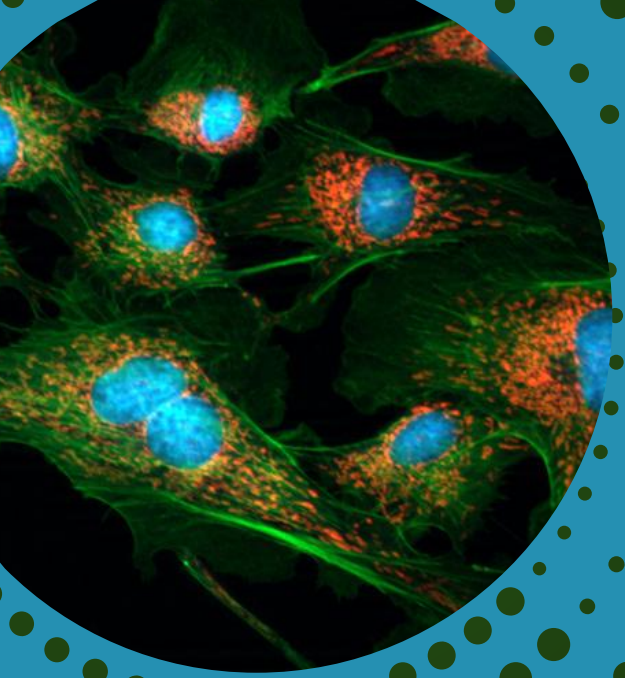
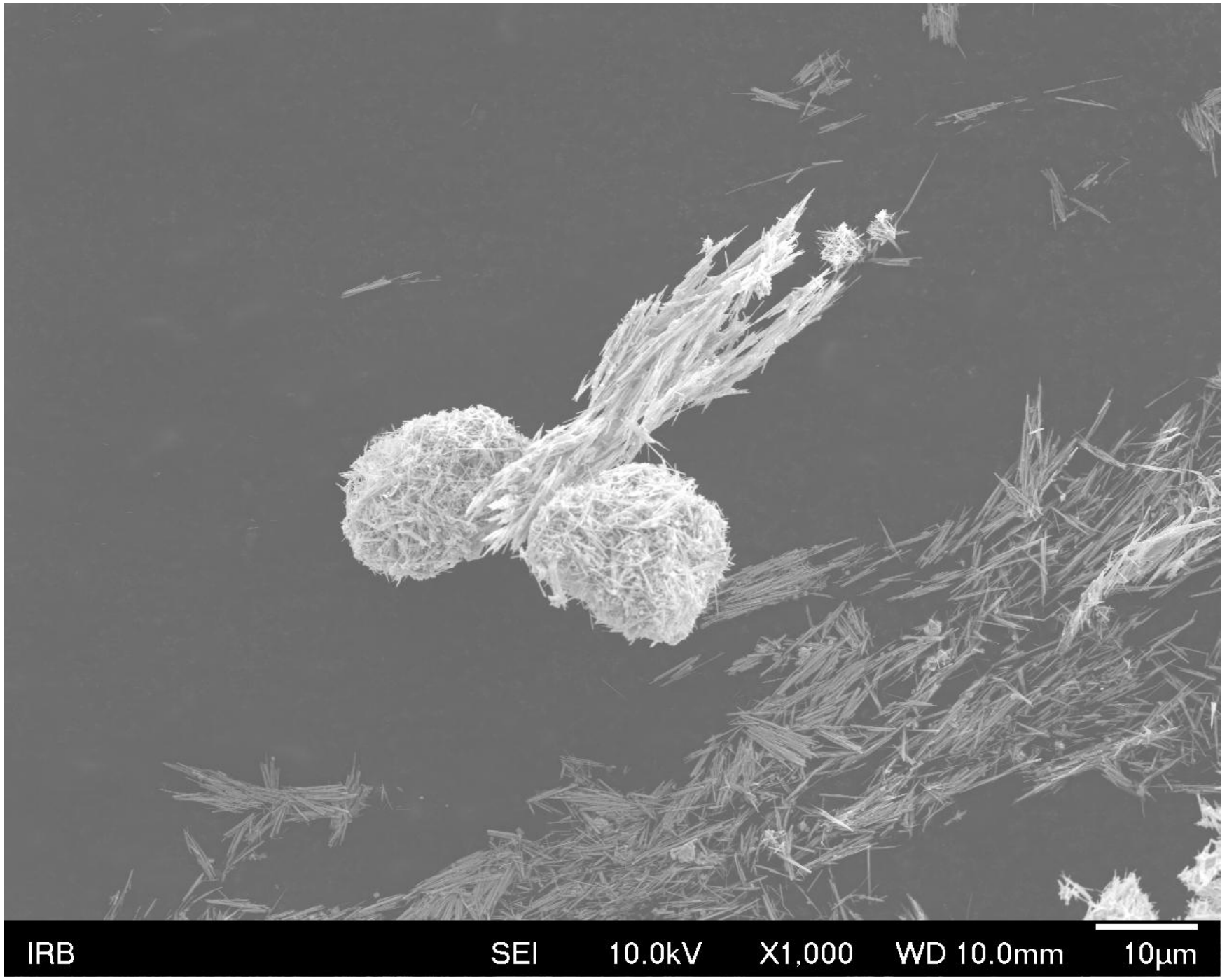


