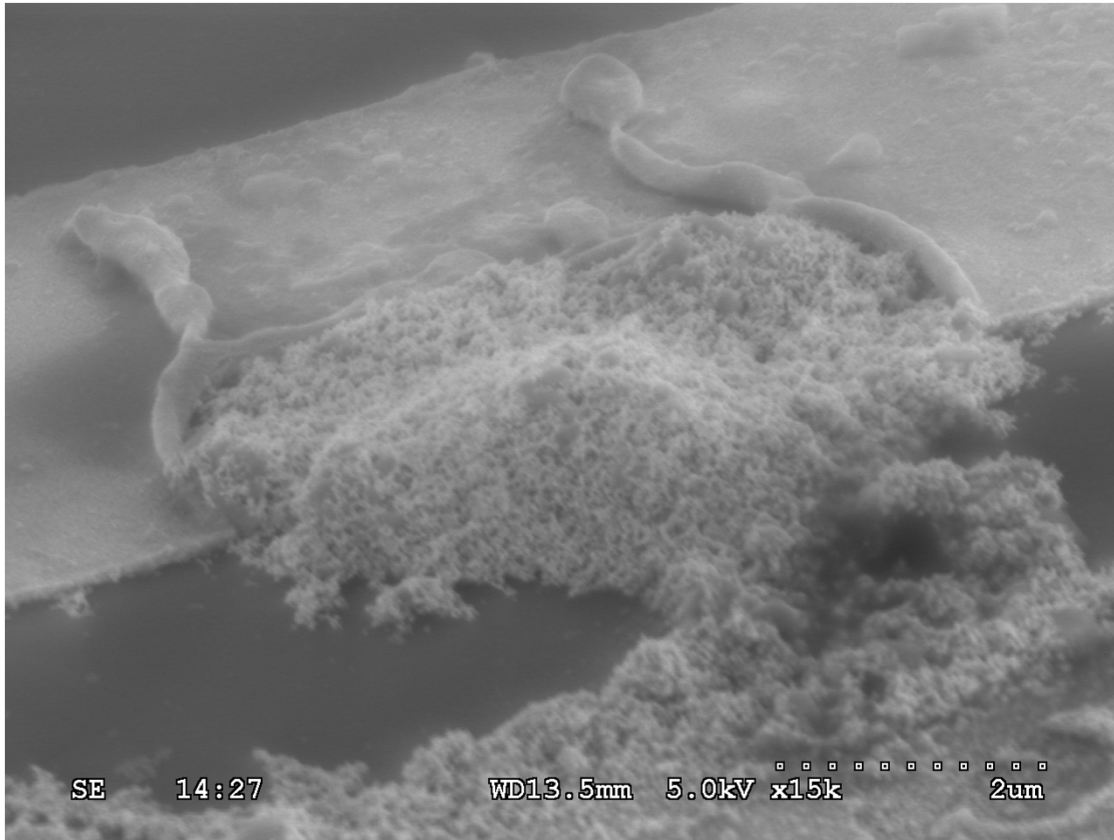
**2015 Micro-Nano Graph  
Contest**

57

**“Insulation required”**

**Description:  
“Beading” of 20  
nm Au  
nanoparticles**

**between parallel  
electrodes  
following  
electrophoresis.  
Not what I was  
going for, but I  
enjoy the  
symmetry.**



SE 14:27

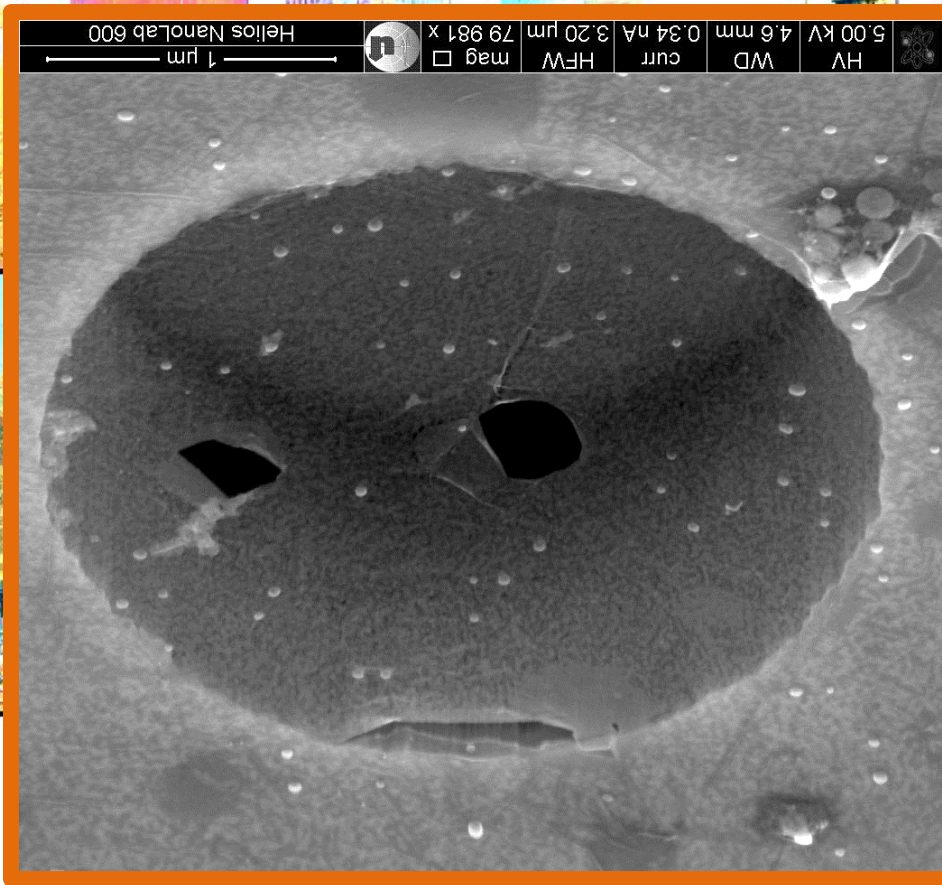
WD13.5mm 5.0kV x15k 2um

**Submitted by: Benjamin Porter  
Affiliation: University of Oxford  
Instrument: Hitachi S-4300 FE-SEM  
Magnification: 15000X**

**MNE2015**

# 2015 Micro-Nano Graph Contest

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**“Graphene membrane  
smily”**

**Description:**

**Cavity RIE etch in SiO<sub>2</sub>  
covered with a mono-  
layer graphene**

**membrane. The  
membrane is ripped in 3  
places and creates an  
upside-down smily face.  
Graphene covered  
cavities are used as  
pressure sensors.**

**Submitted by: Stefan Wagner**

**Affiliation: University of Siegen**

**Instrument: FEI Helios NanoLab 600**

**Magnification: 79981x**

**MNE2015**

**2015 Micro-Nano Graph  
Contest**

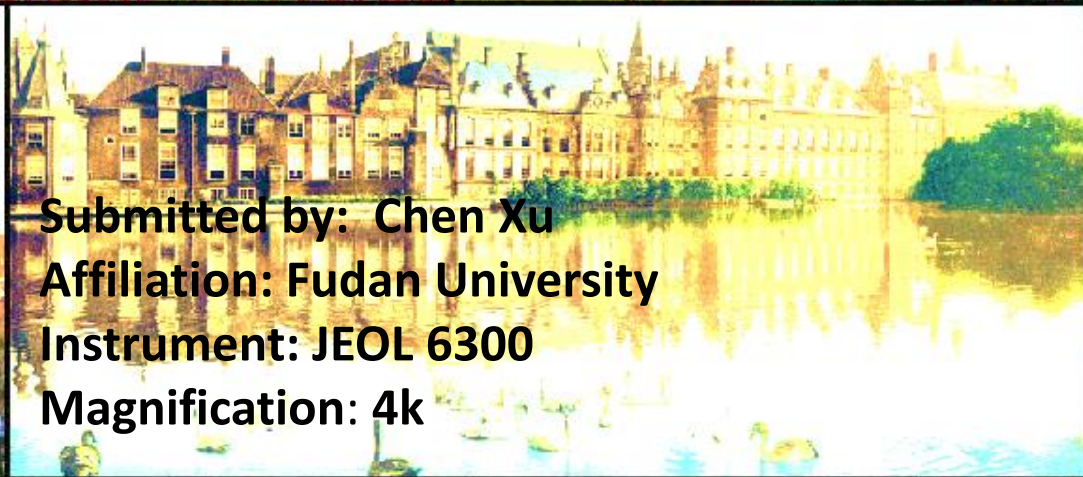
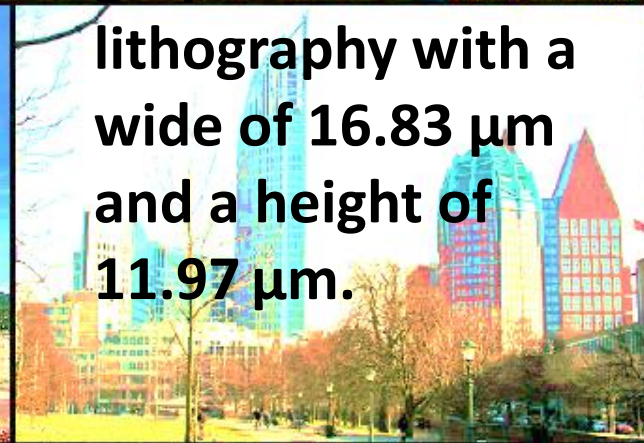
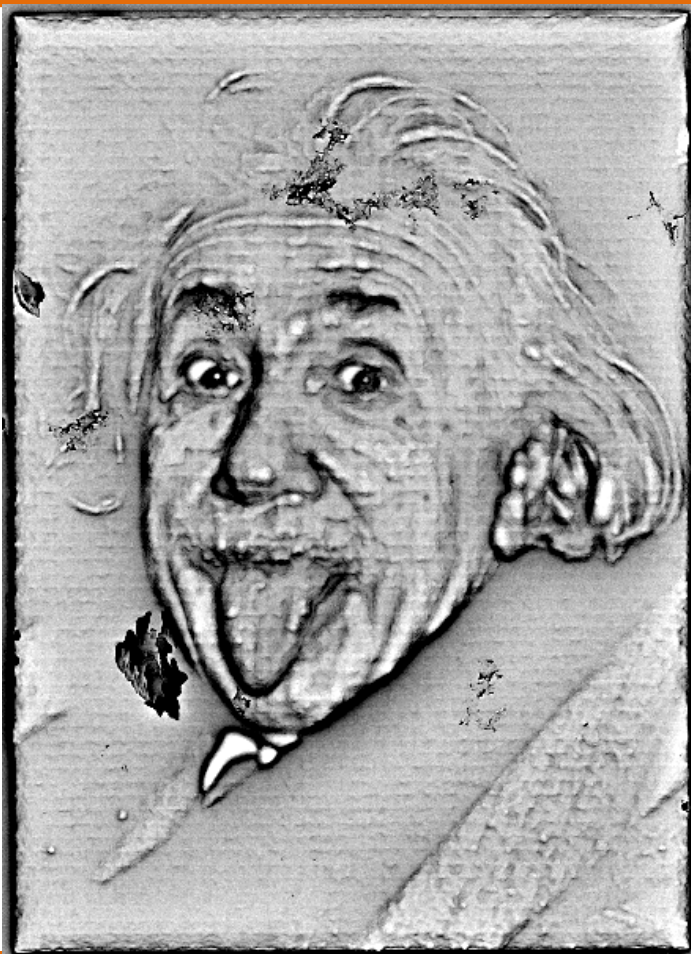
59

**“Nano-Einstein”**

**Description:**

The nano-Einstein is fabricated by 3D gray scale e-beam lithography with a

width of  $16.83\ \mu\text{m}$  and a height of  $11.97\ \mu\text{m}$ .



Submitted by: Chen Xu  
Affiliation: Fudan University  
Instrument: JEOL 6300  
Magnification: 4k

**MNE2015**

**2015 Micro-Nano Graph  
Contest**

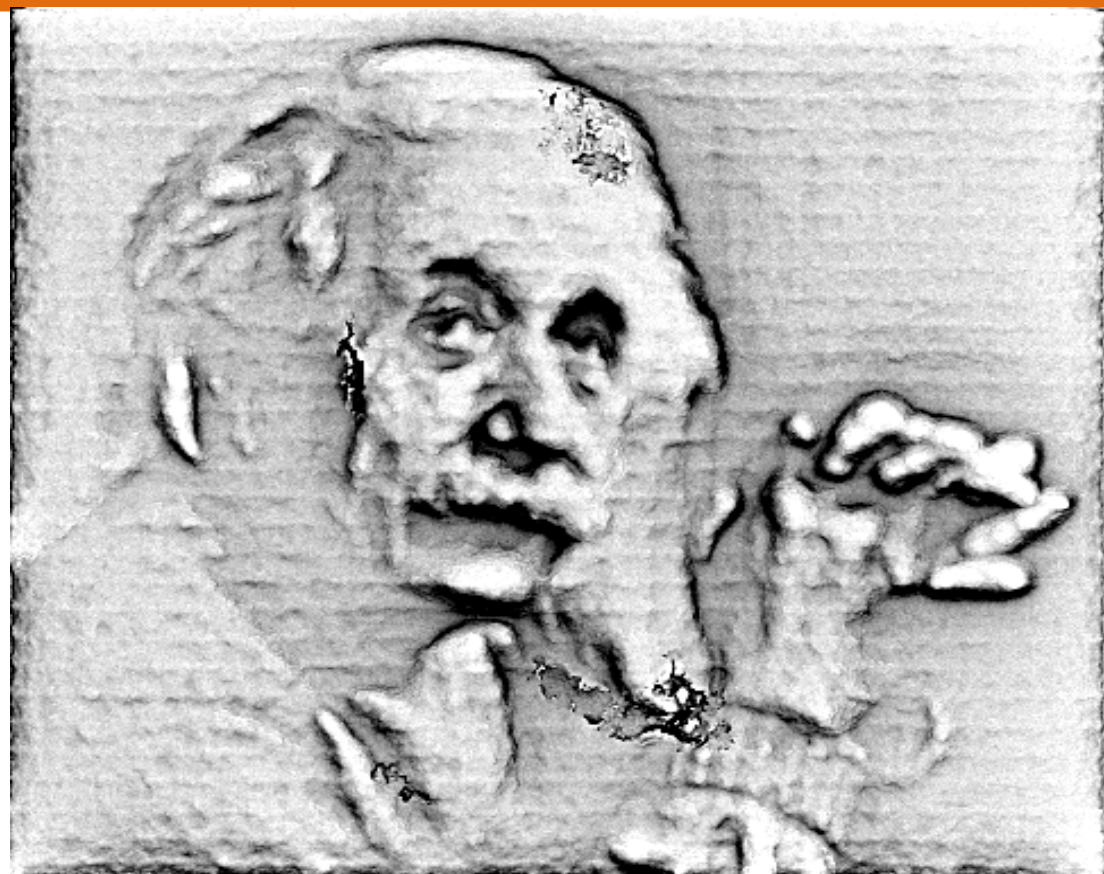
60

**“Nano-Einstein”**

**Description:**

The nano-Einstein is fabricated by 3D gray scale e-beam lithography with a wide of 9  $\mu\text{m}$  and a height of 7.62  $\mu\text{m}$ .

lithography with a wide of 9  $\mu\text{m}$  and a height of 7.62  $\mu\text{m}$ .



Submitted by: Chen Xu  
Affiliation: Fudan University  
Instrument: JEOL 6300  
Magnification: 6k

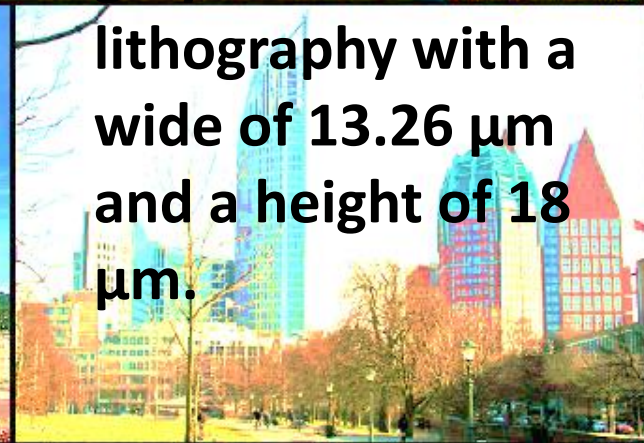
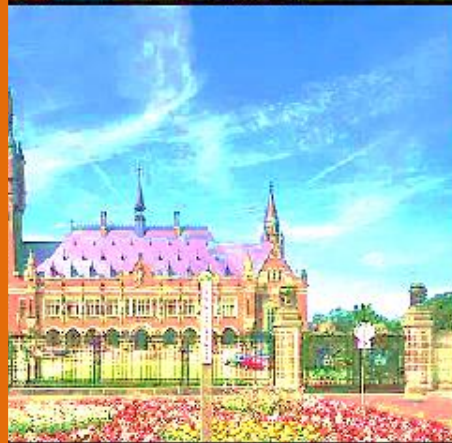
**MNE2015**

# Honorable Mention

61

## “Nano-Xide Xie”

**Description:**  
The nano-Xide Xie is fabricated by 3D gray scale e-beam lithography with a wide of  $13.26\ \mu\text{m}$  and a height of  $18\ \mu\text{m}$ .