NATEČAJ ZA NAJBOLJŠO MIKROSKOPISTIČNO SLIKO

BEST MICROSCOPY IMAGE AWARD

Slovensko Društvo za Mikroskopijo
SDM
Slovene Society for Microscopy

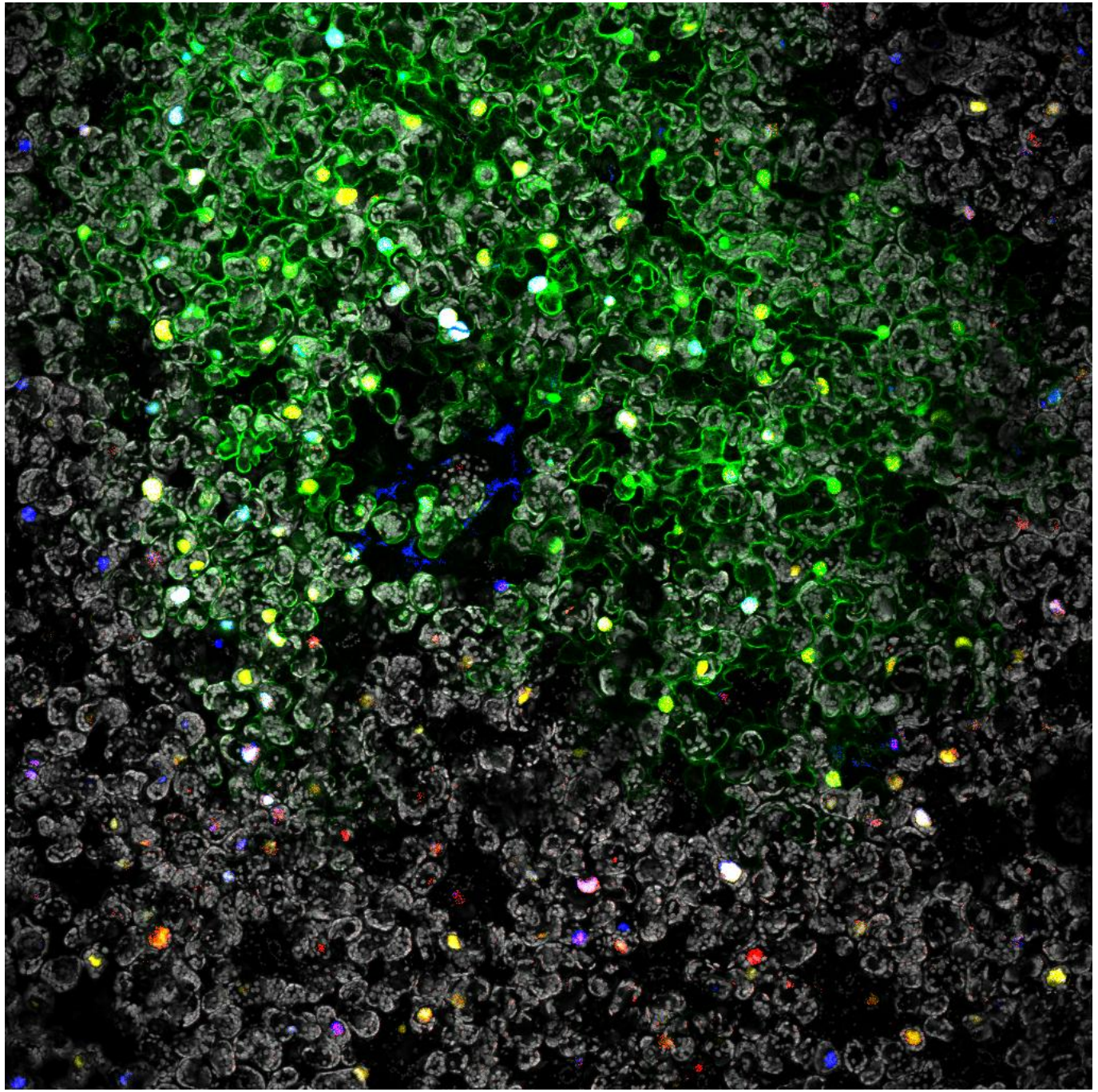


DisSEMination

Andreja Gajović, Stjepan Dolić, Vedran Kojić

Ruđer Bošković Institute, Croatia; gajovic@irb.hr

Image of tungsten disulfide (WS_2) nanotubes conglomerated in specific interesting shape. The image was recorded by FEG-SEM (Jeol, JSM 7000F). These nanotubes were used for modification of titanium dioxide bilayer films for enhanced electrical and photoelectrochemical performance. The details of obtained films and overall results are presented on poster.

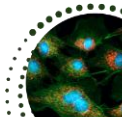


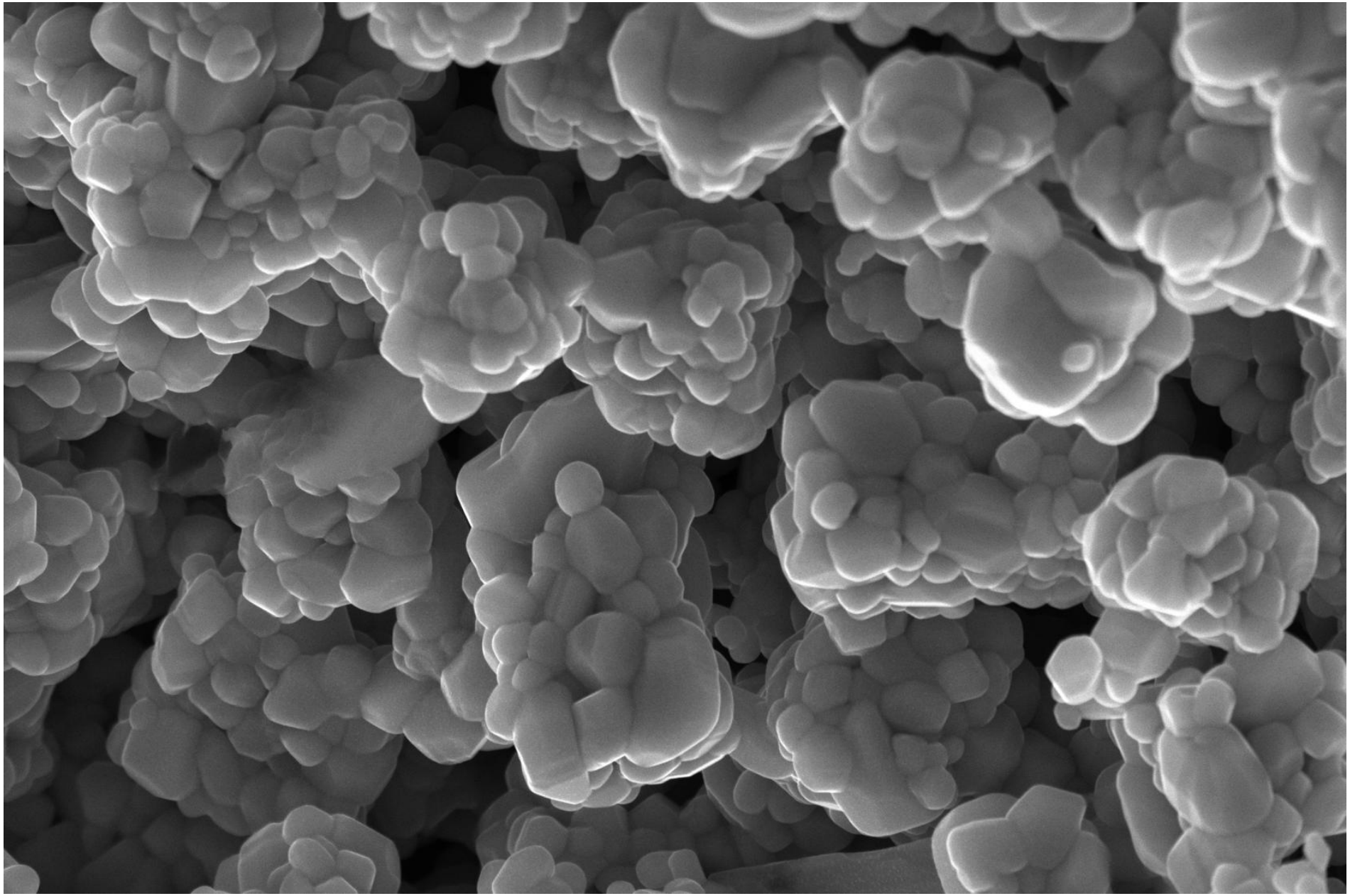
Multiplexing fluorescent proteins

Valentina Levak

National Institute of Biology Slovenia, Slovenia;
valentina.levak@nib.si

PVY-GFP infection spread in plant cells with nuclei marked with 3 different fluorescent proteins.





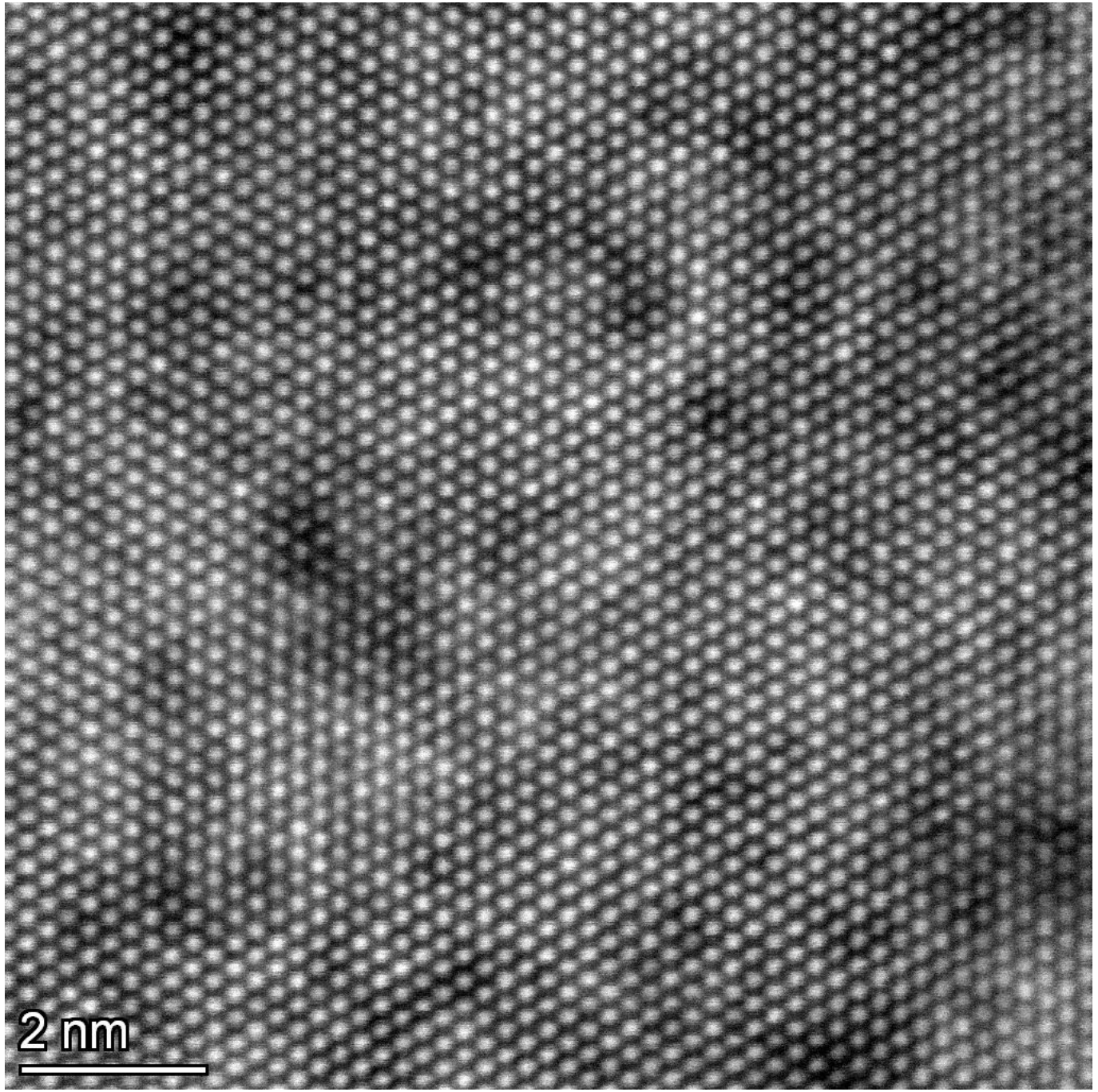
Crystalline Muesli

Aleksander Učakar

Jožef Stefan Institute, Slovenia;
aleksander.ucakar@ijs.si

Clusters of crystalline flakes shimmer with intricate microcrystal patterns across their surface.

Their sharp, textured structure stands out against the rugged surrounding stone.

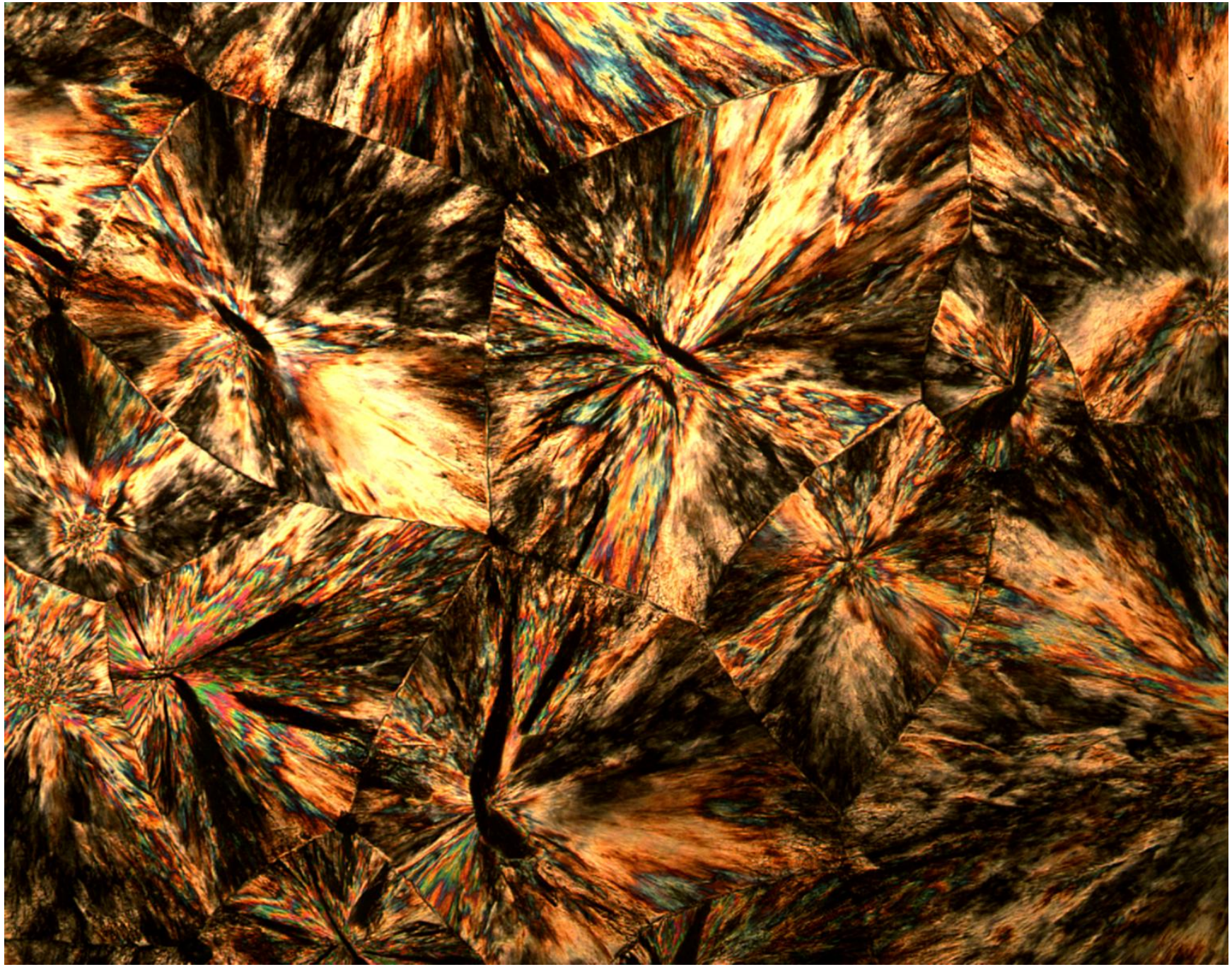


Shadows on the WALL

Andreja Gajović[1], Sandra Drev[2], Kristina Tomić Luketić[1], Toni Dunatov[1]

[1]Ruđer Bošković Institute, Croatia; [2]Jožef Stefan Institute, Slovenia; gajovic@irb.hr

STEM-HAADF image of WTaVCr quaternary high entropy alloy irradiated by 8 MeV Cu^{3+}, intended for application as first WALL of fusion reactor. The image was recorded by scanning transmission electron microscope Spectra 300 (Thermo Fisher Scientific). The details and overall results will be presented in talk on Thursday at 9:45.