Submitted by: Chen Xu  
Affiliation: Fudan University  
Instrument: JEOL 6300  
Magnification: 4k

MNE2015

**2015 Micro-Nano Graph  
Contest**

62

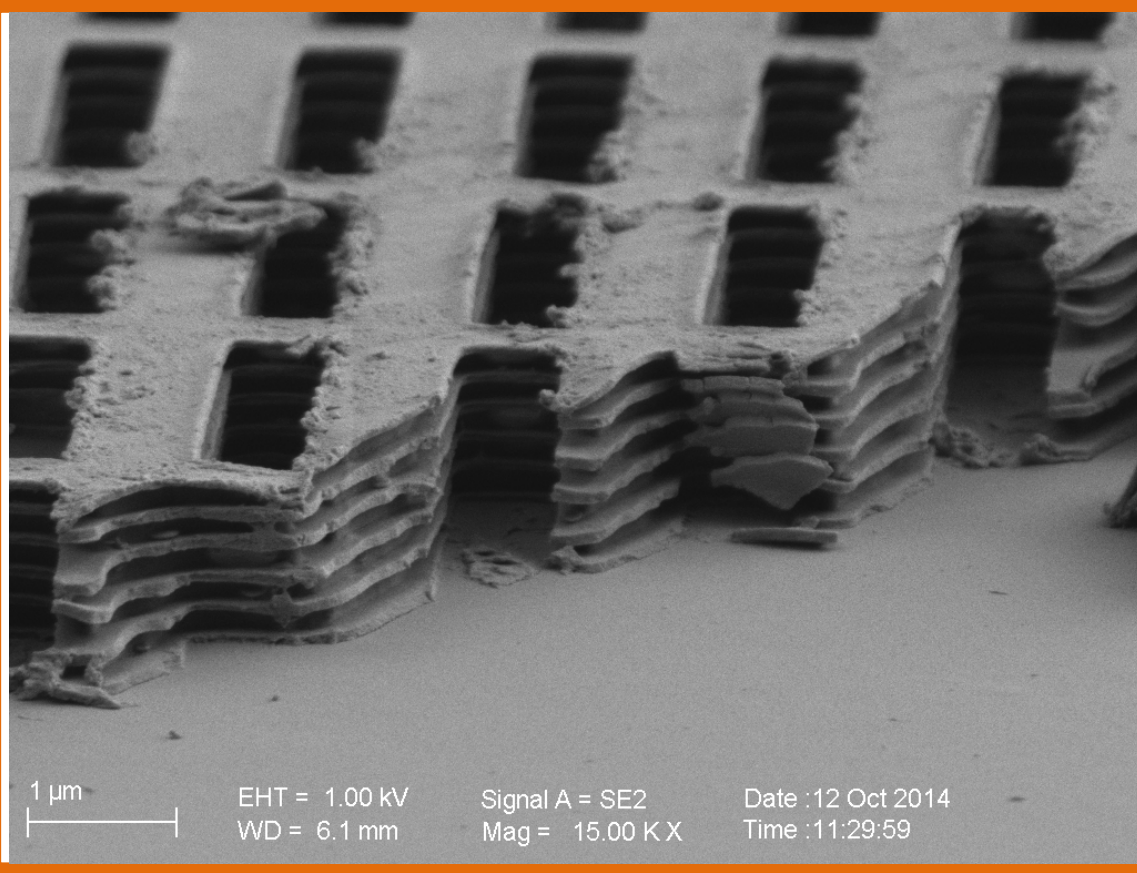
# “Nano Parking Lot”

## Description:

The nano parking lot results from the lamellae layers

structure destroyed by tweezers. It seems the PMMA layers are hanged in the air. Actually there are LOR layers for

support in the each two PMMA layers.



**MNE2015**

Submitted by: Sichao Zhang  
Affiliation: Fudan University  
Instrument: Zeiss SIGMA HD, JEOL 6300FS  
Magnification: 15 KX

**2015 Micro-Nano Graph  
Contest**

63

# “Rectangle trees”

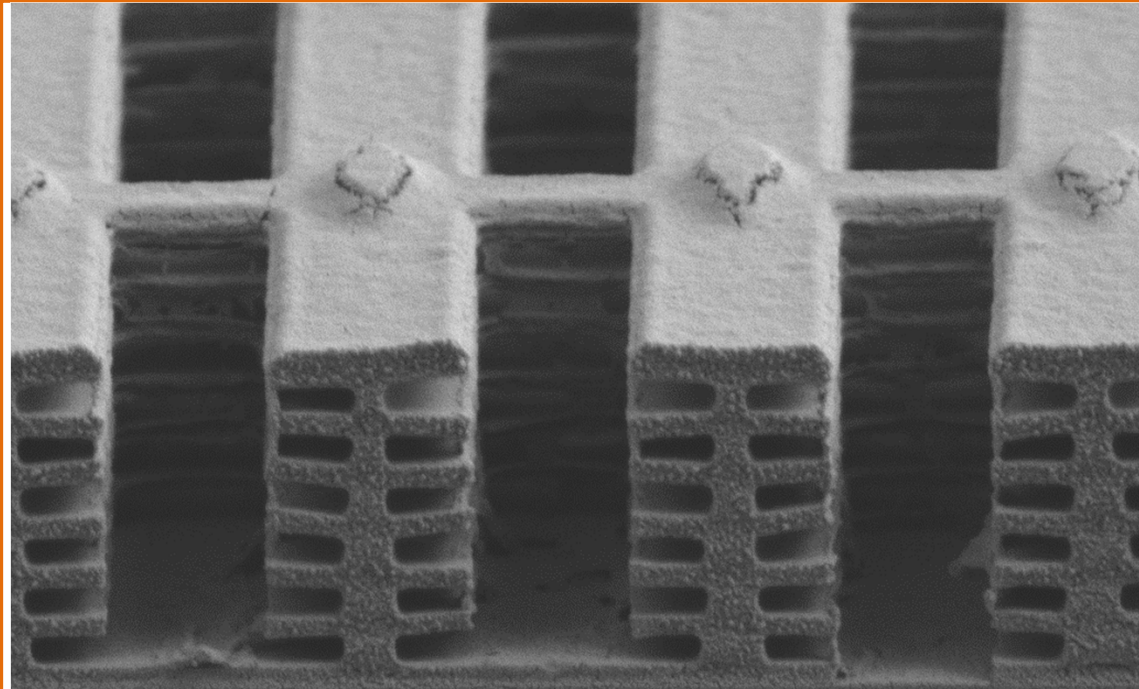
## Description:

The rectangle trees results from the selectively develop and dissolve on the

PMMA/LOR multilayers structure after e-beam lithography.

The branches are

PMMA and trunk are PMMA/LOR.



200 nm  
|

EHT = 1.00 kV  
WD = 6.2 mm

Signal A = SE2  
Mag = 25.00 K X

Date : 25 Dec 2014  
Time : 13:18:49

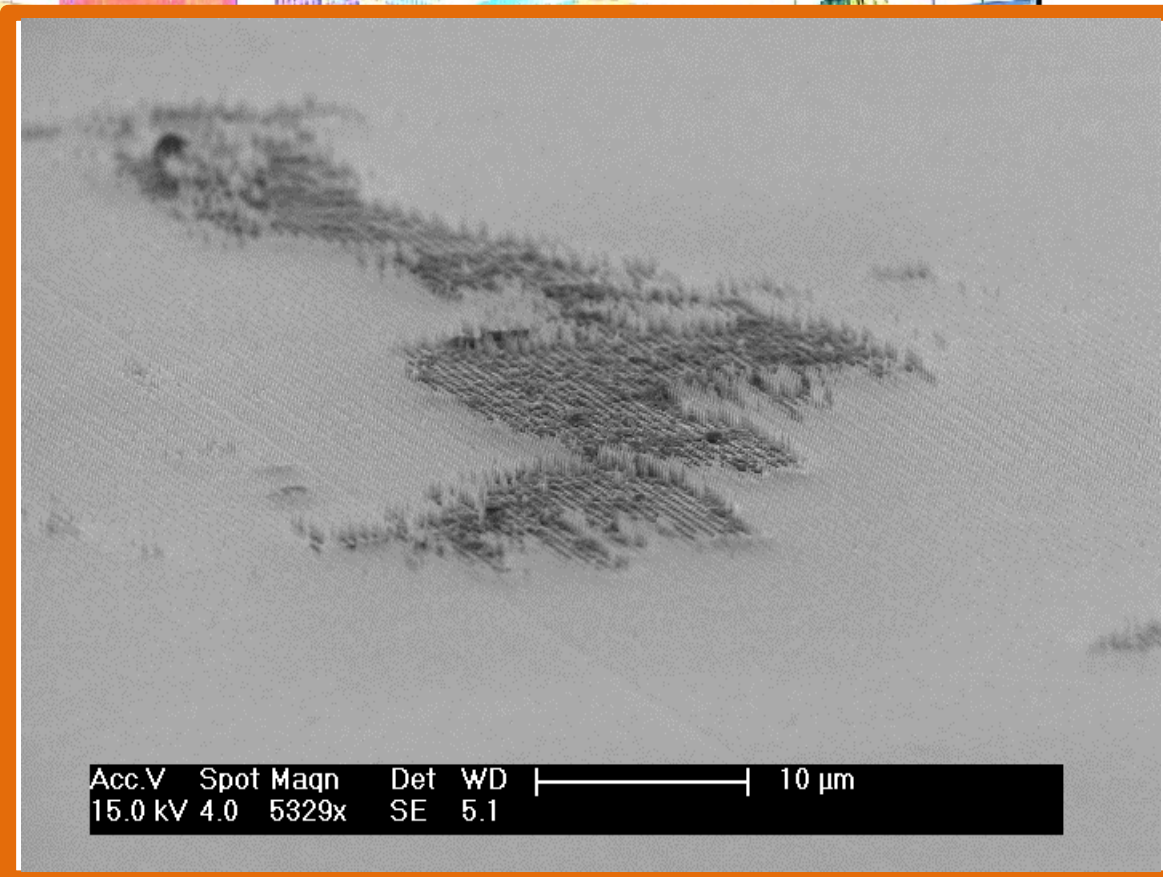
**MNE2015**

Submitted by: Sichao Zhang  
Affiliation: Fudan University  
Instrument: Zeiss SIGMA HD, JEOL 6300FS  
Magnification: 25 KX

**2015 Micro-Nano Graph  
Contest**

64

**“Great Britain”**



**Description:**

A broken Si nano-imprint template with a Great Britain map like broken area.

Submitted by: Sichao Zhang  
Affiliation: Fudan University  
Instrument: FEI-Sirion 200  
Magnification: 5329 X

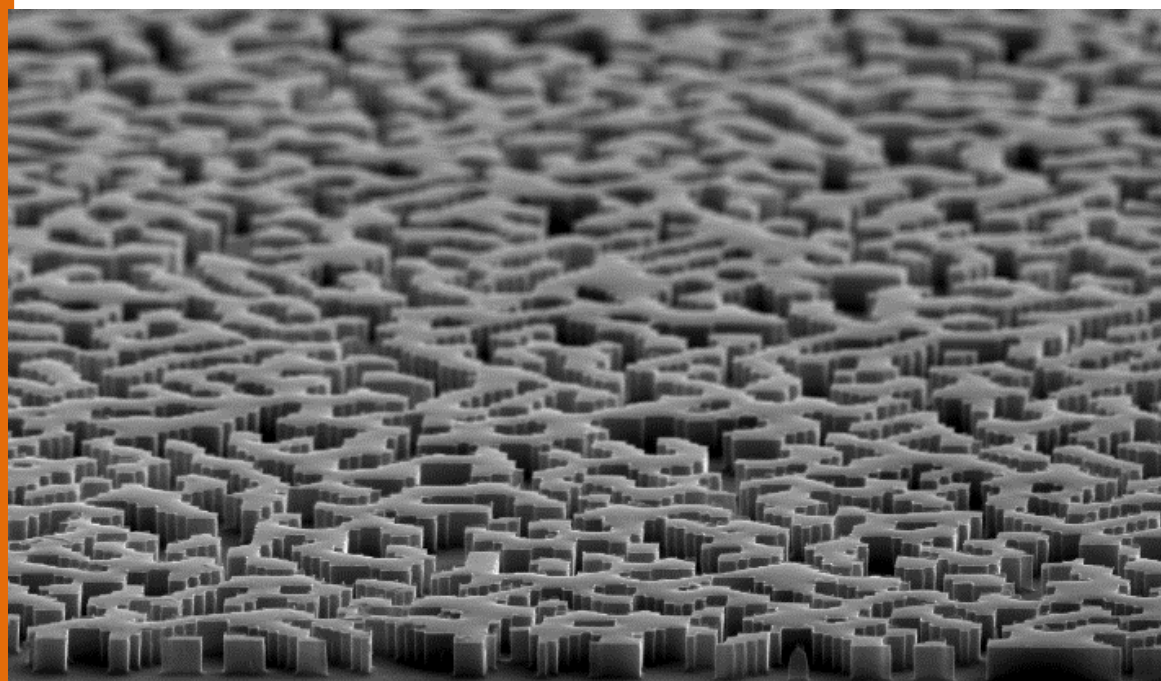
**MNE2015**



**2015 Micro-Nano Graph  
Contest**

65

**“Maze”**



Acc.V Spot Magn Det WD |—————| 5 μm  
15.0 kV 4.0 10460x SE 4.7

**Description:**

**Diffractive Optical  
Elements made by E-  
beam Lithography  
and RIE.**

**MNE2015**

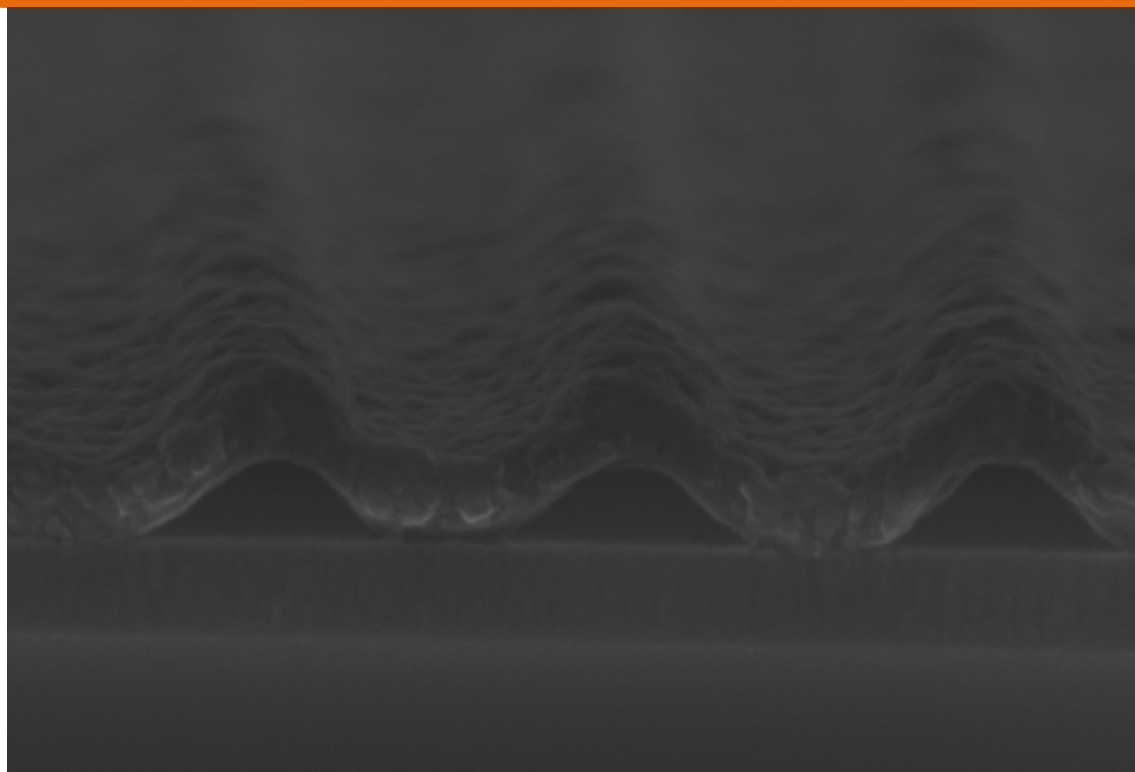
**Submitted by: Sichao Zhang  
Affiliation: Fudan University  
Instrument: FEI-Sirion 200  
Magnification: 10460 X**

**2015 Micro-Nano Graph  
Contest**

66

**“Ocean Wave”**

**Description:**  
Nanostucture in aluminum like a ocean wave.



100 nm

EHT = 10.00 kV  
WD = 5.4 mm

Signal A = InLens  
Mag = 250.00 K X

Date :24 Aug 2015  
Time :9:08:31



**MNE2015**

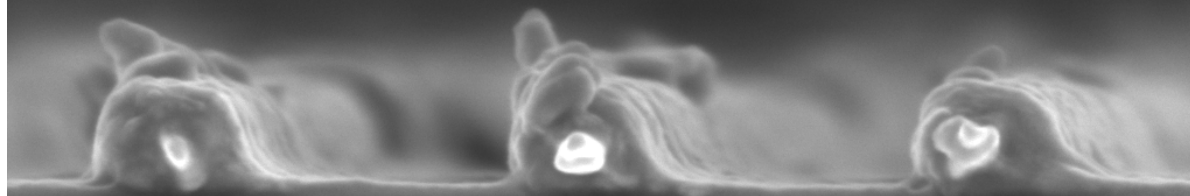
**Submitted by: Xiqi Huang**  
**Affiliation: Fudan University, China**  
**Instrument: Zeiss SEM**  
**Magnification: 250k**