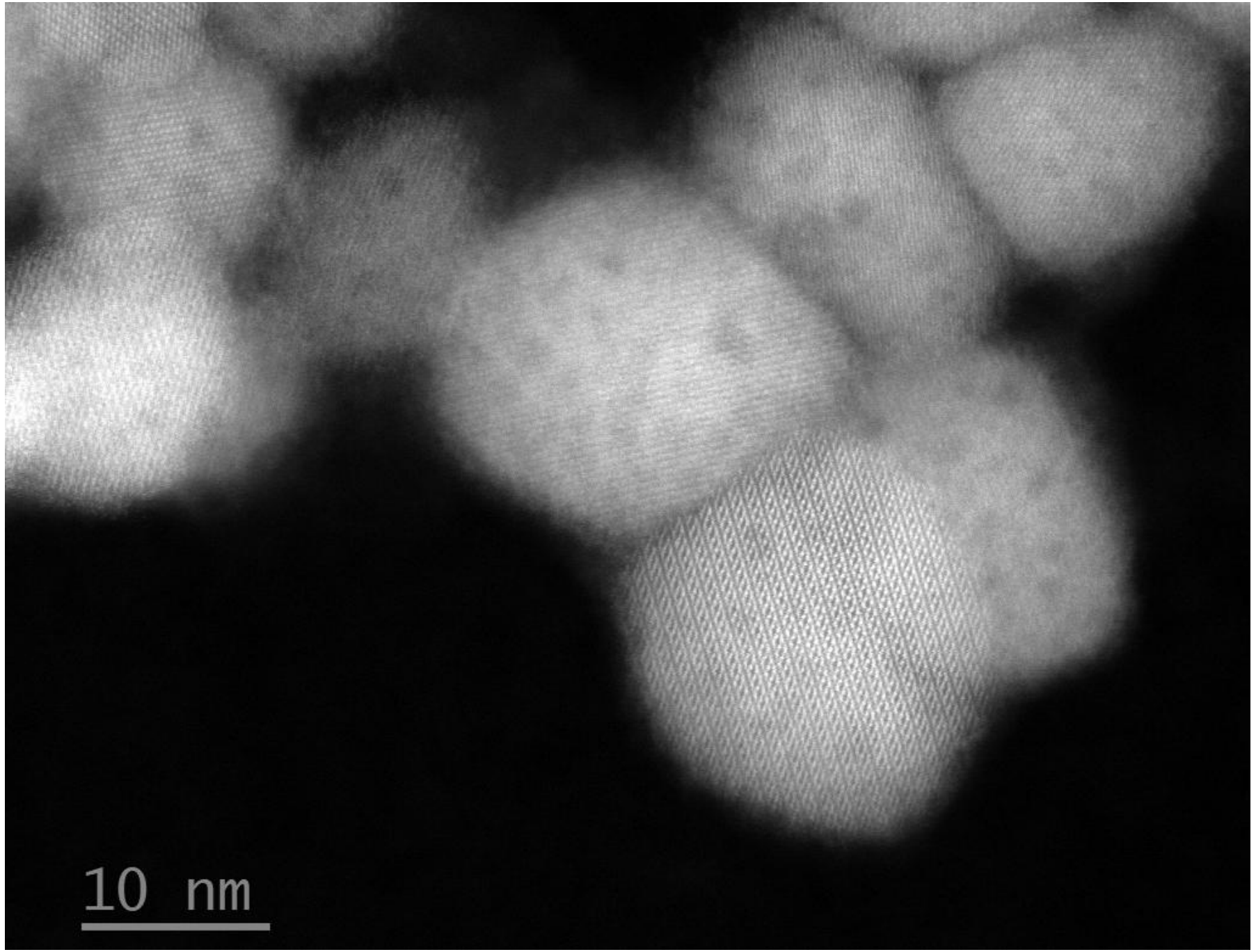
The Eye of Sauron

Sorour Semsari Parapari

Jožef Stefan Institute, Slovenia;
sorour.semsari.parapari@ijs.si

Recrystallized microstructure of the PEG-6000 polymer upon melting and cooling down. The formed polymeric grains resemble “The Eye of Sauron” from the Lord of the Rings movies. The appearance of the colors is due to the birefringence property of PEG polymers under the polarized light.

Technique: Transmitted Polarized Light Microscopy

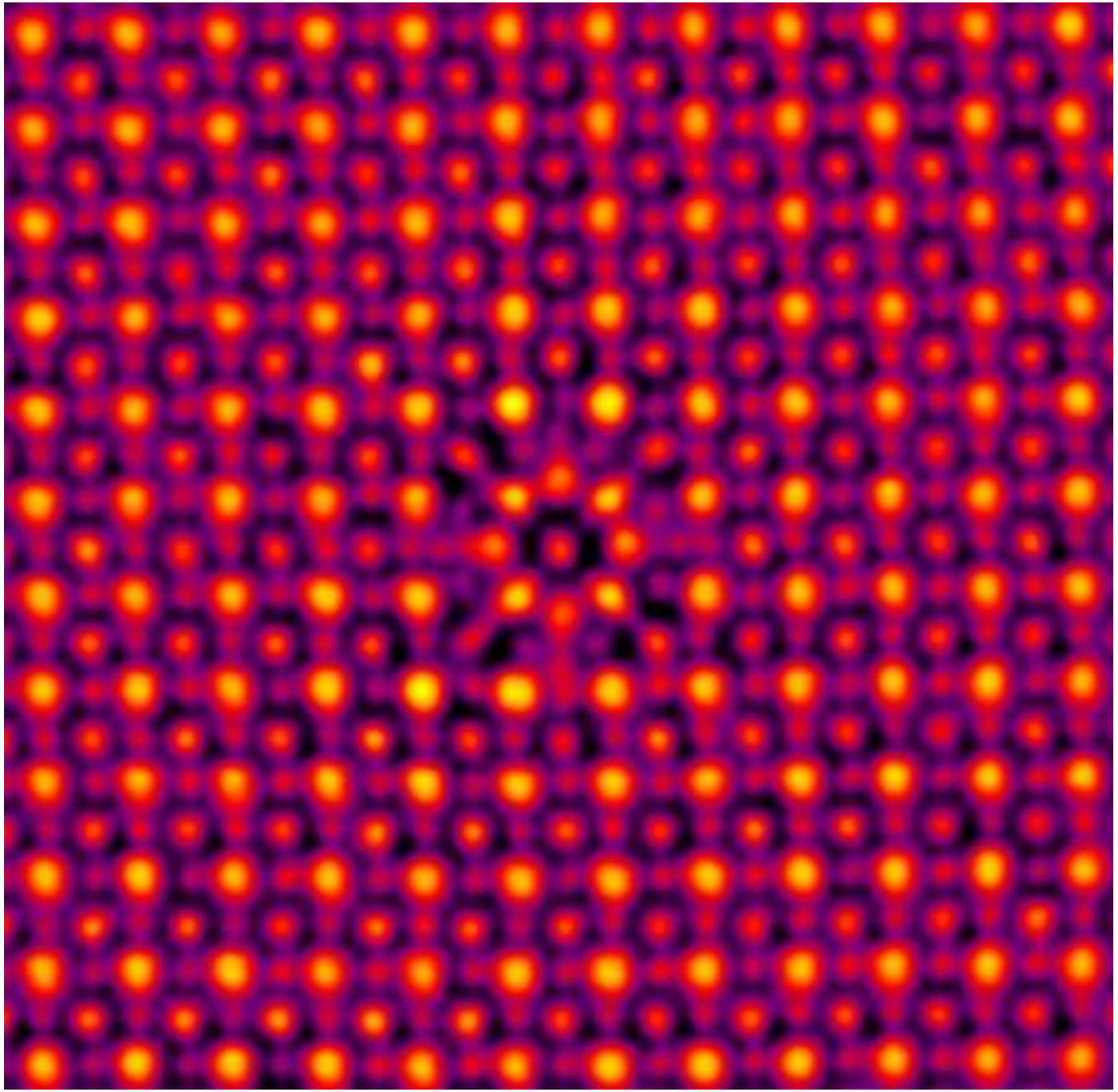


My first atomic resolution pic

Ginevra Mango

University of Turin, Italy;
ginevra.mango@unito.it

Magnetite and Pb interaction leading to a newly formed mineralogical phase. This image was recorded by a acSTEM NEOARM (JEOL) operated at 80 kV.

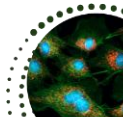


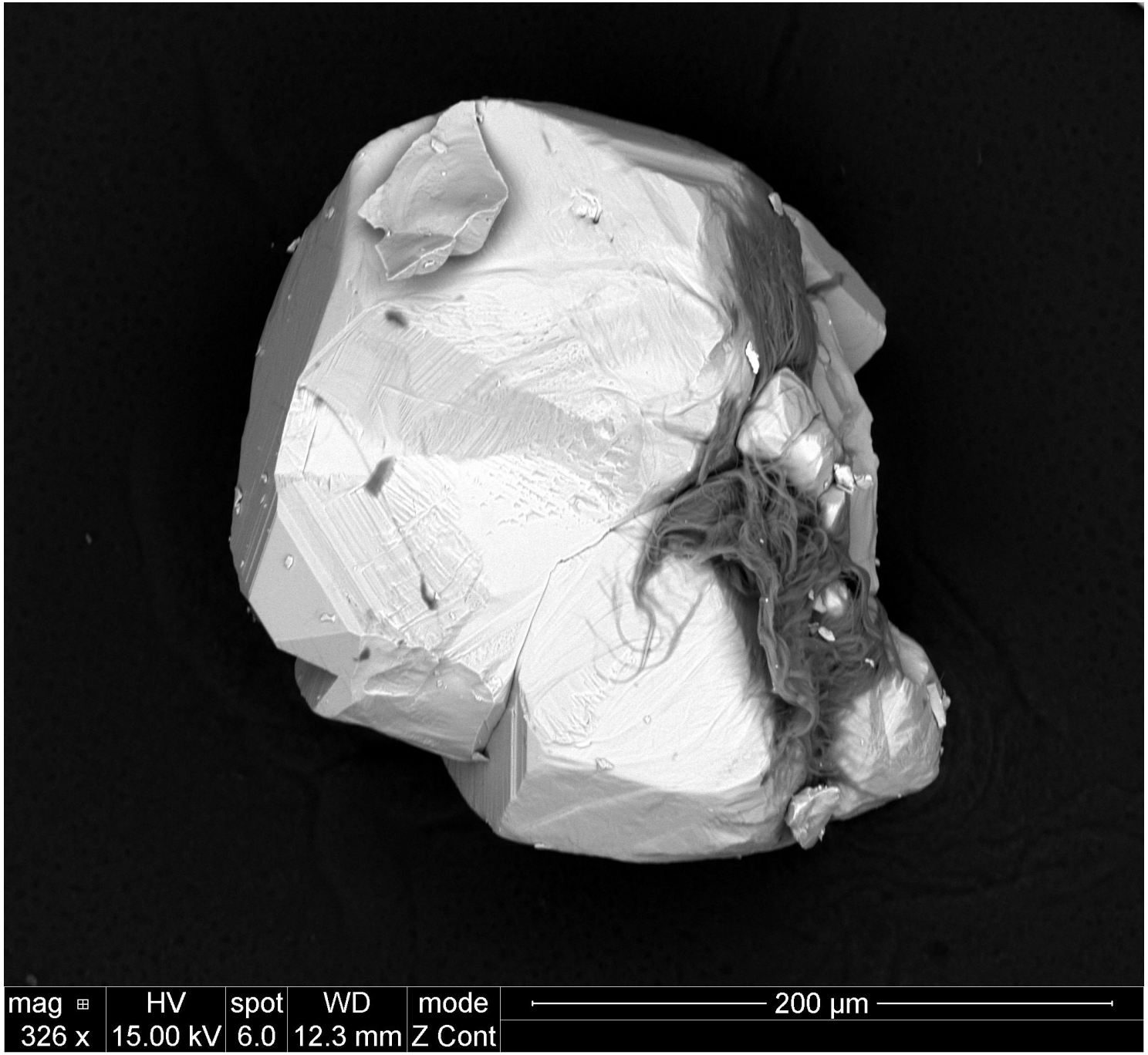
Hidden Constellation

Meryem Lachhab, Mojca Otoničar

Jožef Stefan Institute, Slovenia;
meryem.lachhab@ijs.si

Through iDPC, an atomic lattice appears like a constellation-ordered, luminous, and shaped by unseen forces.



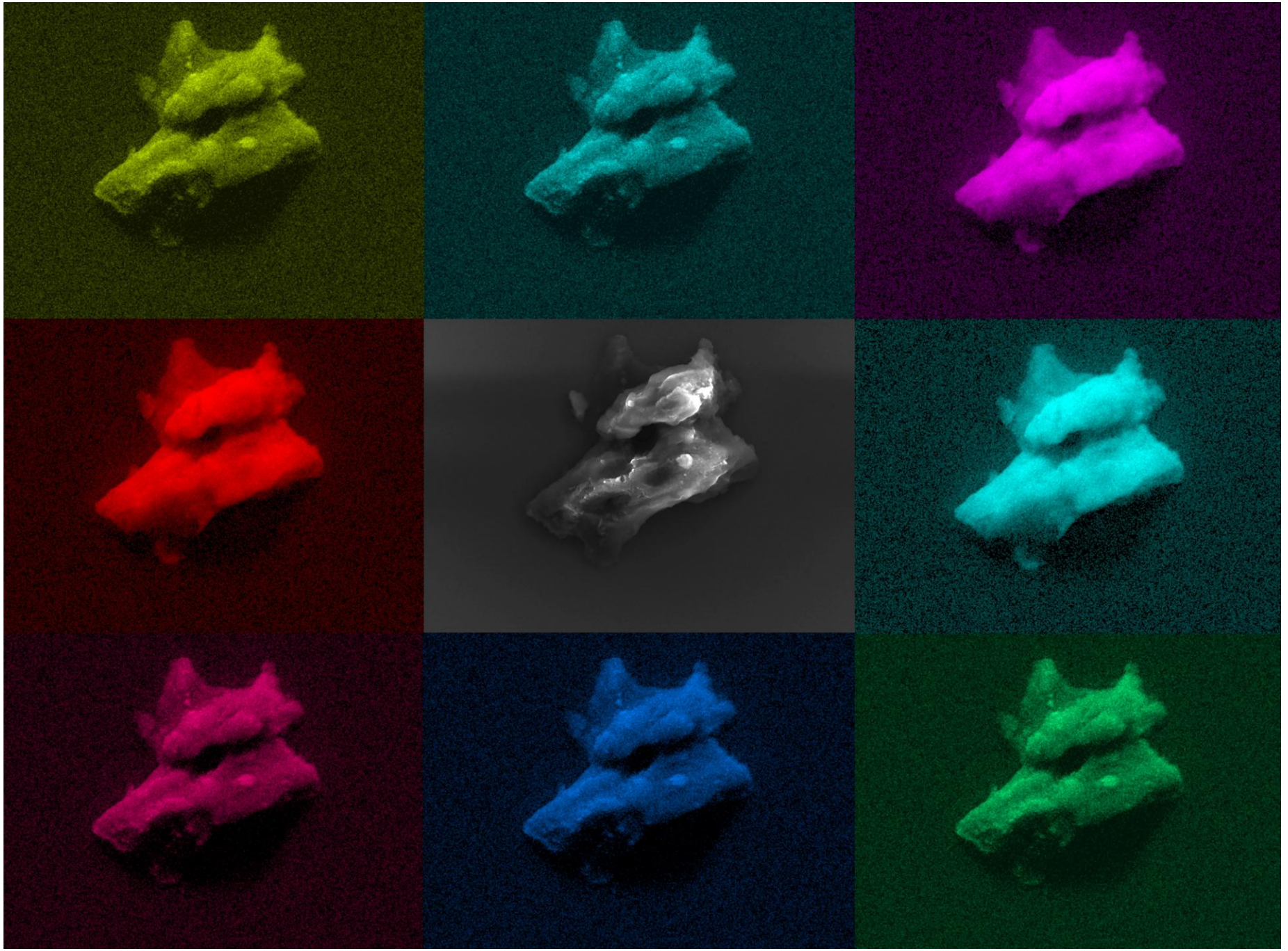


Hugging magnetite

Ruggero Vigliaturo

Università di Torino, Italy;
ruggero.vigliaturo@unito.it

A micrometric magnetite particle crossed by chrysotile fibril bundles. SEM-BSE picture taken at 15 kV.