**2015 Micro-Nano Graph  
Contest**

67

**“Chocolate Toffee”**

**Description:**  
The section view  
of subwavelength  
aluminum grating  
like chocolate  
toffee.



100 nm

EHT = 5.00 kV  
WD = 3.8 mm

Signal A = InLens  
Mag = 100.00 K X

Date :26 Jan 2015  
Time :11:02:10

**MNE2015**

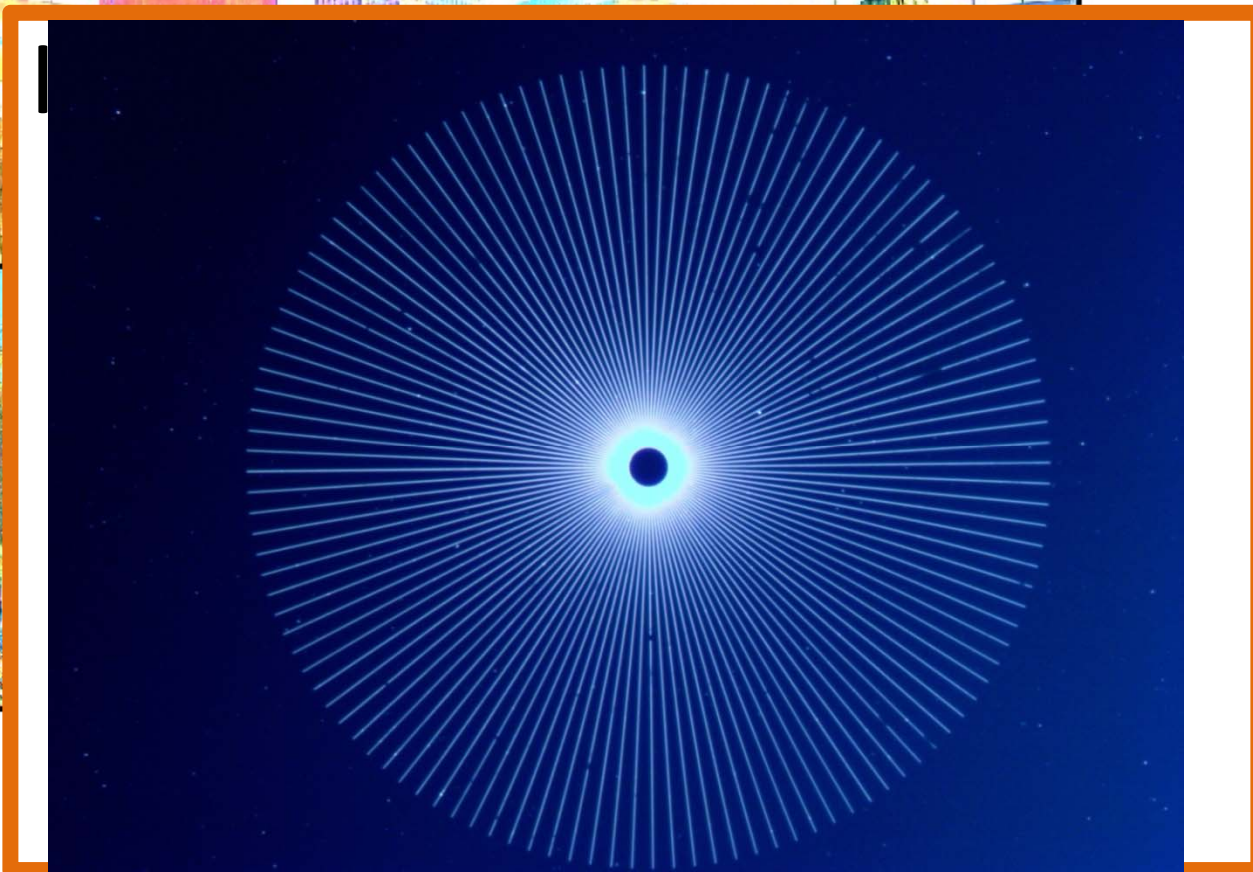
**Submitted by: Xiaqi Huang**  
**Affiliation: Fudan University, China**  
**Instrument: SEM**  
**Magnification: 100k**

**2015 Micro-Nano Graph  
Contest**

68

**“Moon and Star”**

**Description:**  
Optical images of  
radial nanoslits in  
gold looks like  
moon and stars  
shinning in the sky.



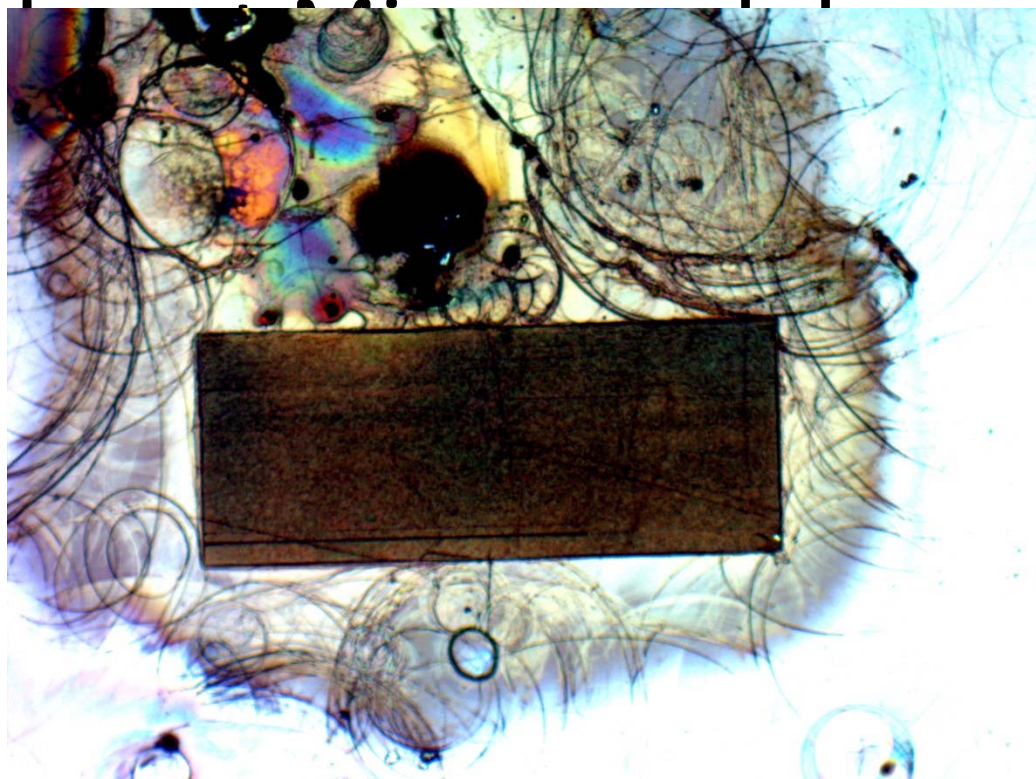
**MNE2015**

Submitted by: Xiqi Huang  
Affiliation: Fudan University, China  
Instrument: OM  
Magnification: 1k

# Honorable Mention

69

“Keep silent”



**Description:**  
Gratings on Si after chemical etching looks like a frightened man who is forbidden to speak.

MNE2015

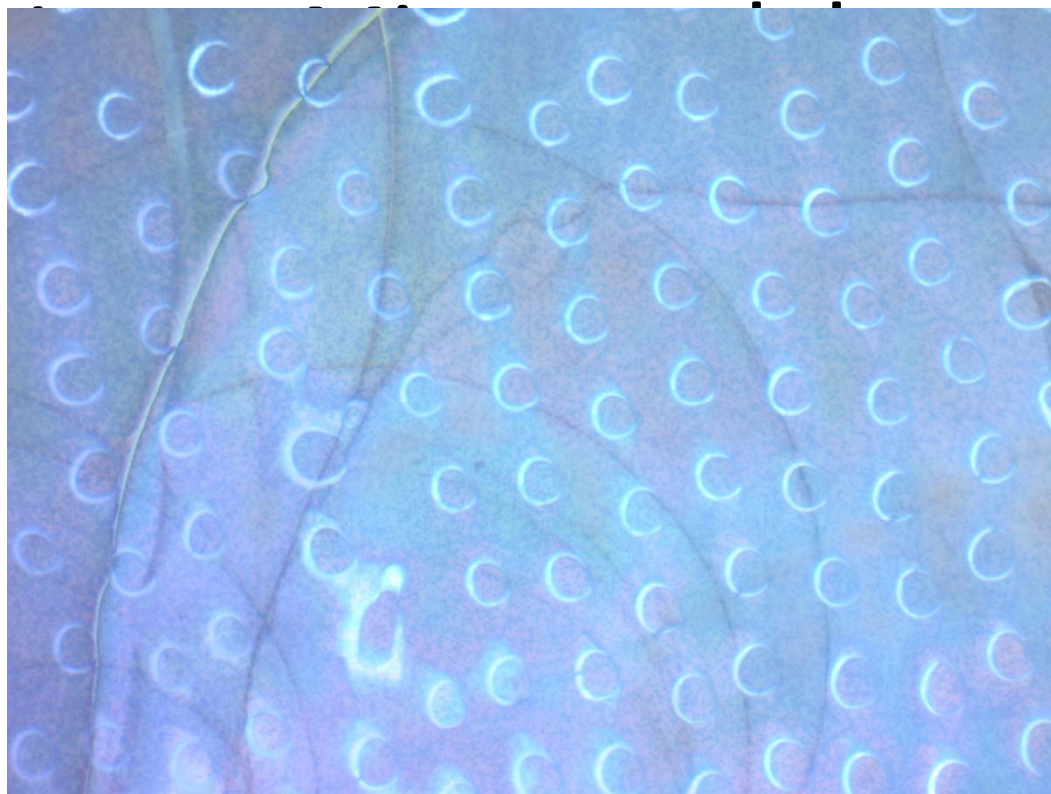
Submitted by: Xin Li  
Affiliation: Fudan University, China  
Instrument: Zeiss optical microscope  
Magnification: 1k

# Honorable Mention

70

## “Tears of God”

**Description:**  
Bubbles caused by chemical etching on Si look like tears.



MNE2015

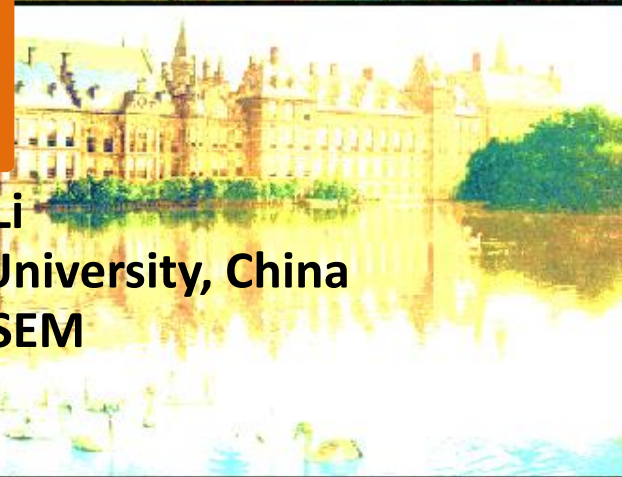
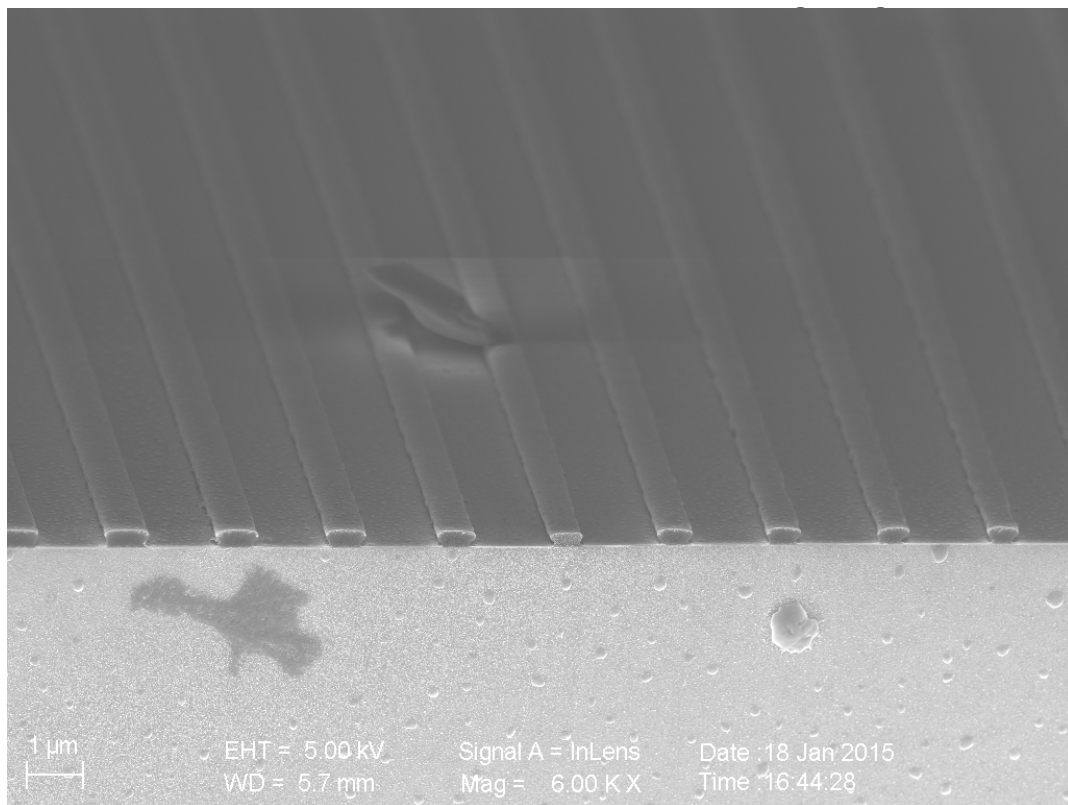
Submitted by: Xin Li  
Affiliation: Fudan University, China  
Instrument: Zeiss optical microscope  
Magnification: 1k

**2015 Micro-Nano Graph  
Contest**

71

**“A flying bird”**

**Description:  
Stain on Si just  
like a flying bird.**

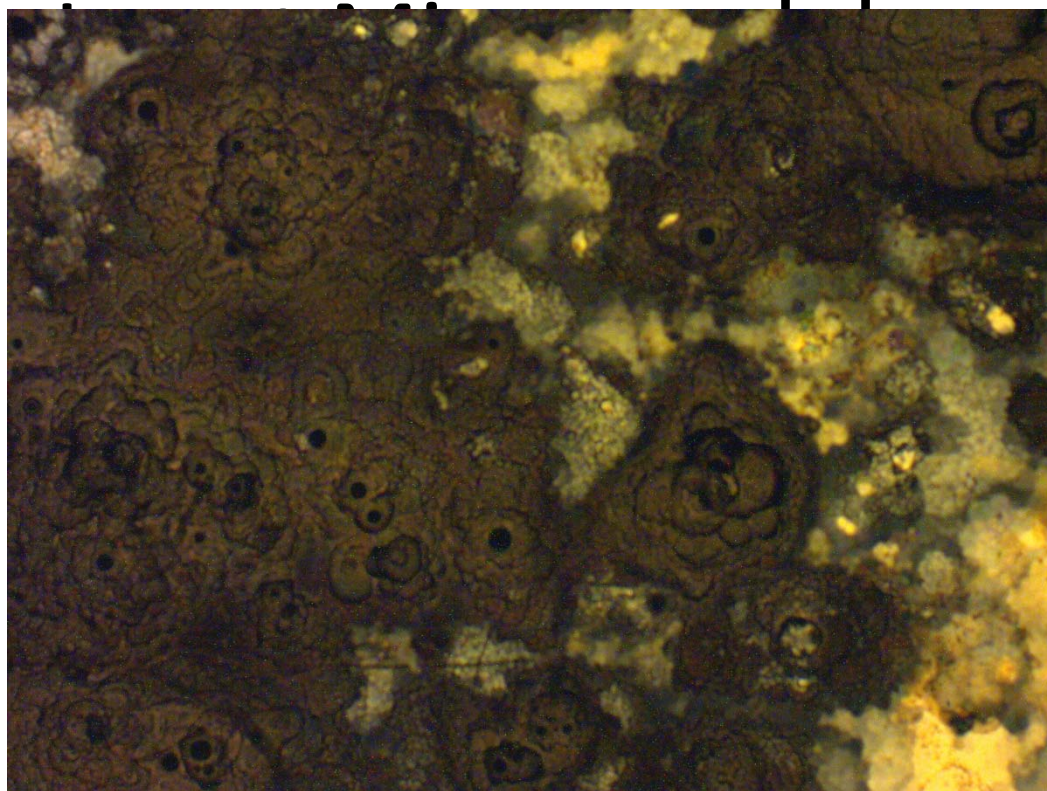


**Submitted by: Xin Li  
Affiliation: Fudan University, China  
Instrument: Zeiss SEM  
Magnification: 6k**

**MNE2015**

**2015 Micro-Nano Graph  
Contest**

72



**“Evil roses”**

**Description:**  
After oxidation  
and lift-off on Si,  
some black areas  
seem like evil  
roses in yellow  
flowers.

**MNE2015**

Submitted by: Xin L i  
Affiliation: Fudan University, China  
Instrument: Zeiss optical microscope  
Magnification:1k

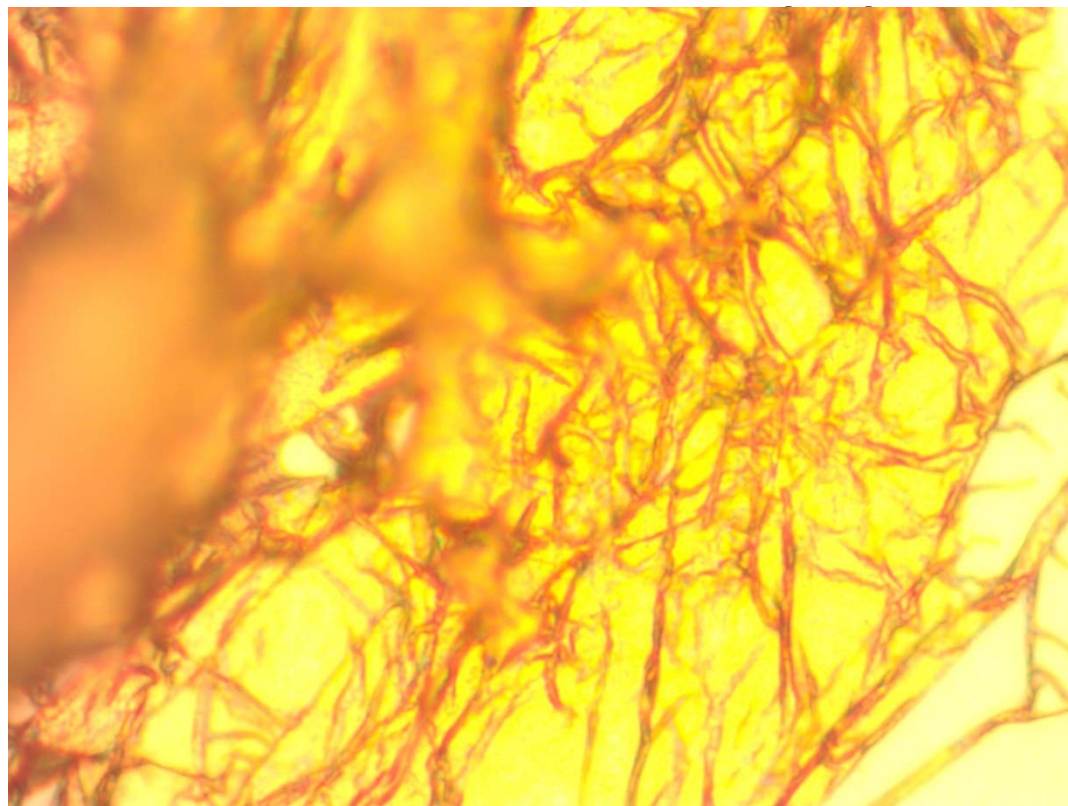


**2015 Micro-Nano Graph  
Contest**

73

**“Cicada’s wing”**

**Description:**  
A silver and gold  
bilayer on Si looks  
like a golden  
cicada’s wing.



Submitted by: Xin Li  
Affiliation: Fudan University, China  
Instrument: Zeiss optical microscope  
Magnification: 1k

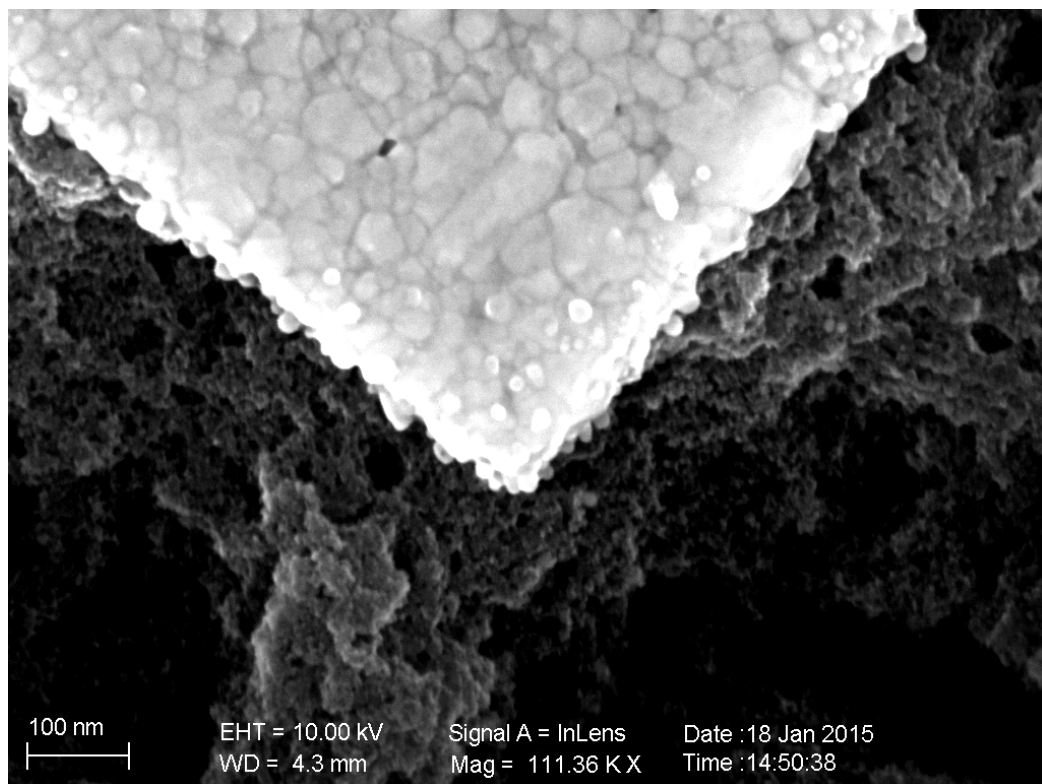
**MNE2015**

**2015 Micro-Nano Graph  
Contest**

74

**“Abyss of money”**

**Description:  
Silicon cliff under  
a silver stripe tells  
us to be alert to  
abyss of money.**



**MNE2015**

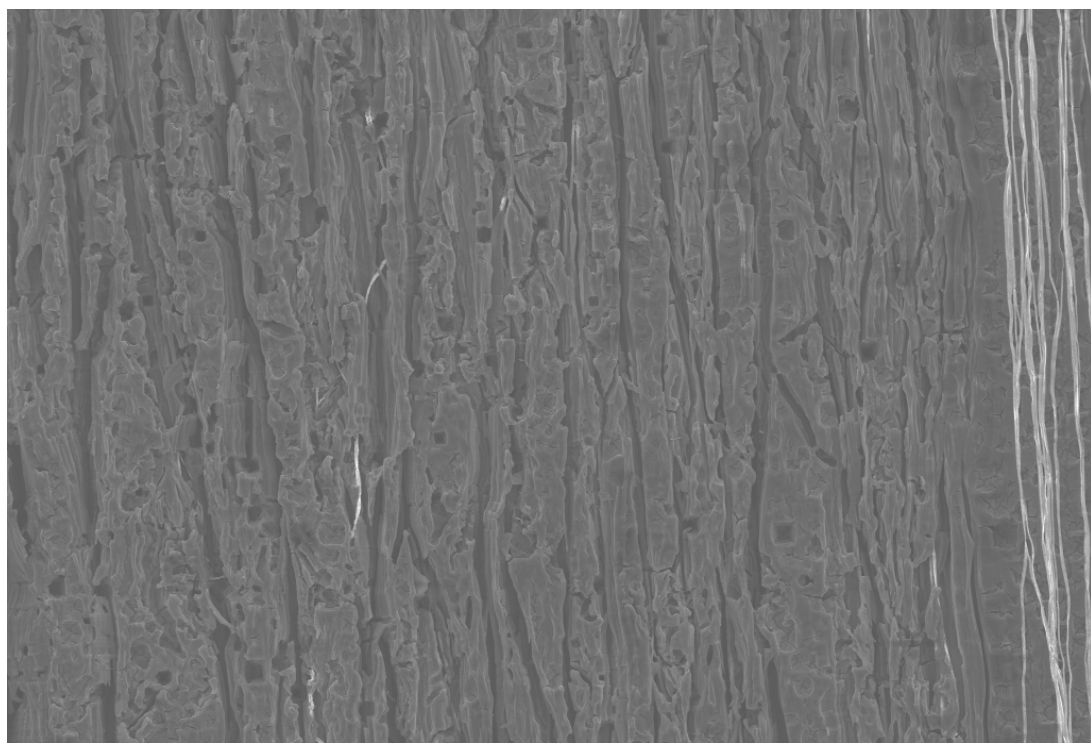
**Submitted by: Xin Li  
Affiliation: Fudan University, China  
Instrument: SEM  
Magnification: 111k**

**2015 Micro-Nano Graph  
Contest**

75

**“Skin of a tree ”**

**Description:**  
After chemical etching, silicon stripes like skin of a tree.



10  $\mu$ m

EHT = 5.00 kV  
WD = 11.2 mm

Signal A = InLens  
Mag = 937 X

Date :6 May 2015  
Time :10:21:02



**MNE2015**

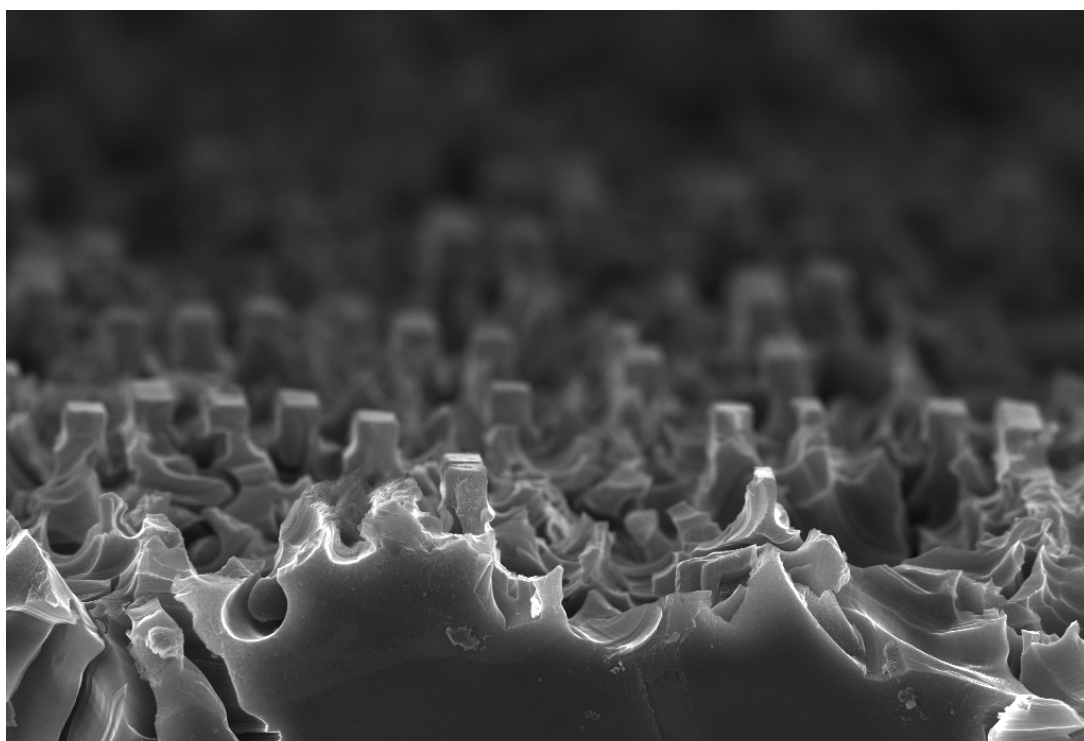
Submitted by: Xin Li  
Affiliation: Fudan University, China  
Instrument: SEM  
Magnification:1k

**2015 Micro-Nano Graph  
Contest**

76

**“Grass in graden”**

**Description:**  
Silicon pillars look  
like grass in  
garden.



2  $\mu$ m



EHT = 10.00 kV

WD = 5.0 mm

Signal A = InLens

Mag = 10.00 K X

Date :10 May 2015

Time :12:08:02



**MNE2015**

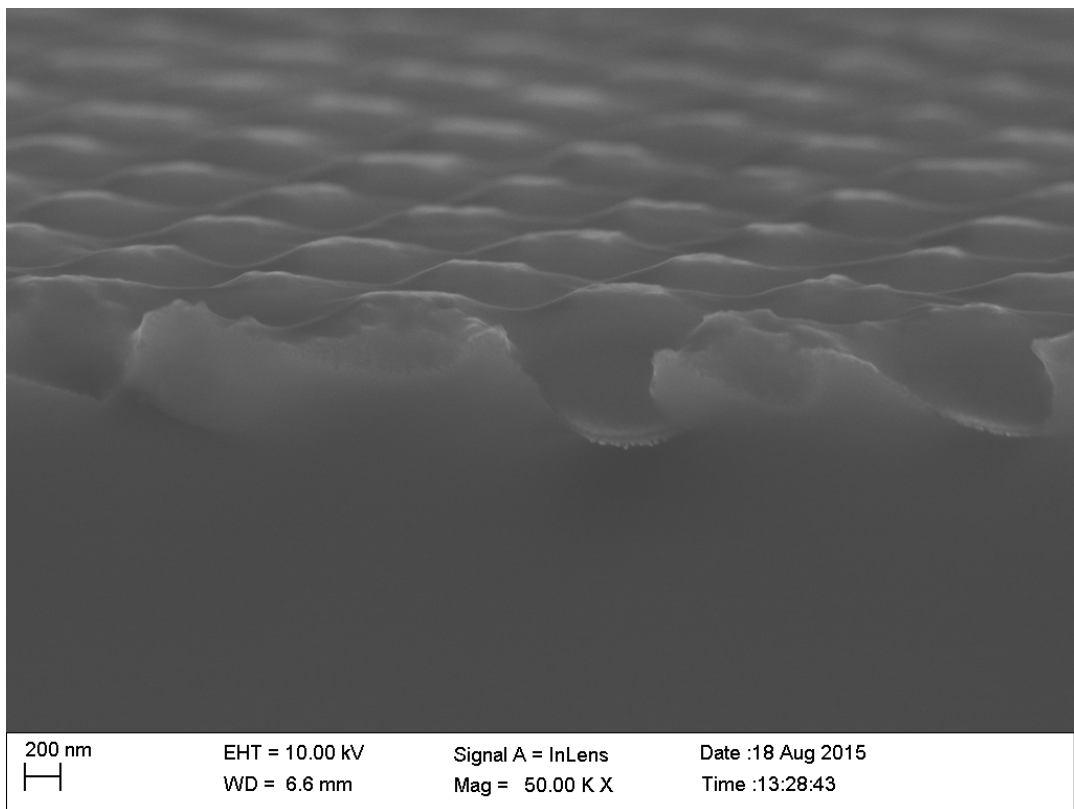
**Submitted by: Xin Li**  
**Affiliation: Fudan University, China**  
**Instrument: SEM**  
**Magnification:10k**

**2015 Micro-Nano Graph  
Contest**

77

**“Roaring waves”**

**Description:  
Silicon holes like  
roaring waves.**



**Submitted by: Xin Li  
Affiliation: Fudan University, China  
Instrument: Zeiss SEM  
Magnification:50K**

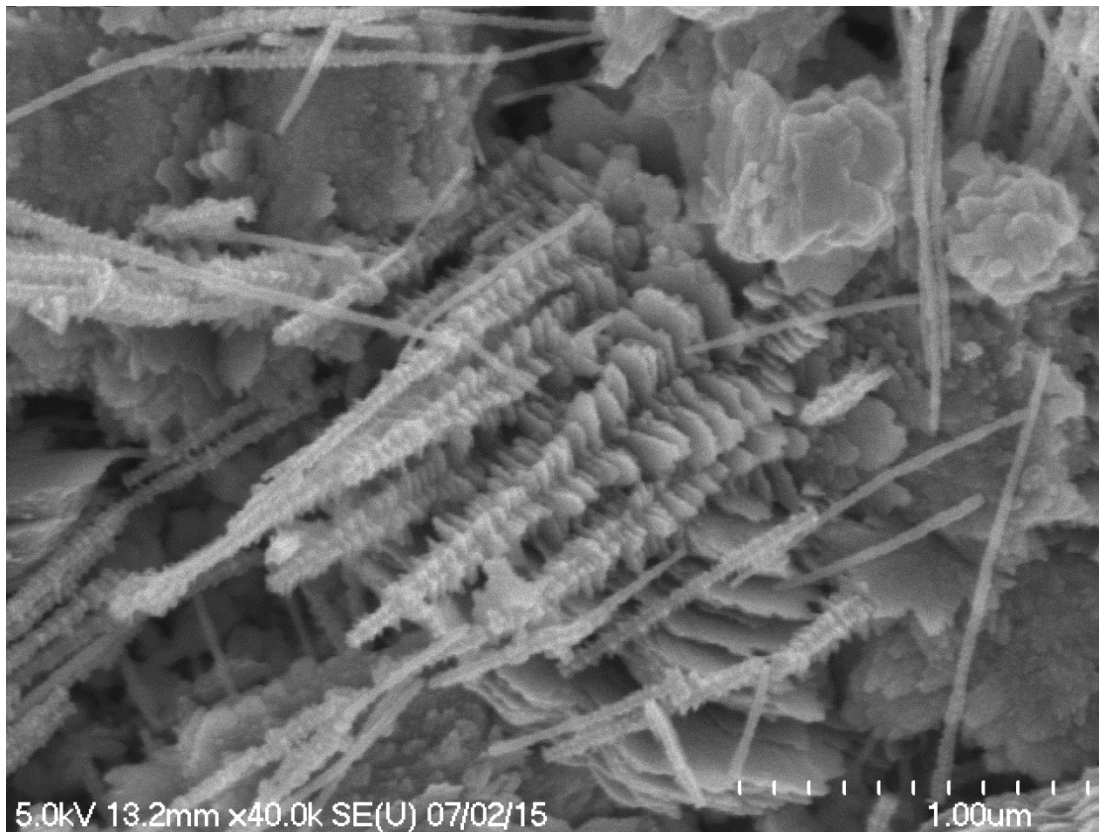
**MNE2015**

**2015 Micro-Nano Graph  
Contest**

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**Flowery nano-pillars**

**Description:**  
Hybrid ZnO nanostructures were synthesized which resulted in these interesting geometries.



**MNE2015**

**Submitted by: Atif Syed**  
**Affiliation: The University of Edinburgh**  
**Instrument: Hitachi 4700**  
**Magnification: 40.0k**

**2015 Micro-Nano Graph  
Contest**

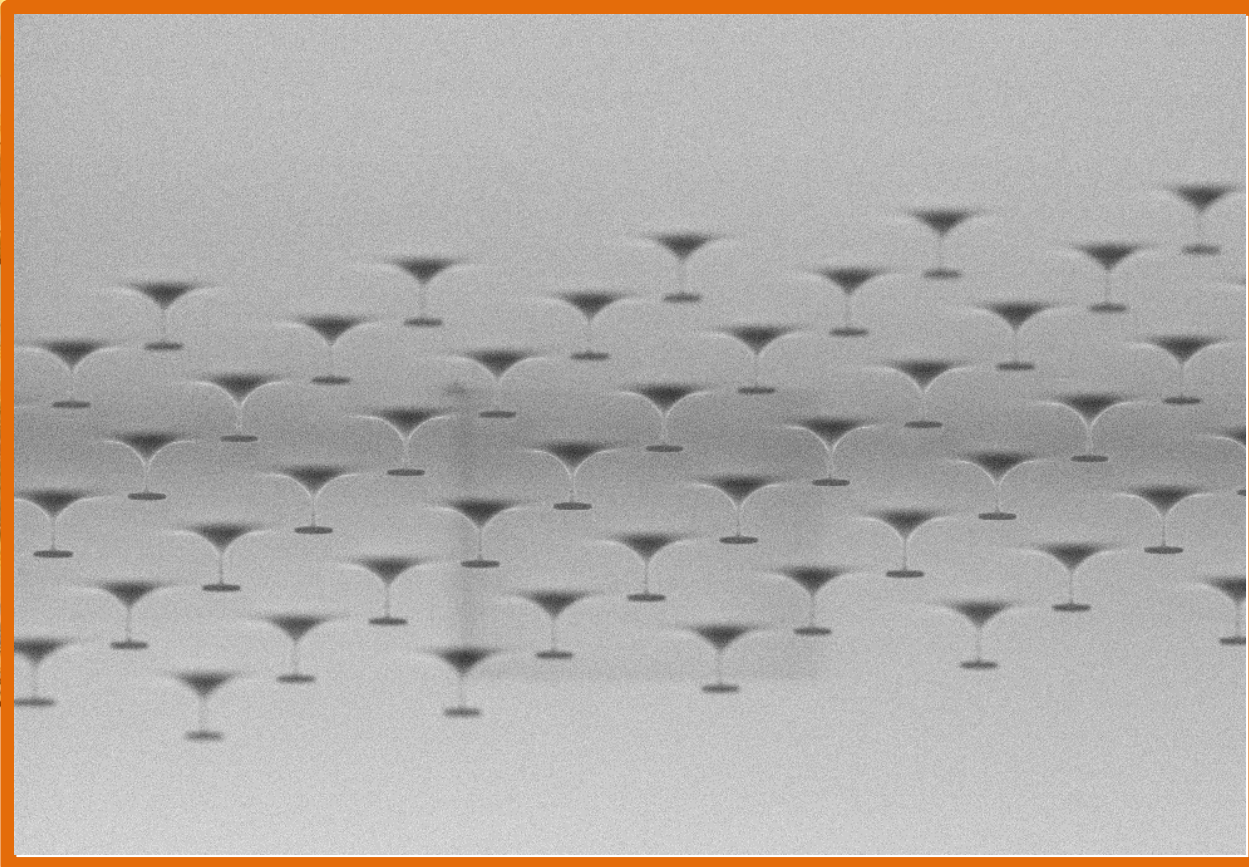
79

**“Ready for the cocktail  
bar”**

**Description:**

This is an array of  
yet to finish tips  
for thermal

scanning probe  
lithography. The  
cap is still present  
before the final  
oxide sharpening  
to form very sharp  
apexes.