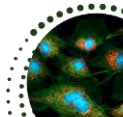


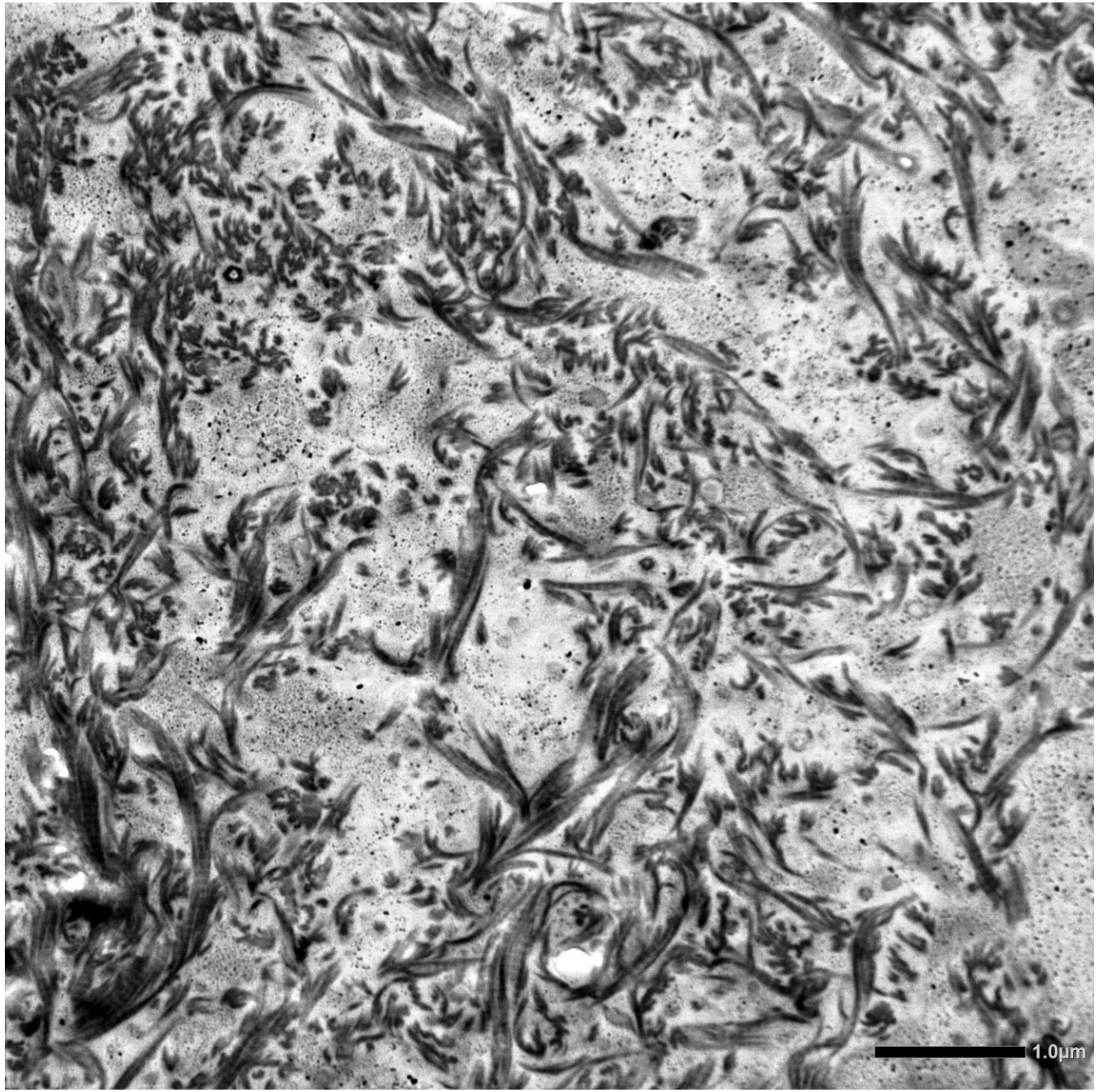
United Colors of Microscopy: The Carbon Dragon

Blaž Belec

Laboratorij za raziskave materialov, Univerza v Novi Gorici, Slovenia;
blaz.belec@ung.si

Slika razkriva igro senčenja elektronov na površini velikega delca aktivnega oglja, kjer njegova morfologija presenetljivo oblikuje podobo zmajeve glave. Z uporabo elementarnega mapiranja in skrbno izbranih barv lahko črno-bela mikroskopska slika zaživi v barvah, kar je lep prikaz, da je mikroskopija materialov lahko tudi barvita.



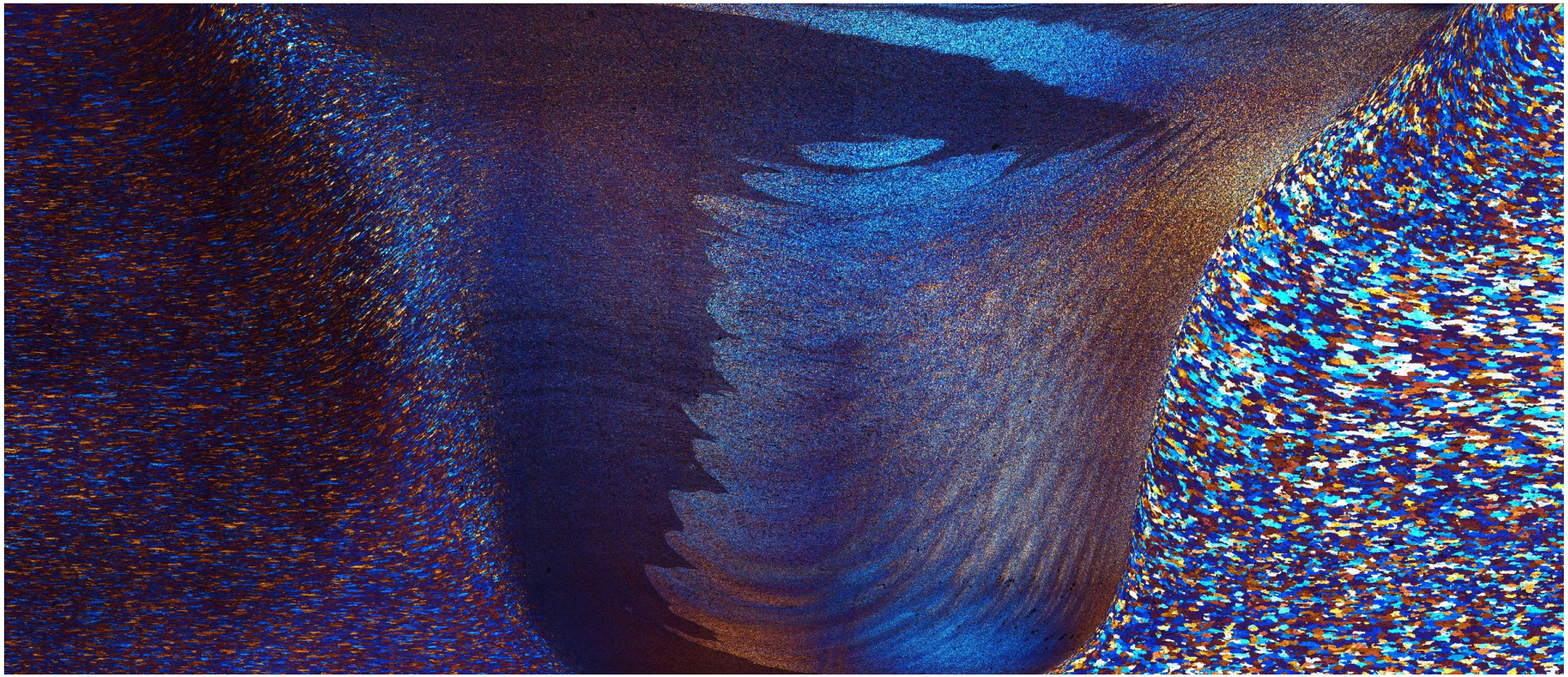


The Glomerulus in Bloom

Jerica Pleško

Faculty of Medicine, Slovenia;
jerica.plesko@mf.uni-lj.si

The electron micrograph shows a markedly expanded mesangial matrix filled with collagen fibrils exhibiting characteristic D-periodicity and measuring approximately 50 nm in diameter. This ultrastructural pattern is characteristic of type III collagen deposition in collagenofibrotic glomerulopathy. In this case, the fibrils display a “woven, thread-like structure,” forming delicate interlacing bundles.