Submitted by: Martin Spieser  
Affiliation: SwissLitho  
Instrument: SEM, LEO  
Magnification: 10 KX

**MNE2015**

**2015 Micro-Nano Graph  
Contest**

80

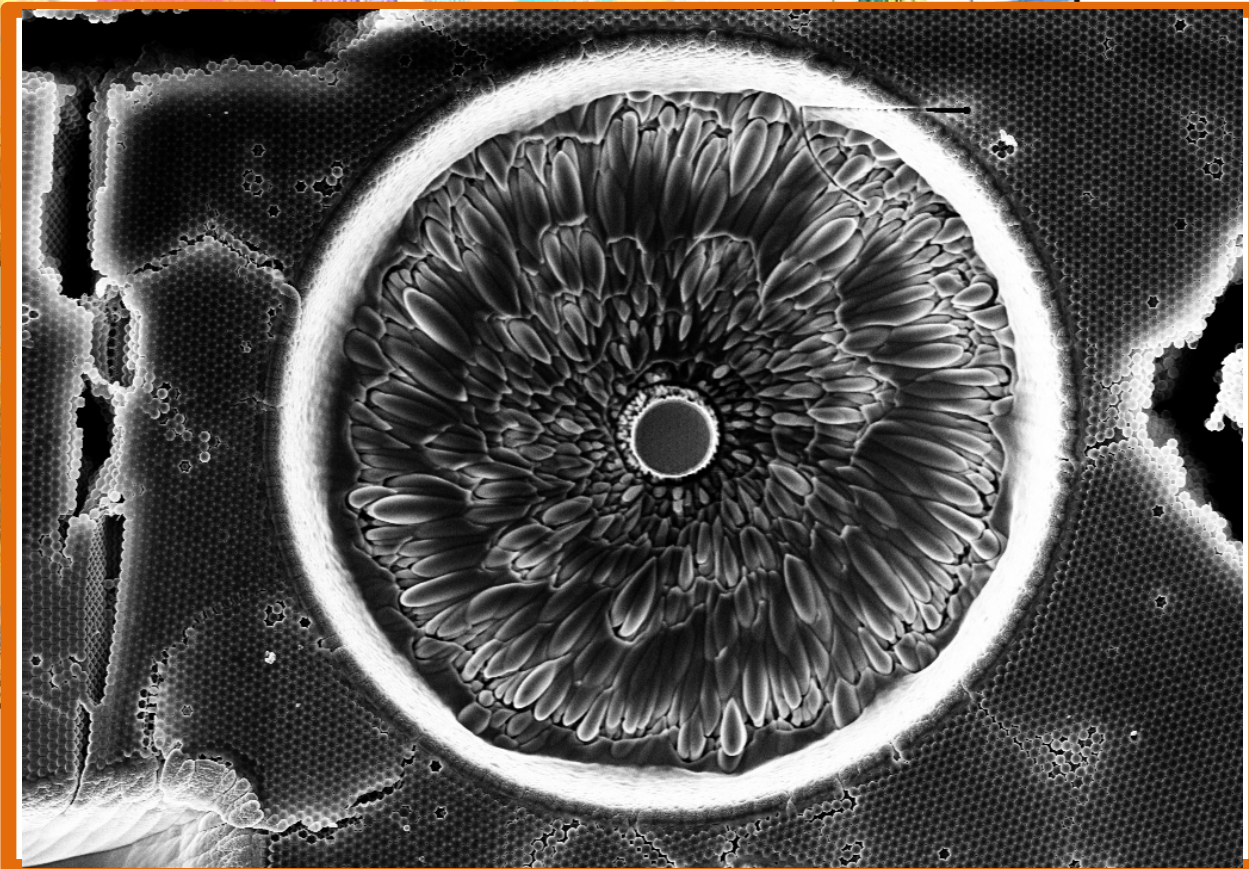
**“Pit of doom”**

**Description:**

A long time ago in a galaxy far far away in a distant

planet a gigantic creature opens his mouth filled with thousand teeth to devour everything around. Top view

of a etch column of an inverse opal



Submitted by: Arnau Coll

Affiliation: UPC

Instrument: Focused Ion Beam Zeiss Neon40

Magnification: 6380x

**MNE2015**

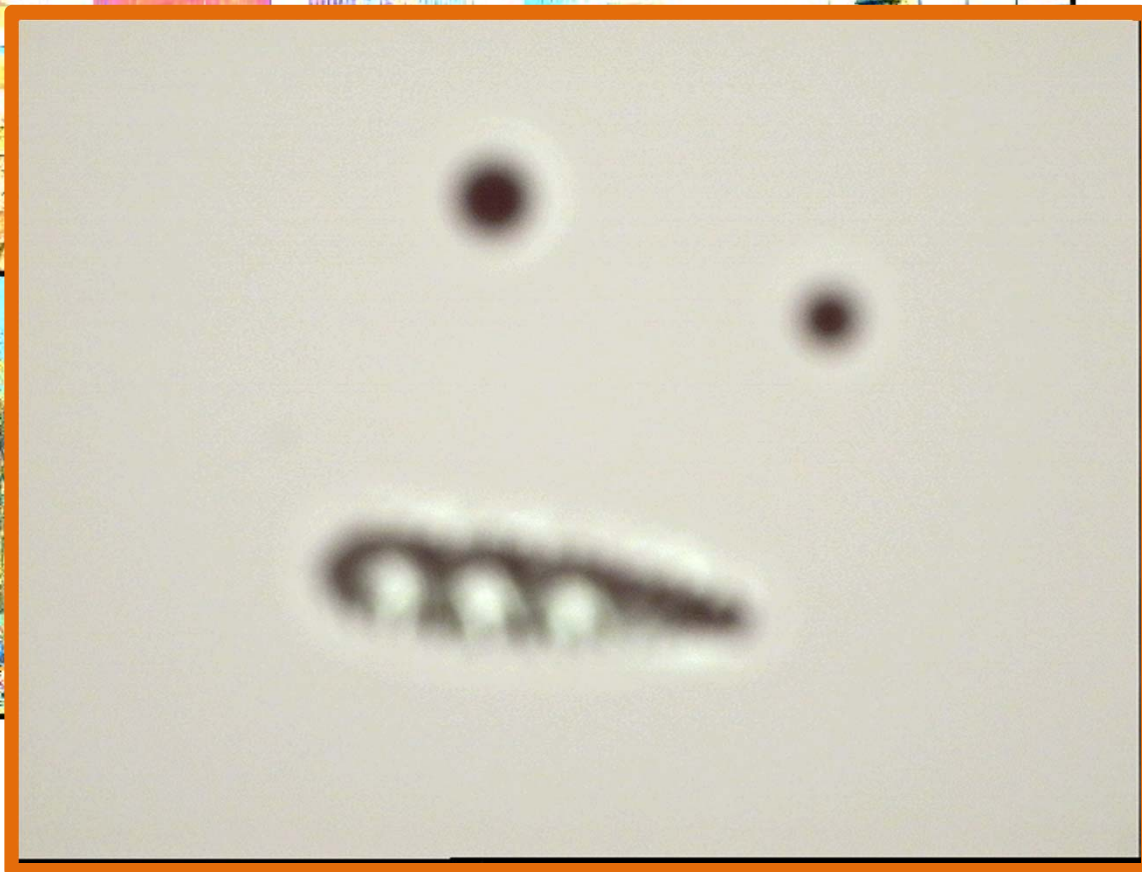


**2015 Micro-Nano Graph  
Contest**

81

**“Who's Watching Whom?”**

Through focus series  
(stop motion video)  
of an adhesion- and  
pinhole(s) problem in  
sputtered quartz layer  
on metal covered glass.



Submitted by: Falco van Delft  
Affiliation: Molecular Sense Ltd.  
Instrument: Leitz Ergolux  
Magnification: 100x

**MNE2015**

# 2015 Micro-Nano Graph Contest

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## "A Smashing Impression"

A disruptive novel technology: Pigeon Collision Lithography (PiCo-Litho™) is shown.

A pigeon tried a short-cut through our living room, leaving a micro-contact

print on the outer window, yet surviving the impact.

hit rate =  $0.25 \text{ pigeon.m}^{-2}.\text{yr}^{-1}$   
impact energy = 0.16 ZeV  
resolution (pitch/2) =  $375 \mu\text{m}$   
material: tri-glyceride/glass



Submitted by:

Falco van Delft

Affiliation:

Molecular Sense Ltd.

Instrument: Canon 30D + Zeiss Flektogon 35/2.4

Magnification:

1x

MNE2015

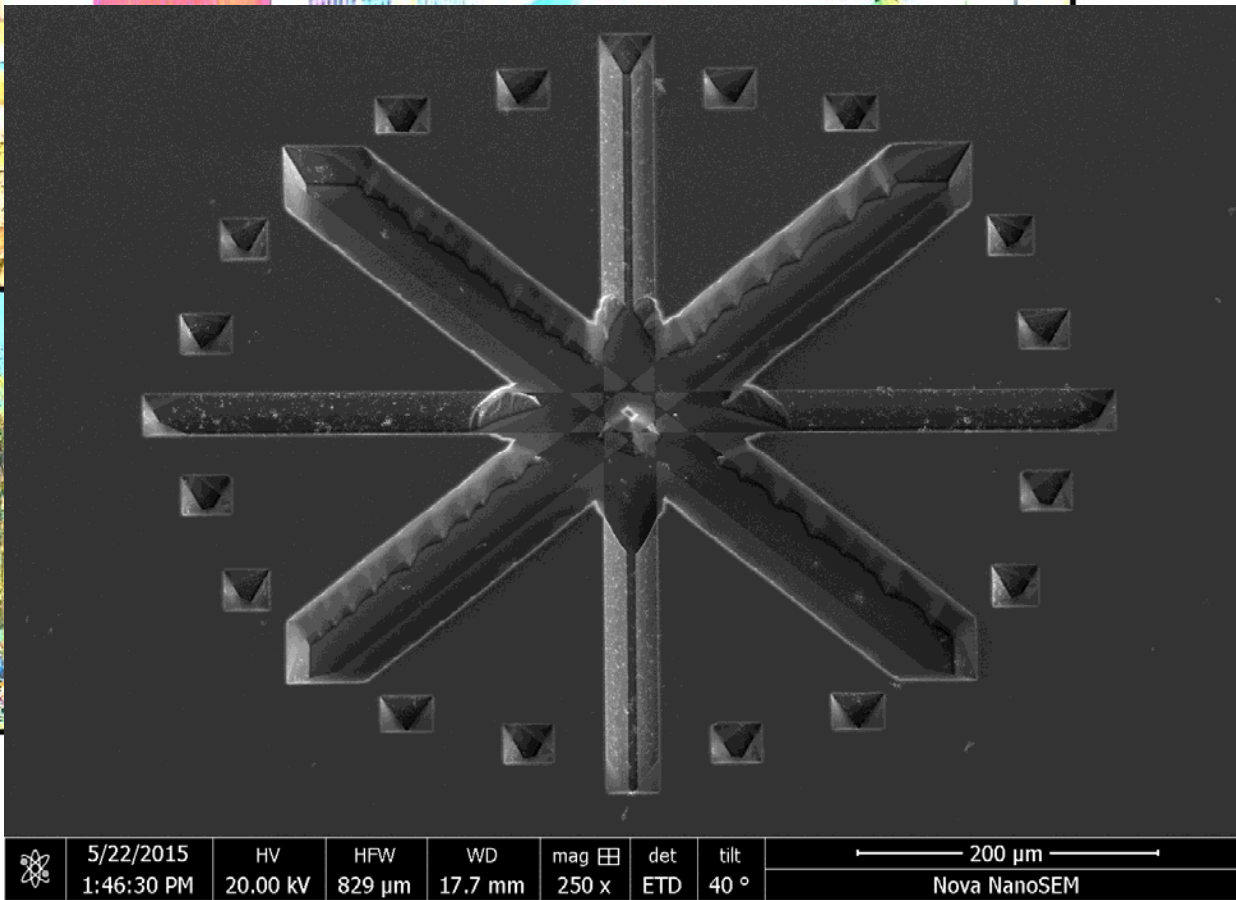
# 2015 Micro-Nano Graph Contest

83

## “The Art of Fabrication”

**Description:**  
Pattern drawn in a thin SiN layer on top of Si, then put into KOH etchant.

The different etch rates of the Si planes has left suspended SiN at various locations, making beautiful art.

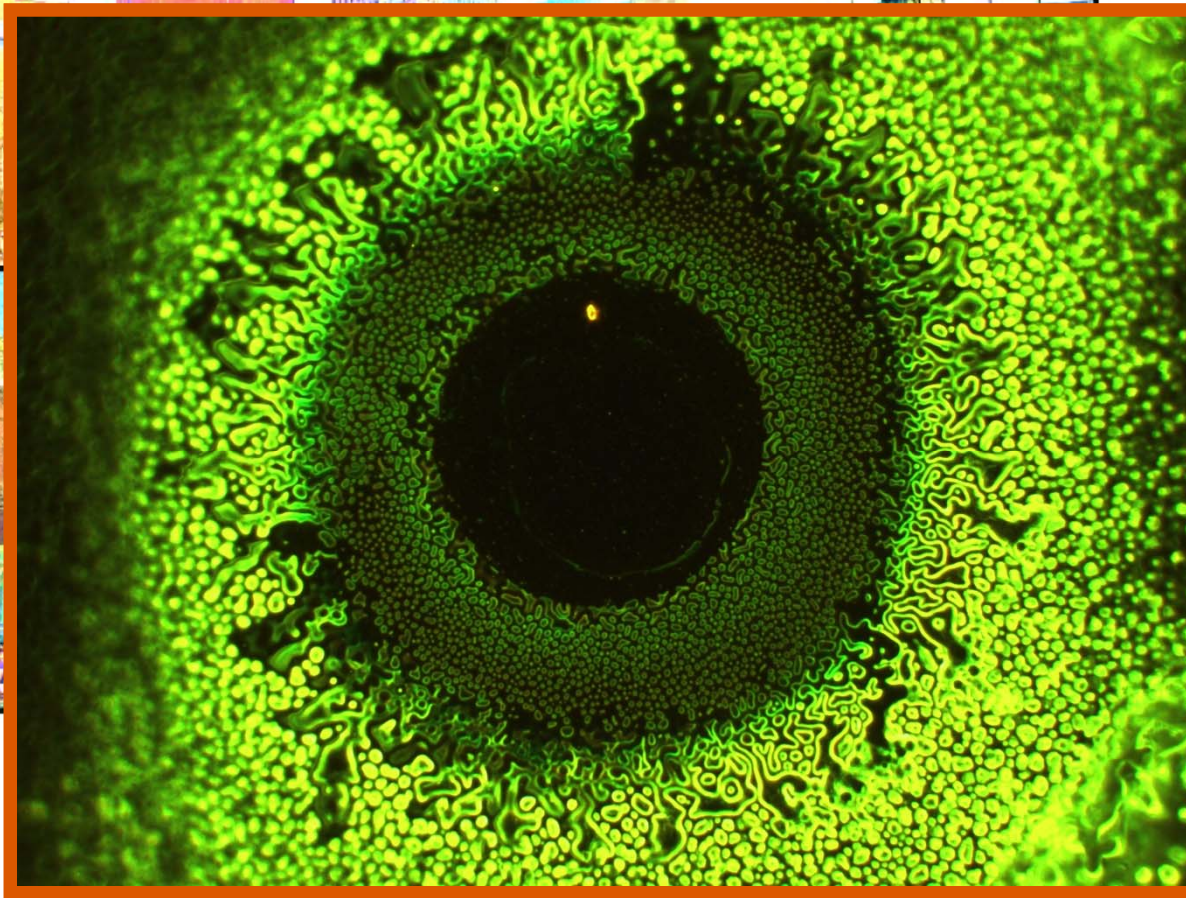


**Submitted by:** Hozanna Miro  
**Affiliation:** Kavli NanoLab/ TUDelft  
**Instrument:** Nova NanoSEM 450  
**Magnification:** 500 X

**MNE2015**

## Honorable Mention

84



## “Monster’s eye”

Dark field image of failed protein crystallization trial on 250 nm thick silicon

nitride membrane performed in nanoliter capacity chamber.

Deposited protein material clustered around the edges of the membrane and dried out gradually from outside to the center forming reptile like eye effect.

Submitted by: Nadia Opara

Affiliation: Paul Scherrer Institute

Instrument: INM 20 Leica microscope

Magnification: 800x

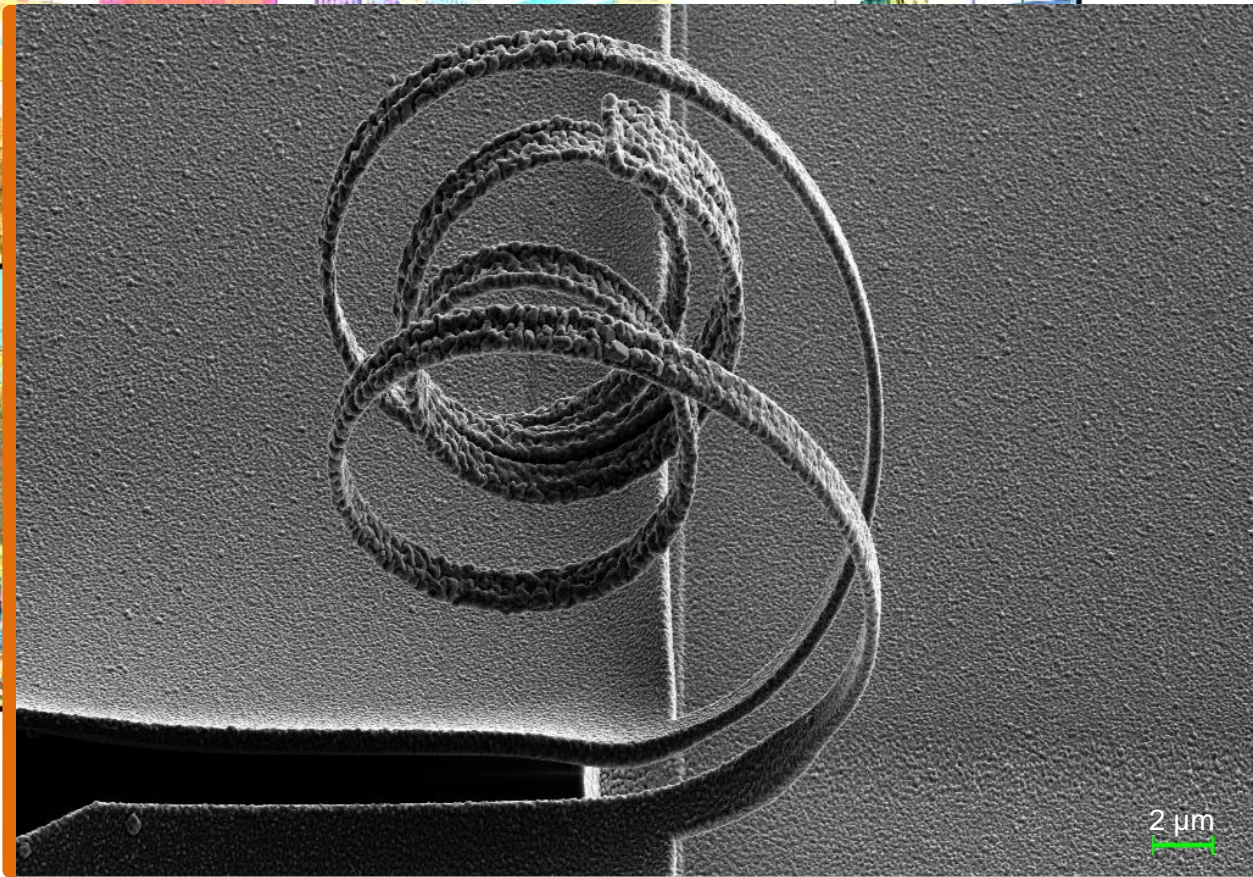
MNE2015

**2015 Micro-Nano Graph  
Contest**

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**“SMA Rollercoaster”**

**Description:**  
Shape Memory Alloy – Silicon bimorph double beam rolled up after the high temperature SMA deposition. Shape alteration can be obtained upon heating.



Submitted by: Franziska Lambrecht  
Affiliation: KIT  
Instrument: Zeiss Supra 60VP  
Magnification: 2.69 KX

**MNE2015**

# 2015 Micro-Nano Graph Contest

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## "Strange object from microspace"

**Description:**  
A photo written on the backside of a wafer using the ion beam, around a micrometer-sized silica sphere.



8/19/2015  
5:42:24 PM

HV  
2.00 kV

dwell  
50 ns

curr  
0.10 nA

det  
TLD

mag  
20 000 x

tilt  
30 °

WD  
4.1 mm

2 μm

Dresden Center for Nanoanalysis

# MNE2015

Submitted by: W.F. van Dorp  
Affiliation: Dresden Center for Nanoanalysis  
Instrument: FEI Helios 660  
Magnification: 20kx

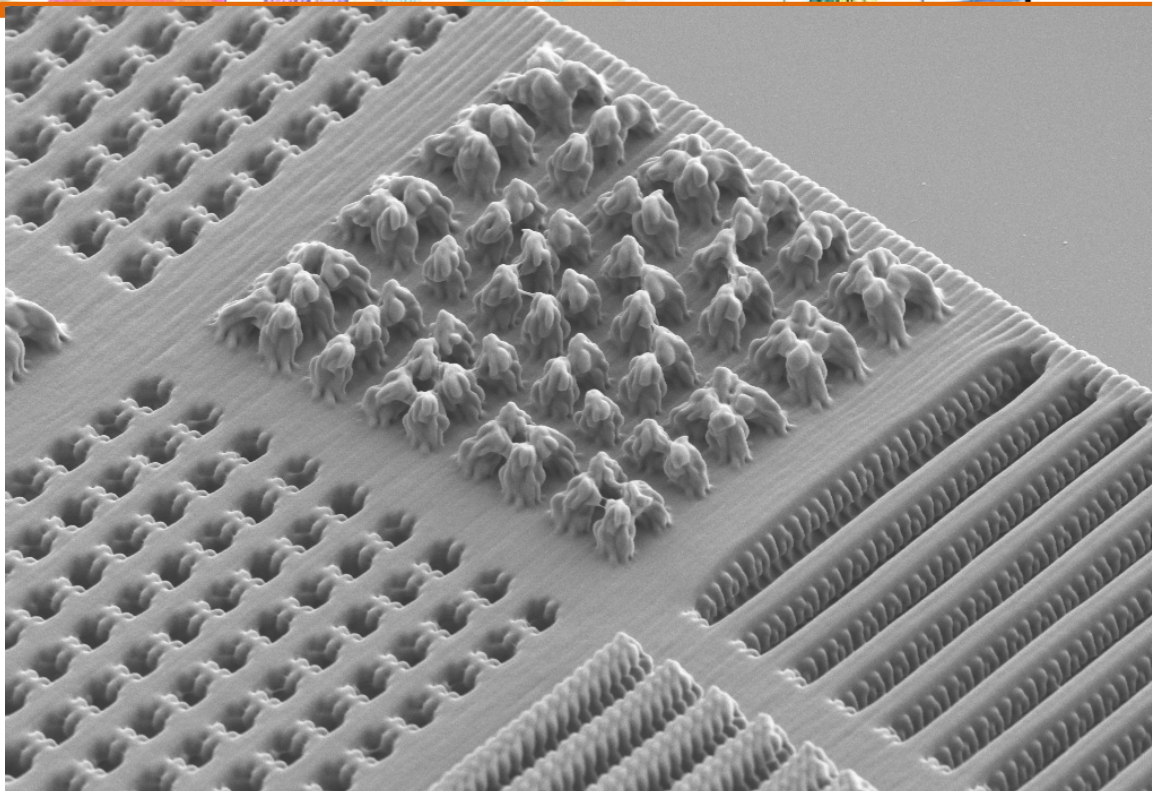
**2015 Micro-Nano Graph  
Contest**

87

**“Micro-elephants  
confronting”**

**Description:  
Micro rods  
written with 2  
photon**

**polymerization  
into a negative  
resist collapsing  
during  
development**



2  $\mu$ m EHT = 3.00 kV Signal A = SE2 Mag = 9.99 K X Stage at T = 41.3° WD = 9.7 mm Aperture Size = 30.00  $\mu$ m  
File Name = no-stich-lp40,5-0,2\_10.tif Date : 21 Sep 2015 Time : 14:39:37

**MNE2015**

**Submitted by: N. Chidambaram & R. Kirchner  
Affiliation: Paul Scherrer Institute  
Instrument: Zeiss Supra VP55  
Magnification: 2750x**

**2015 Micro-Nano Graph  
Contest**

88

**“Snake’s skin after  
shedding”**

**Description:  
Wrinkles in  
PMMA surface  
transferred from  
2 photon  
polymerization of  
a negative resist.**



2  $\mu\text{m}$  EHT = 0.80 kV Signal A = InLens Mag = 22.16 K X Stage at T = 0.0° WD = 4.6 mm Aperture Size = 10.00  $\mu\text{m}$   
File Name = single-solid-1p70\_20.tif Date : 13 Jul 2015 Time : 19:25:58

**Submitted by: N. Chidambaram & R. Kirchner  
Affiliation: Paul Scherrer Institute  
Instrument: Zeiss Supra VP55  
Magnification: 6080x**

**MNE2015**



**2015 Micro-Nano Graph  
Contest**

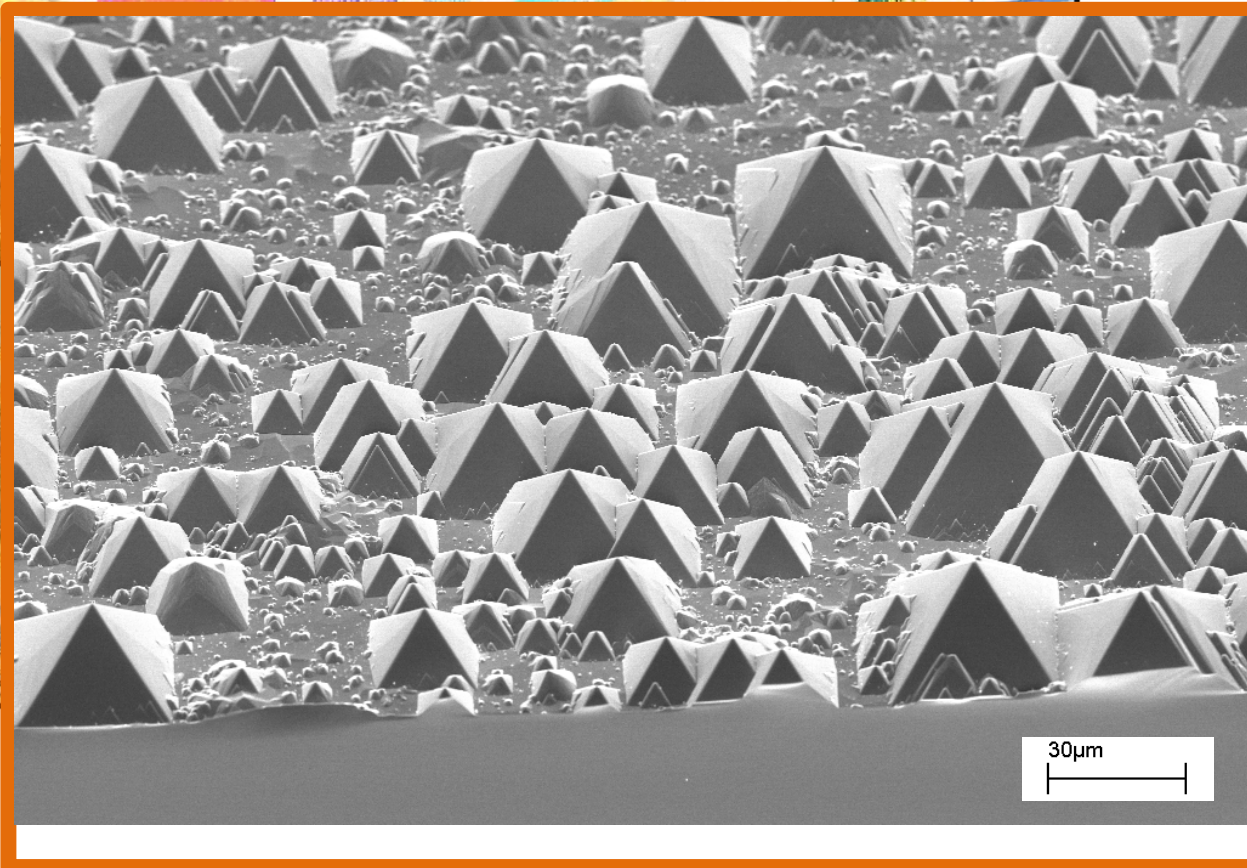
89

**“In the land of  
pyramids...”**

**Description:  
‘Random pyramid’  
texture made  
masklessly by KOH**

**and IPA.**

**The etch rate  
difference between Si  
crystal planes  
ensures perfect  $54.7^\circ$   
angles with  
horizontal.**



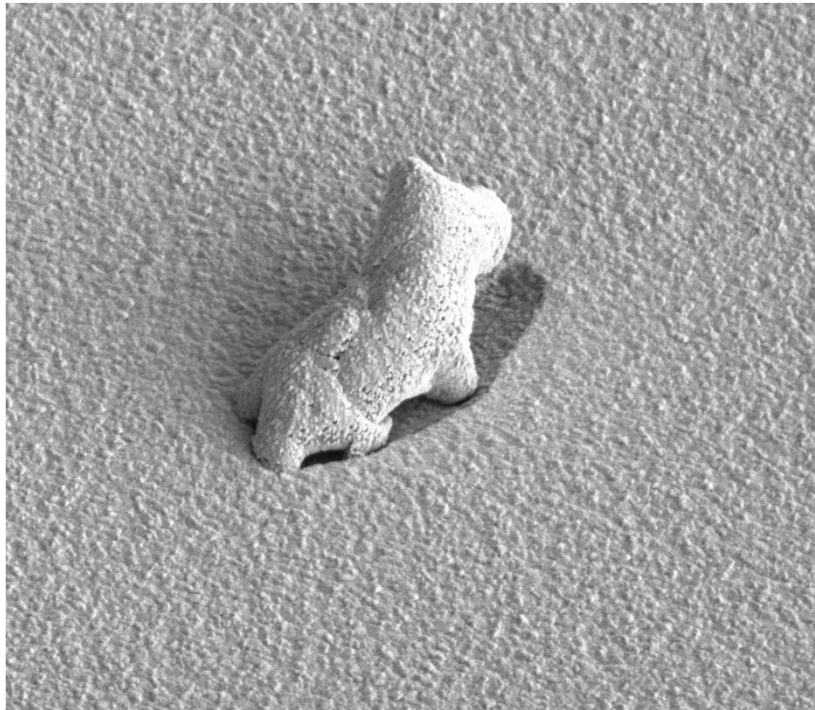
**Submitted by: Rasmus Davidsen  
Affiliation: DTU Nanotech  
Instrument: SEM-LEO (Zeiss)  
Magnification: 1370x**

**MNE2015**

**2015 Micro-Nano Graph  
Contest**

90

**“Snow dog”**



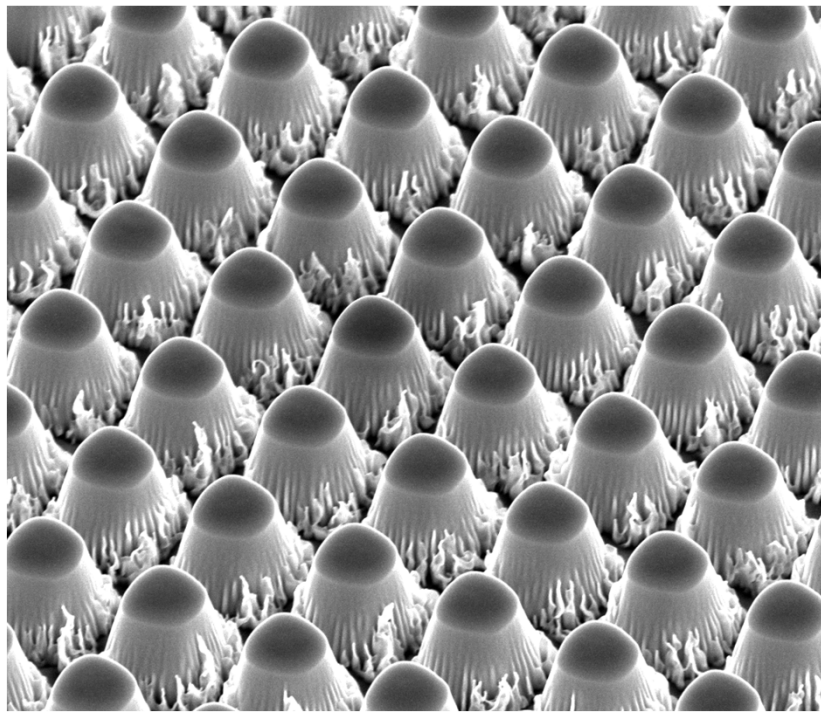
**Description:**  
Titanium film  
deposited by  
sputtering on a Si  
substrate with a  
dust particle on  
top

**Submitted by: Andrea Notargiacomo**  
**Affiliation: CNR - IFN**  
**Instrument: ZEISS EVO MA-10 SEM**  
**Magnification: 5 kX**

**MNE2015**

**2015 Micro-Nano Graph  
Contest**

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**“The Creme Caramel  
Army”**