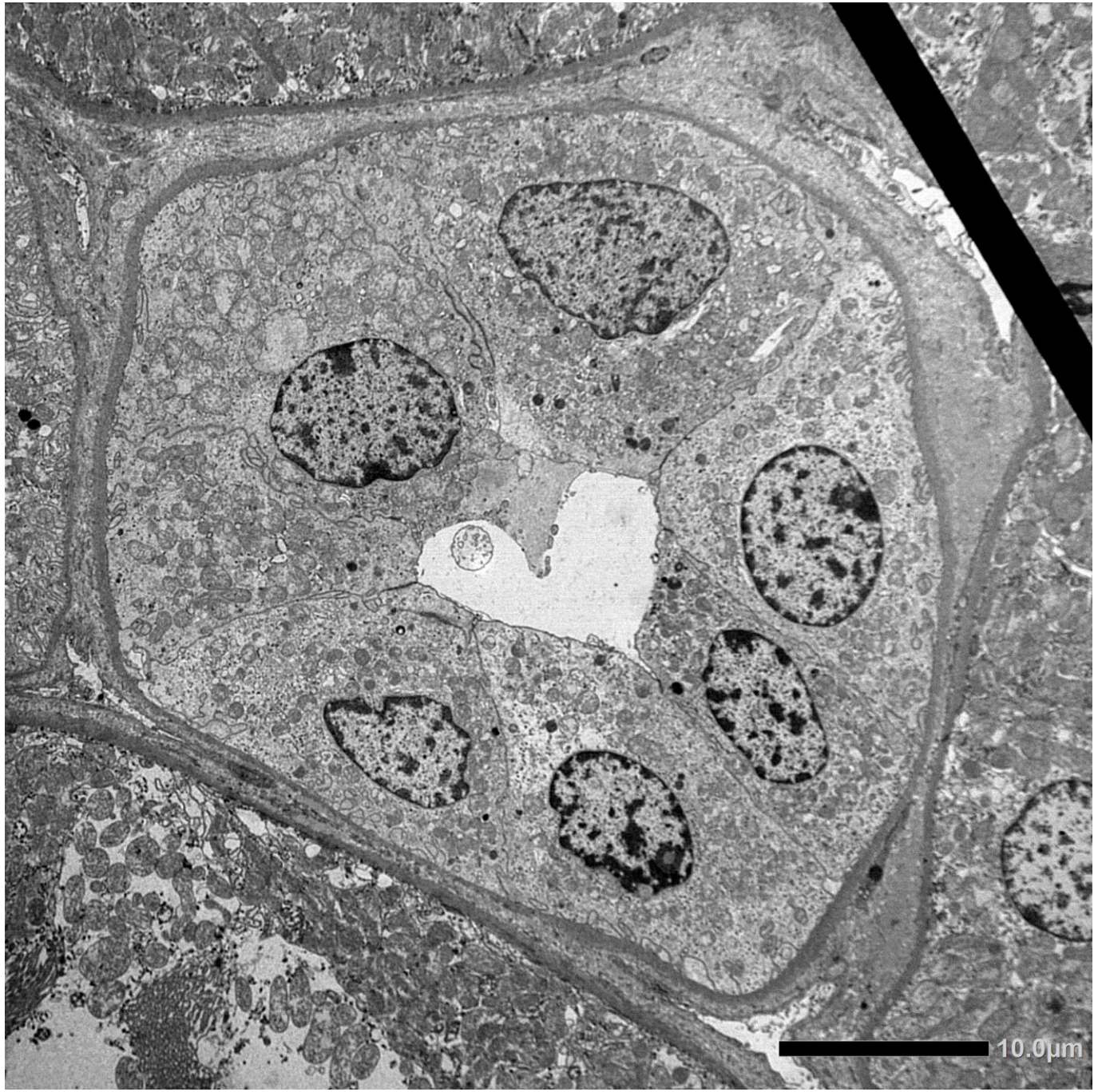


A swirl of grains

Tina Sever

Institute of Metals and Technology, Slovenia;
tina.sever@imt.si

This optical micrograph depitcs a cross-section of a friction-stir weld of two aluminum alloys. The sample was electrolitically etched with Barker's reagent and imaged in polarized light without any post-processing. The sample is 2 cm long.

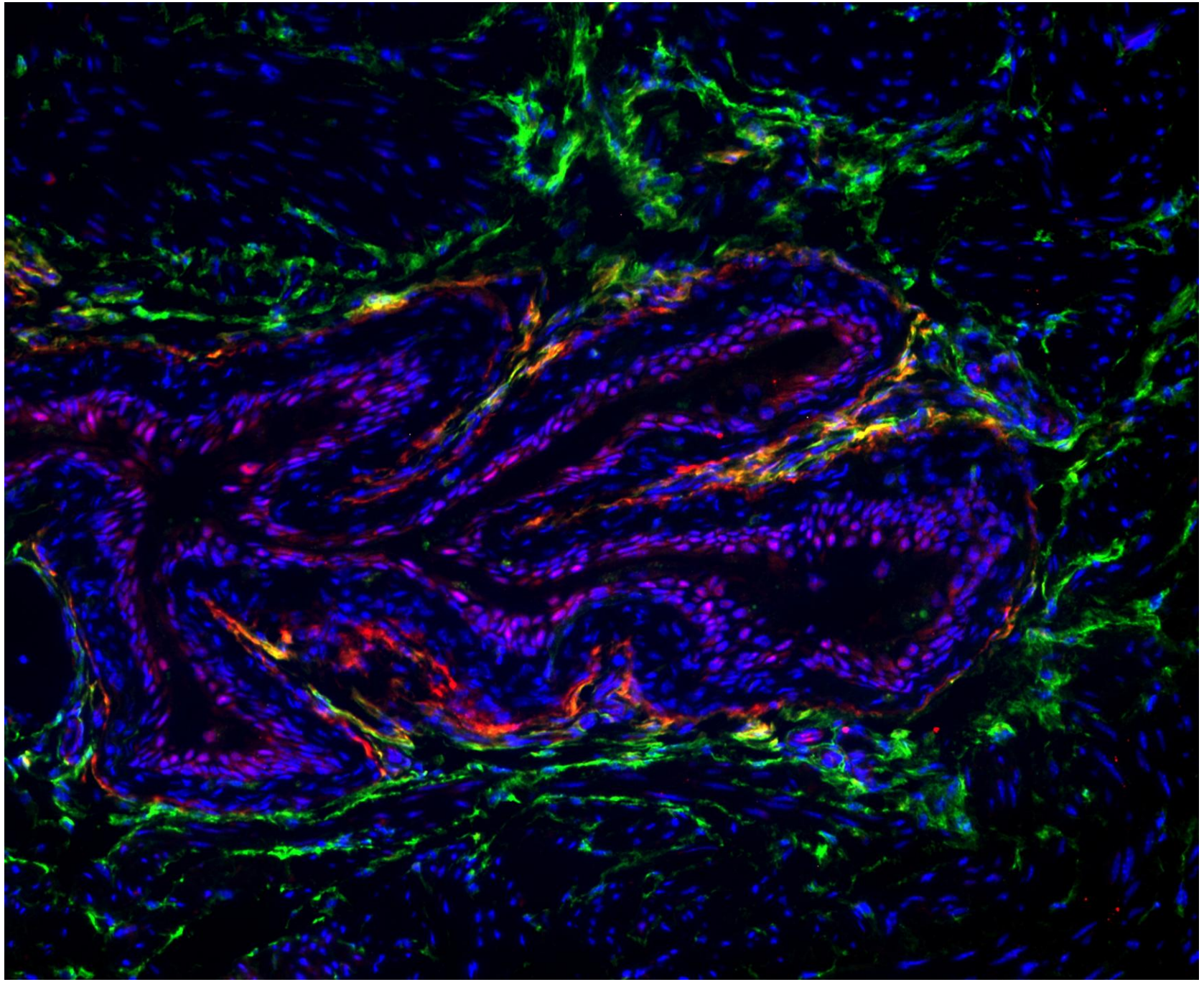


When you find a heart in a kidney

Jerica Pleško

Faculty of Medicine, Slovenia;
jerica.plesko@mf.uni-lj.si

A heart shape in a renal tubule lumen.