**Description:  
CVD grown Ge  
film on Si  
substrate after**

**focused ion beam  
milling**

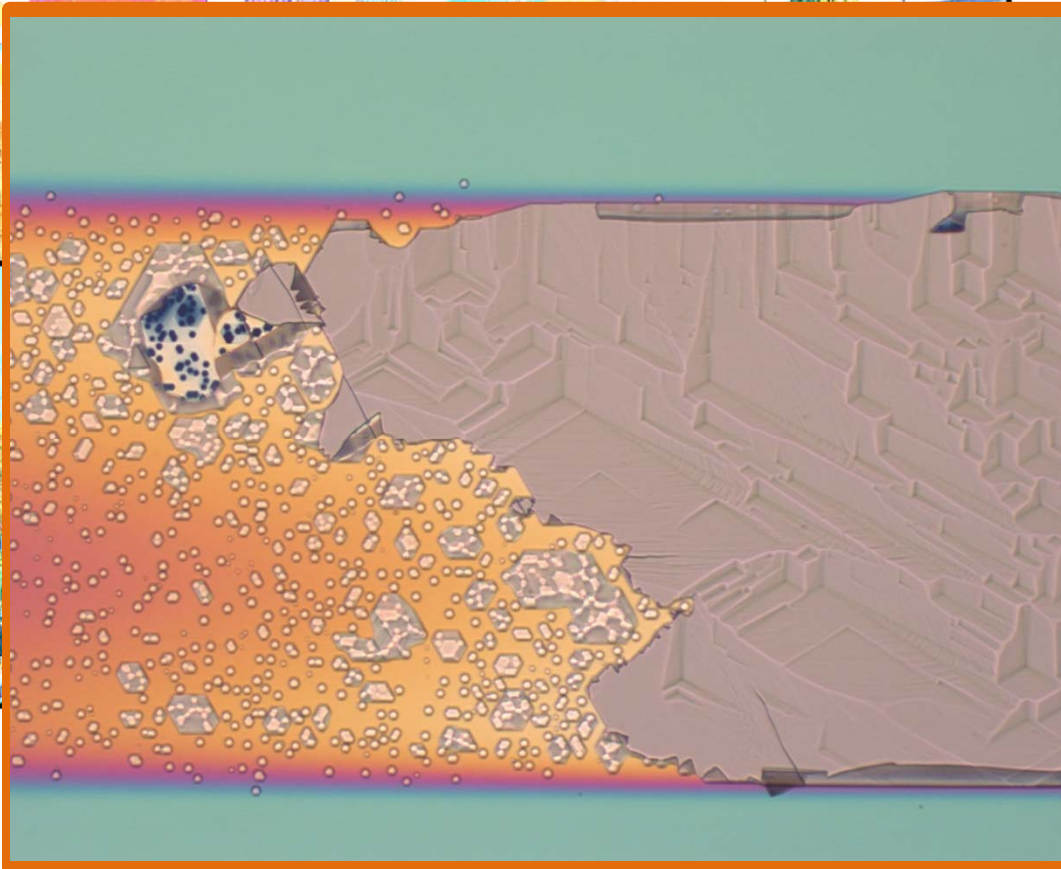
**MNE2015**

**Submitted by: Andrea Notargiacomo  
Affiliation: CNR - IFN  
Instrument: ZEISS EVO MA-10 SEM  
Magnification: 25 kX**

**2015 Micro-Nano Graph  
Contest**

92

**$\mu$ -Escher: Stairway  
too  
crystallographic  
stairway**



**MNE2015**

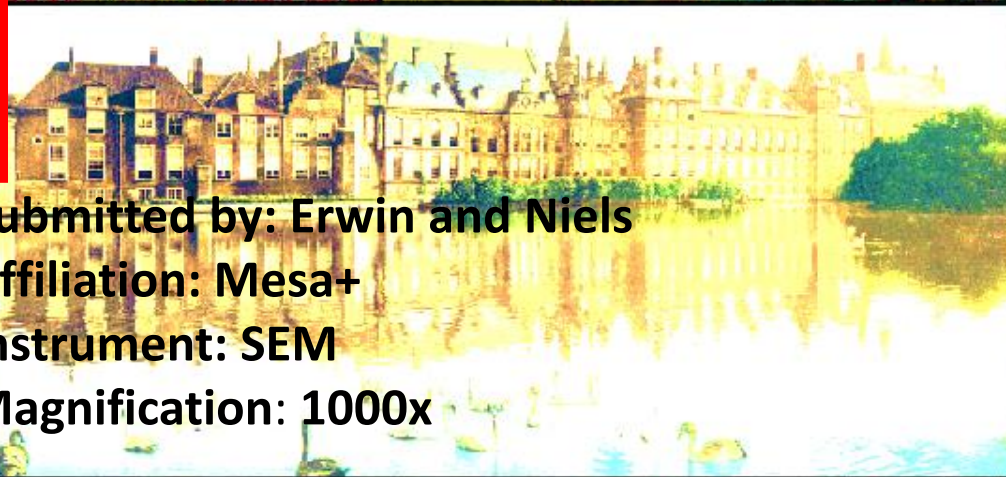
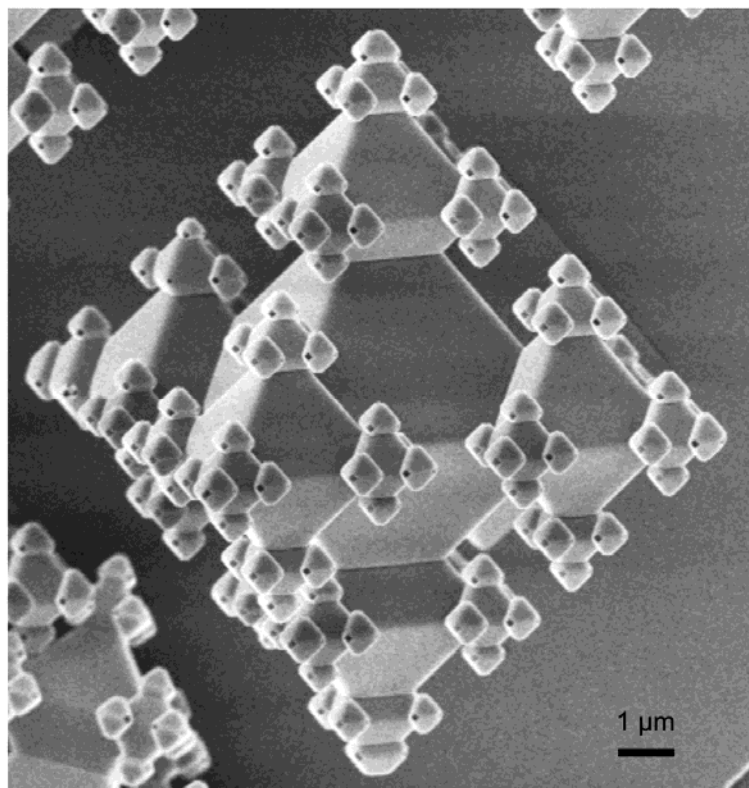
Submitted by: Erwin Berenschot  
Affiliation: Mesa+  
Instrument: optical microscope  
Magnification: 100x

**2015 Micro-Nano Graph  
Contest**

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# Alien Invasion

3d engineered fractal  
fabricated In a self  
multiplying process



Submitted by: Erwin and Niels  
Affiliation: Mesa+  
Instrument: SEM  
Magnification: 1000x

**MNE2015**

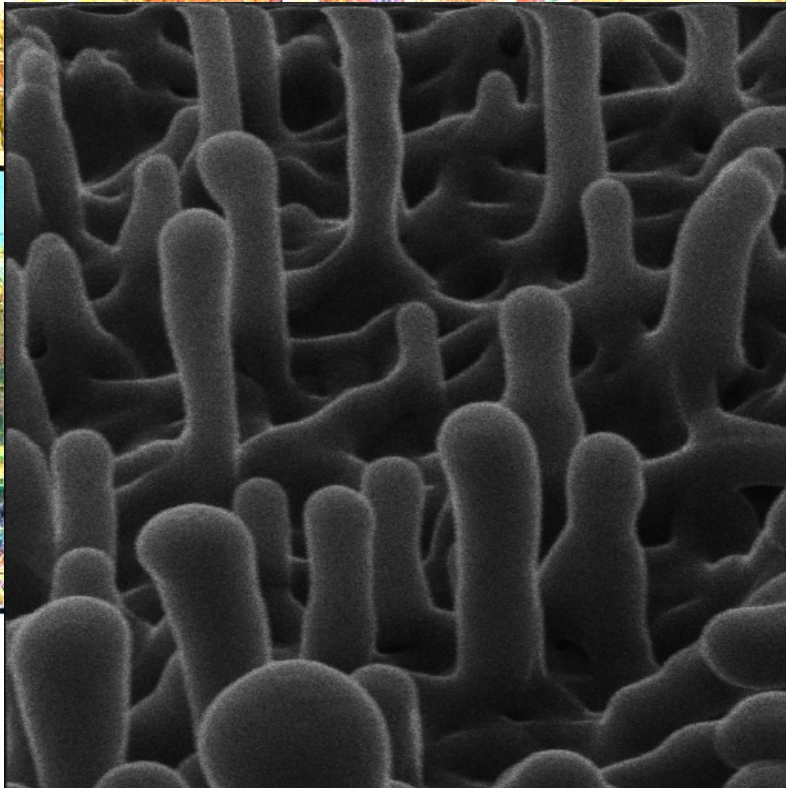
# 2015 Micro-Nano Graph Contest

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## “Nano-world of Insects”

**Description:**  
High resolution  
Helium  
micrograph of

uncoated  
nanopillars on  
dragonfly wing



<b>ZEISS</b>	Field Of View 1.50 um	Blanker Current 0.3 pA	Dwell Time 0.5 us	Date: 29-May-15 Time: 2:52 PM
	Working Dist 7.7 mm	Acceleration V 25.0 kV	Mag (Display) 120,355.56 X	200.00 nm

# MNE2015

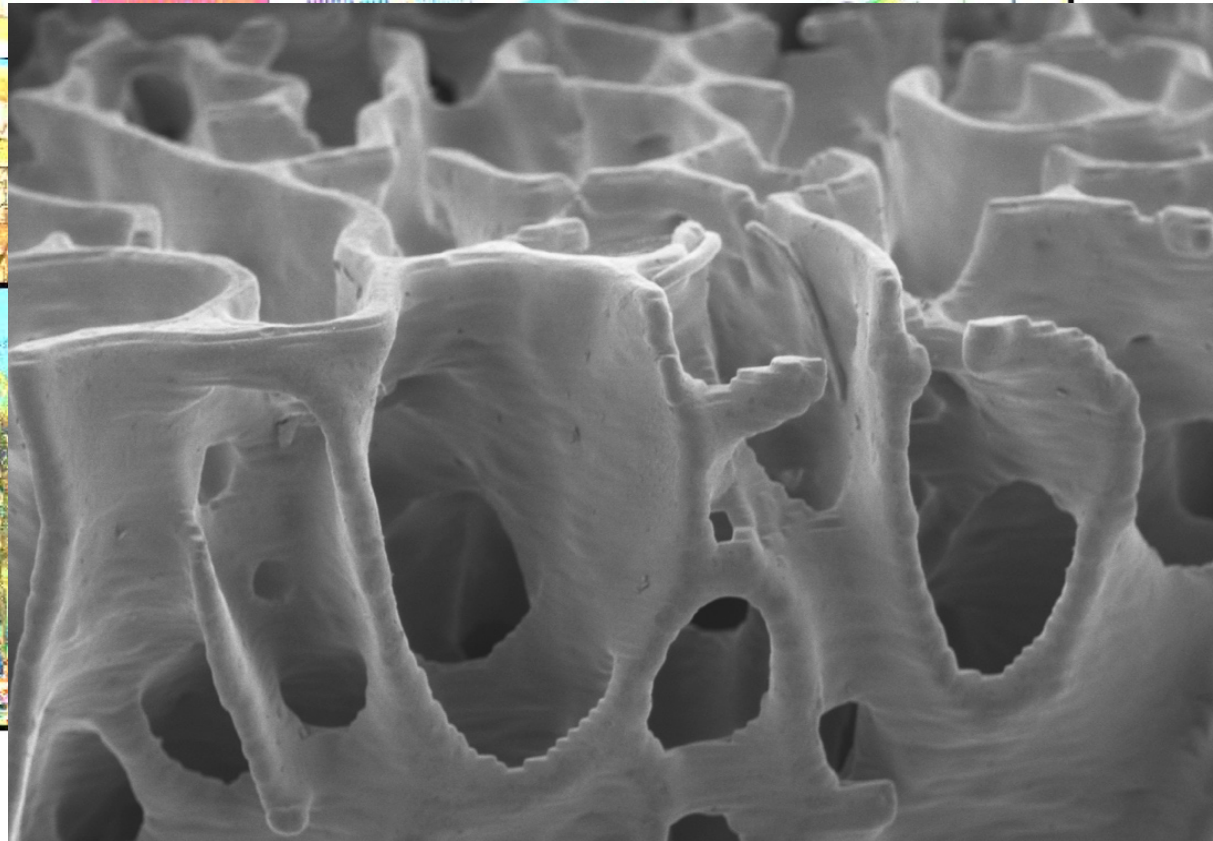
**Submitted by:** Chiththaka Imihami Mudiyansele  
**Affiliation:** Queensland University of Technology (QUT)  
**Instrument:** Orion NanoFab Helium ion microscope  
**Magnification:**

**2015 Micro-Nano Graph  
Contest**

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**“ Bone caverns ”**

**Description:**  
Trabecular Bone structure obtained by 3D Printing of a polymer composite (Stereolithography). The scaffold design was generated using Xray microtomography.



CNRS-LAAS 1.00kV 31.2mm x20 SE

2.00mm

**MNE2015**

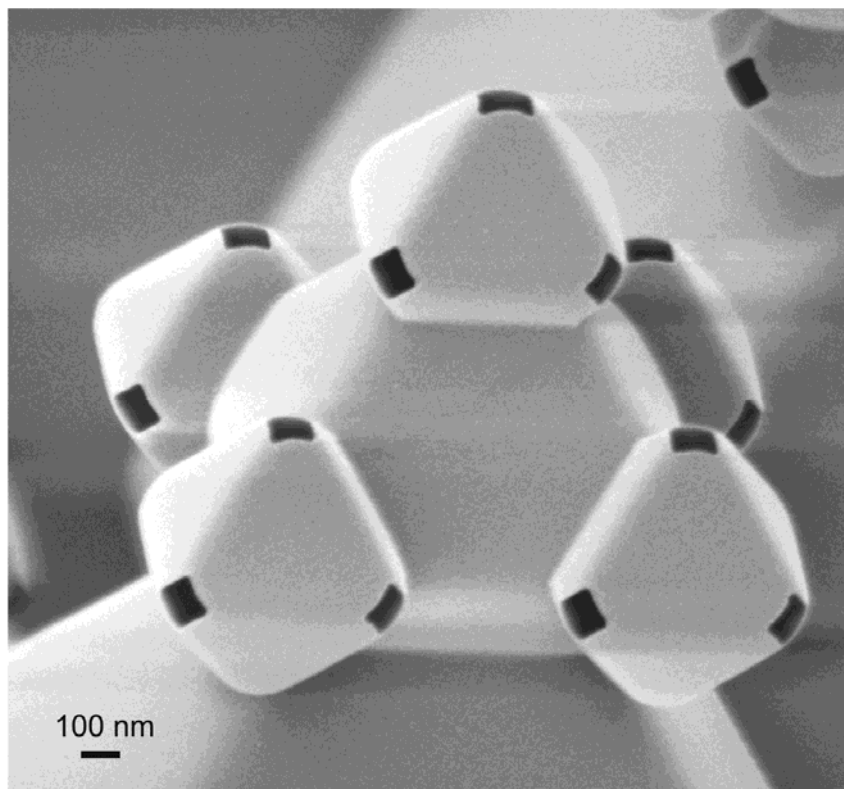
**Submitted by: Laurent Malaquin**  
**Affiliation: Institut Curie – LAAS CNRS**  
**Instrument: S3700 Hitachi**  
**Magnification: x20**

**2015 Micro-Nano Graph  
Contest**

96

**Alien Invasion II**

3d engineered fractal  
fabricated In a self  
multiplying process



Submitted by: Erwin and Niels  
Affiliation: Mesa+  
Instrument: SEM  
Magnification: 50000x(right)

**MNE2015**



**2<sup>nd</sup> Prize**

**97**

**“nano alphabet soup”**



**Description:  
Maskless reactive  
ion etching of  
fused silica with**

**e-beam  
deposition 40 nm  
of Au**

**Submitted by: Anil Thilsted &  
Kristian Sørensen**

**Affiliation: DTU Nanotech**

**Instrument: Zeiss Supra**

**Magnification: Ca. 135.000x**

**MNE2015**

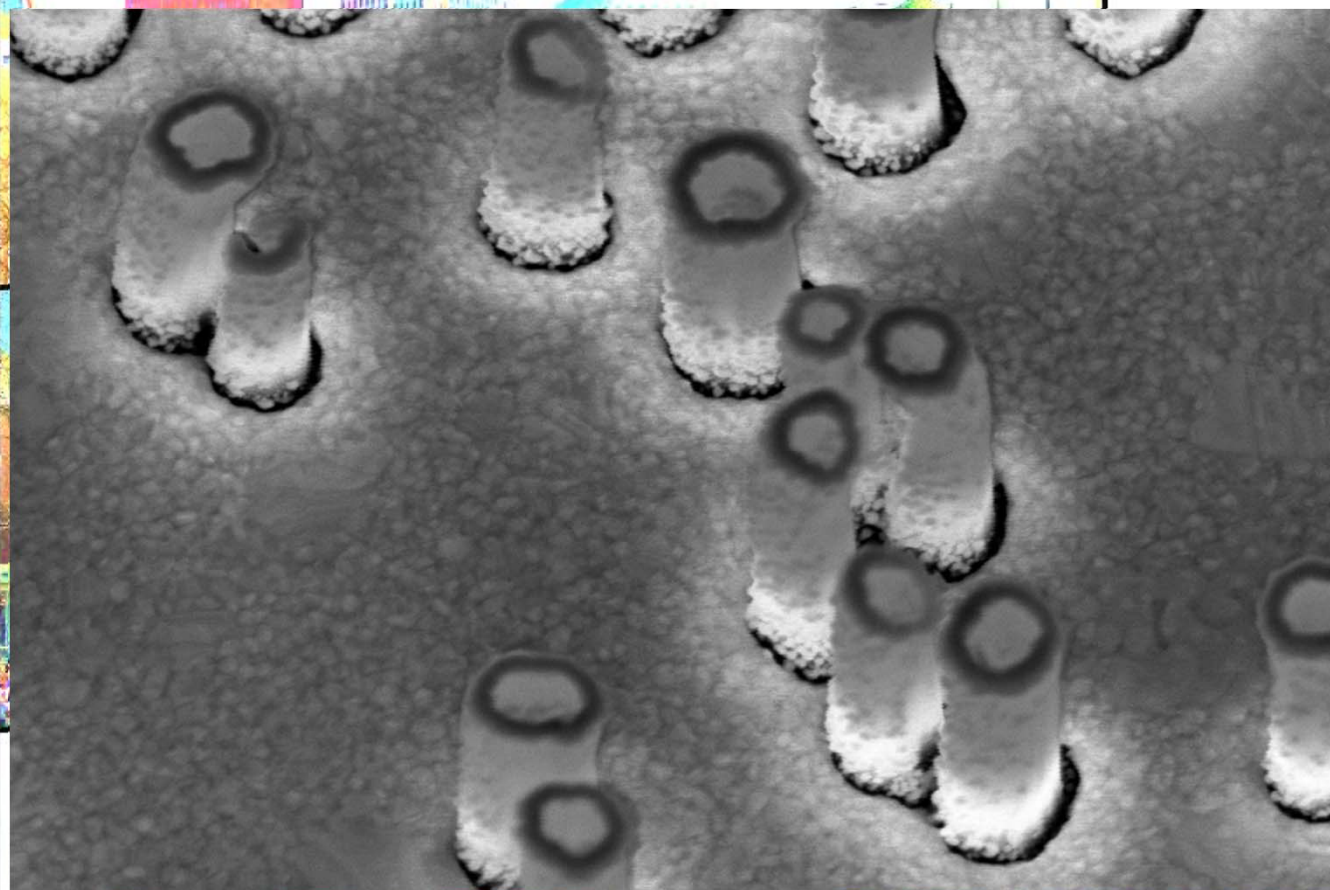
**2015 Micro-Nano Graph  
Contest**

98

**“Stalagmites”**

**Description:**  
Maskless reactive  
ion etching of  
fused silica with

e-beam  
deposition 40 nm  
of Au



**Submitted by:**  
**Affiliation:** DTU Nanotech  
**Instrument:** Zeiss Supra  
**Magnification:** Ca. 135.000x

**2015 Micro-Nano Graph  
Contest**

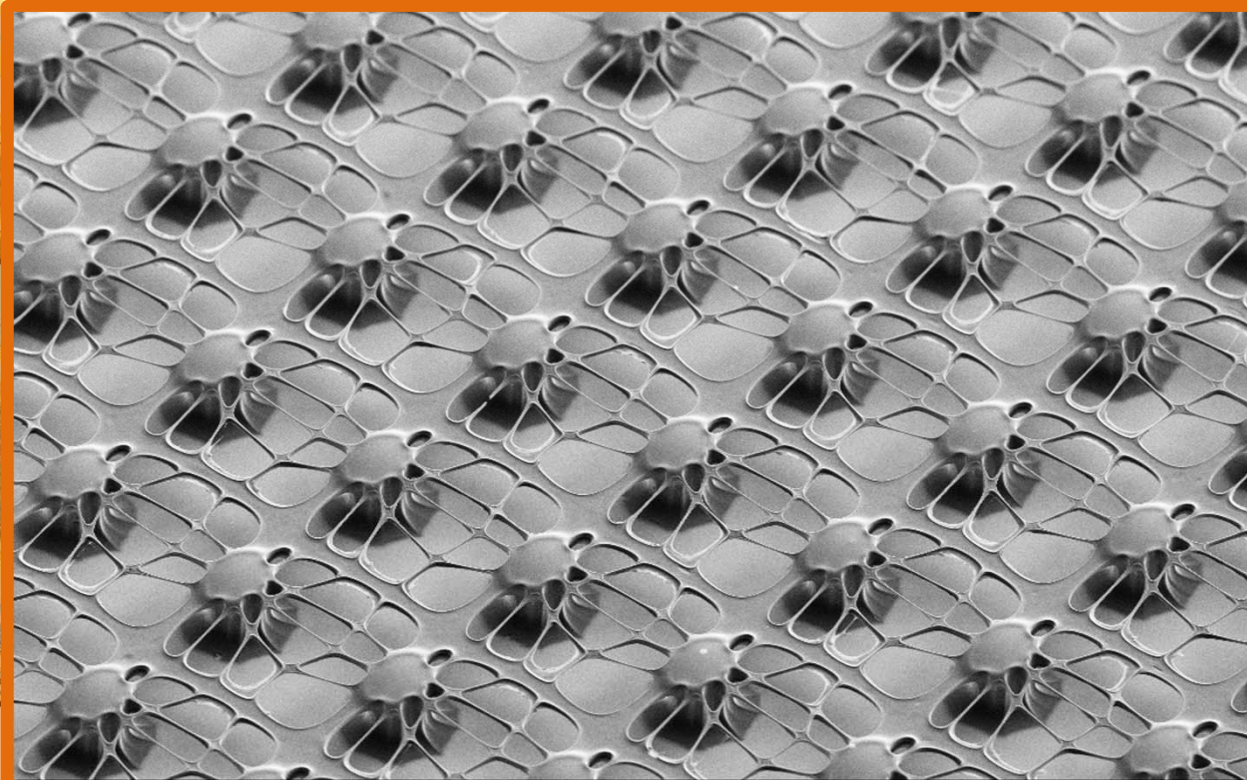
99

**“Carbon Spider web”**

**Description:**

Web is a result of two step UV lithography

followed by pyrolysis. With a smallest feature size of  $3.9\mu\text{m}$ . This can be used as Electrodes, filter or cell growth/analysis.



20  $\mu\text{m}$



Submitted by: Suhith Hemanth  
Affiliation: Biomaterials Microsystem  
Instrument: DTU, Nanotech, Denmark  
Magnification: 527x

**MNE2015**

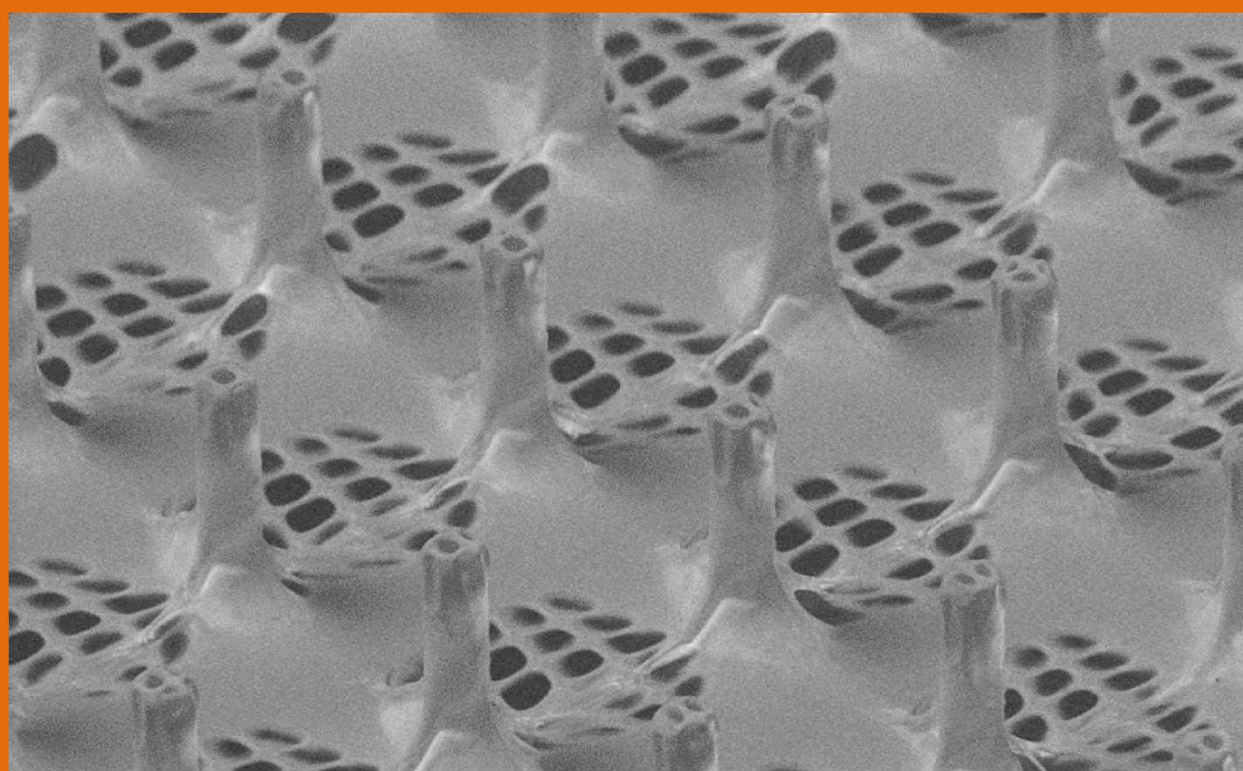
**2015 Micro-Nano Graph  
Contest**

100

**“SU-8 micro- valley”**

**Description:**  
Second layer of  
SU-8 was partially  
exposed for a

handing  
structures. But  
due to lack of  
crosslinking they  
shrink on SU-8  
pillars.



100  $\mu\text{m}$



**MNE2015**

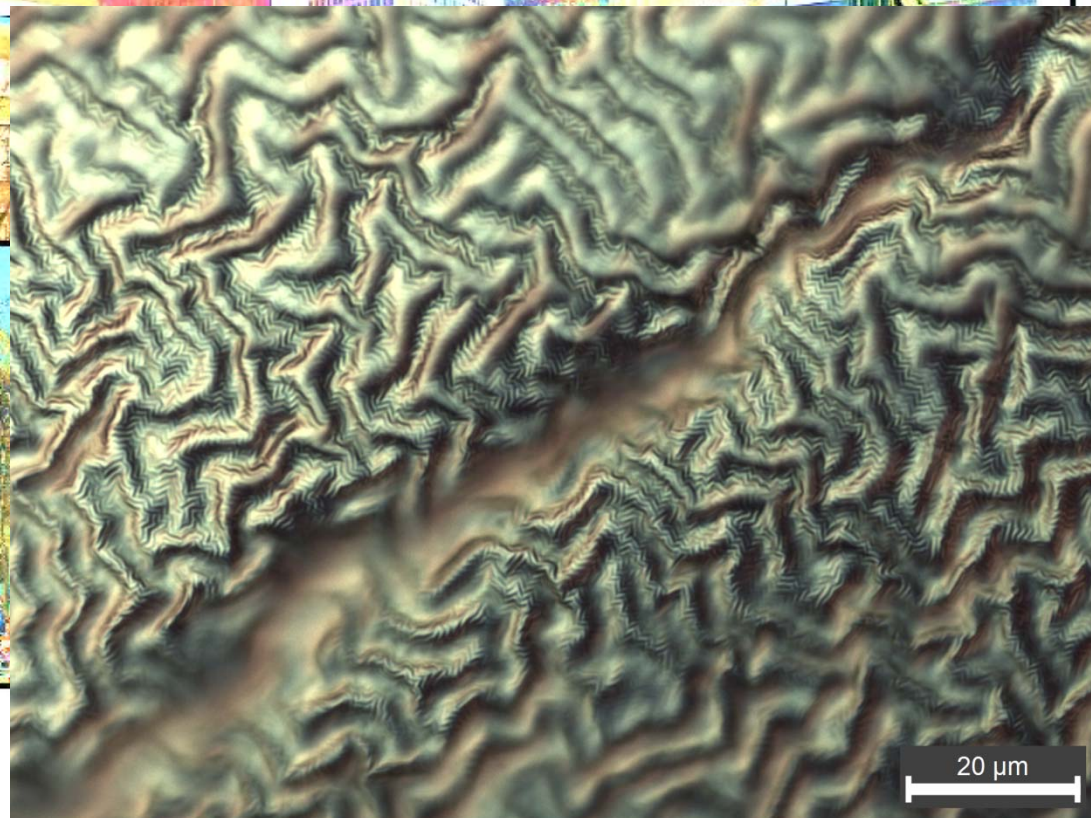
Submitted by: Suhith Hemanth  
Affiliation: Biomaterials Microsystems  
Instrument: DTU, Nanotech  
Magnification: 361X

**2015 Micro-Nano Graph  
Contest**

101

**“Brain”**

**Description:**



**PDMS surface  
after plasma  
treatment and  
deposition of Ti  
layer.**

**Submitted by: Maximilian Rumler  
Affiliation: Fraunhofer IISB  
Instrument: Leica Ergolux Microscope  
Magnification: 1000x**

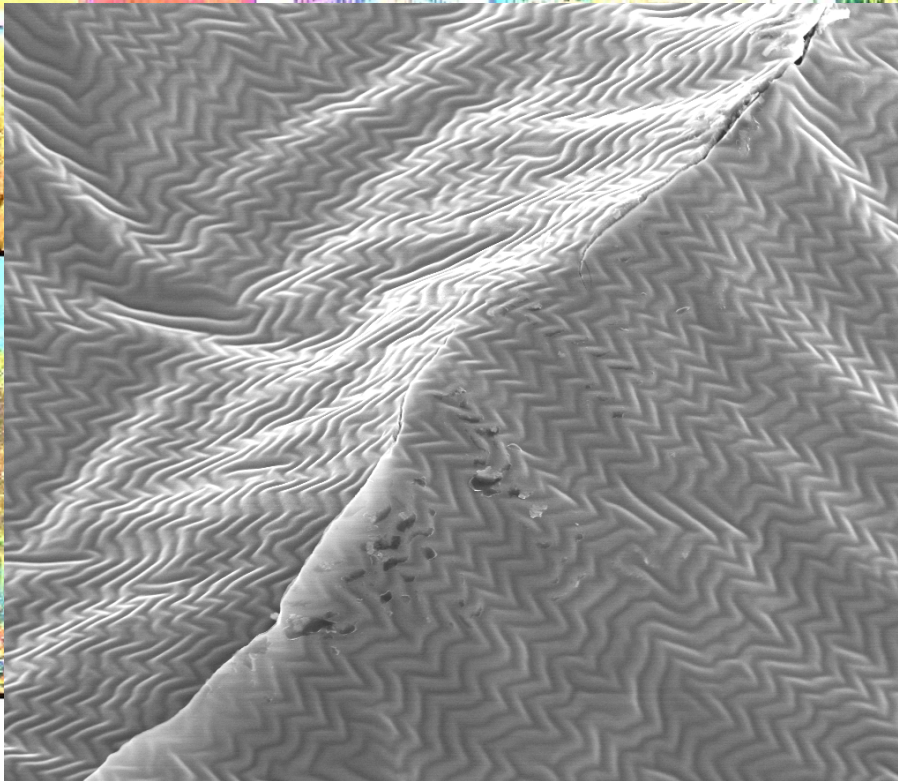
**MNE2015**

# 2015 Micro-Nano Graph Contest

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## “Continental Drift”

Description:



HV	det	mode	WD	HFW	mag	□	5 μm
10.00 kV	TLD	SE	4.5 mm	25.6 μm	10 000 x		IISB Erlangen

PDMS surface after plasma treatment and deposition of Ti layer.

Submitted by: Maximilian Rumler  
Affiliation: Fraunhofer IISB  
Instrument: FEI Helios Nanolab  
Magnification: 10kx

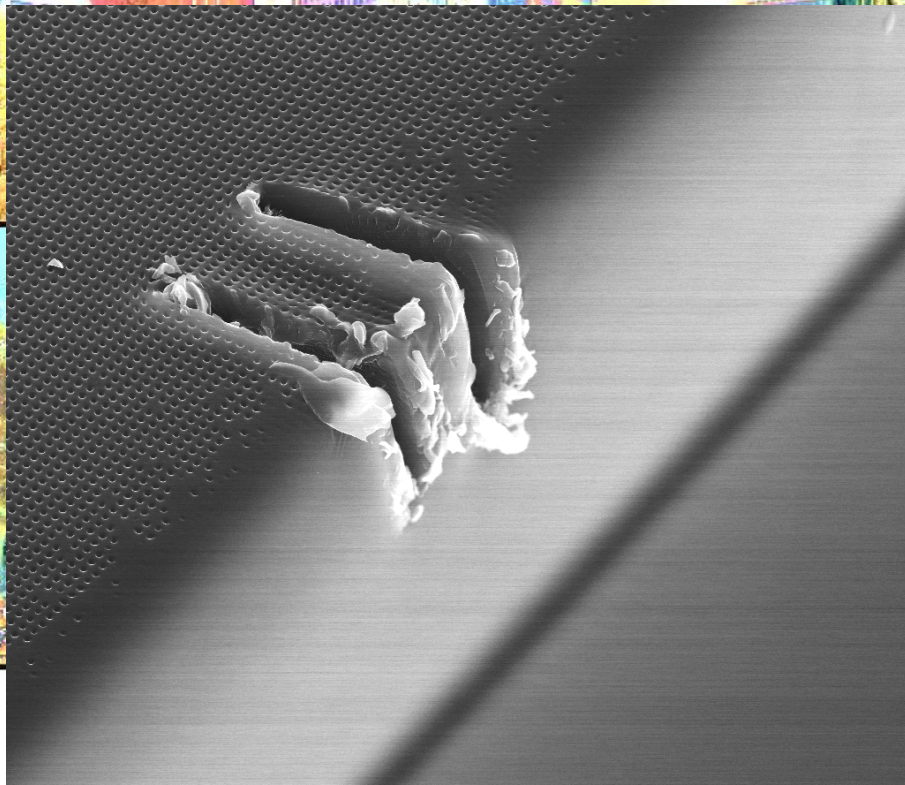
MNE2015

# 2015 Micro-Nano Graph Contest

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## "Micro snake bite"

### Description:



HV	det	mode	WD	HFW	mag		5 $\mu$ m
10.00 kV	TLD	SE	4.3 mm	25.6 $\mu$ m	10 000 x		IISB Erlangen

### Hybrid Polymer mesa damaged by AFM measurement

Submitted by: Maximilian Rumler  
Affiliation: Fraunhofer IISB  
Instrument: FEI Helios Nanolab  
Magnification: 10kx

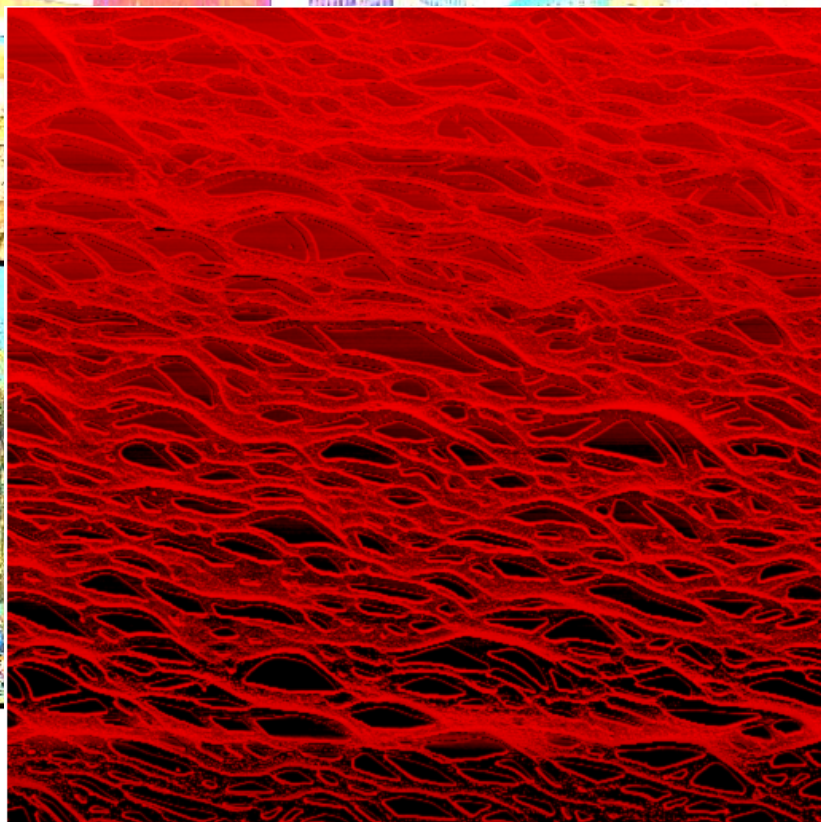
# MNE2015

**2015 Micro-Nano Graph  
Contest**

104

**“Blood vessels”**

**Description:**



0.0 4: Phase 10.0  $\mu\text{m}$

**Phase of tapping  
mode  
measurement of  
SiC surface**

**Submitted by: Florian Stumpf  
Affiliation: Fraunhofer IISB  
Instrument: Bruker ICON AFM  
Magnification: 10  $\mu\text{m}$  x 10  $\mu\text{m}$**

**MNE2015**