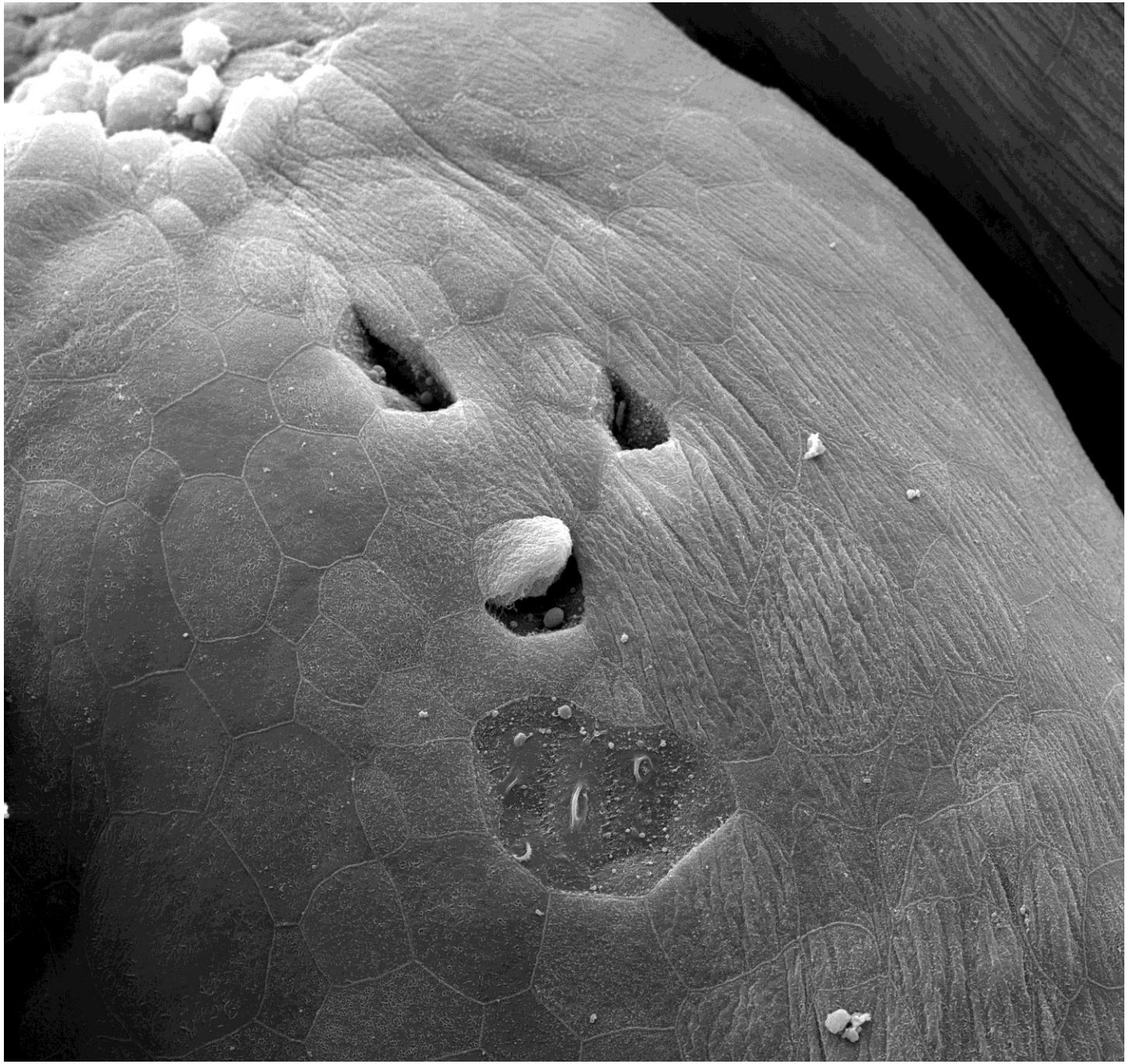


Mavrične barve v steni sečnega mehurja

Andreja Erman

Faculty of Medicine, Slovenia;
andreja.erman@mf.uni-lj.si

Slika je rezultat dvojnega imunofluorescenčnega označevanja CD34 (zelena fluorescenca) in eNOS (rdeča fluorescenca) zamrznjene rezine mišjega sečnega mehurja, zajeta s fluorescenčnim mikroskopom AxioImager.Z1 (Zeiss). Jedra celic s označena modro s fluorescenčim barvilom DAPI.

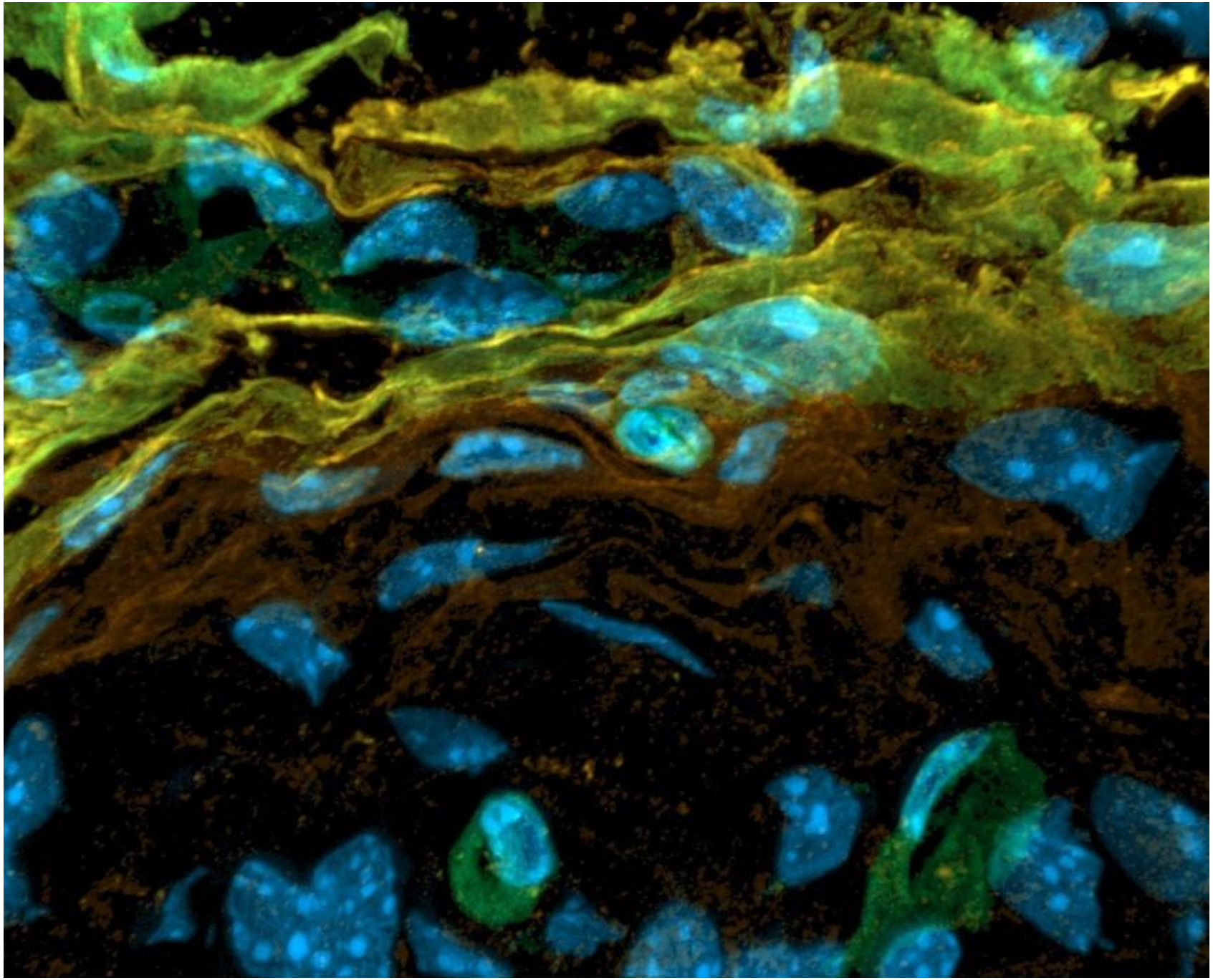


Presenečeni obraz urotelija

Andreja Erman

Faculty of Medicine, Slovenia;
andreja.erman@mf.uni-lj.si

Slika je posneta z vrstičnim elektronskim mikroskopom Tescan Vega 3 (Tescan, Češka) in prikazuje luščenje (deskvamacijo) površinskih in vmesnih urotelijskih celic.

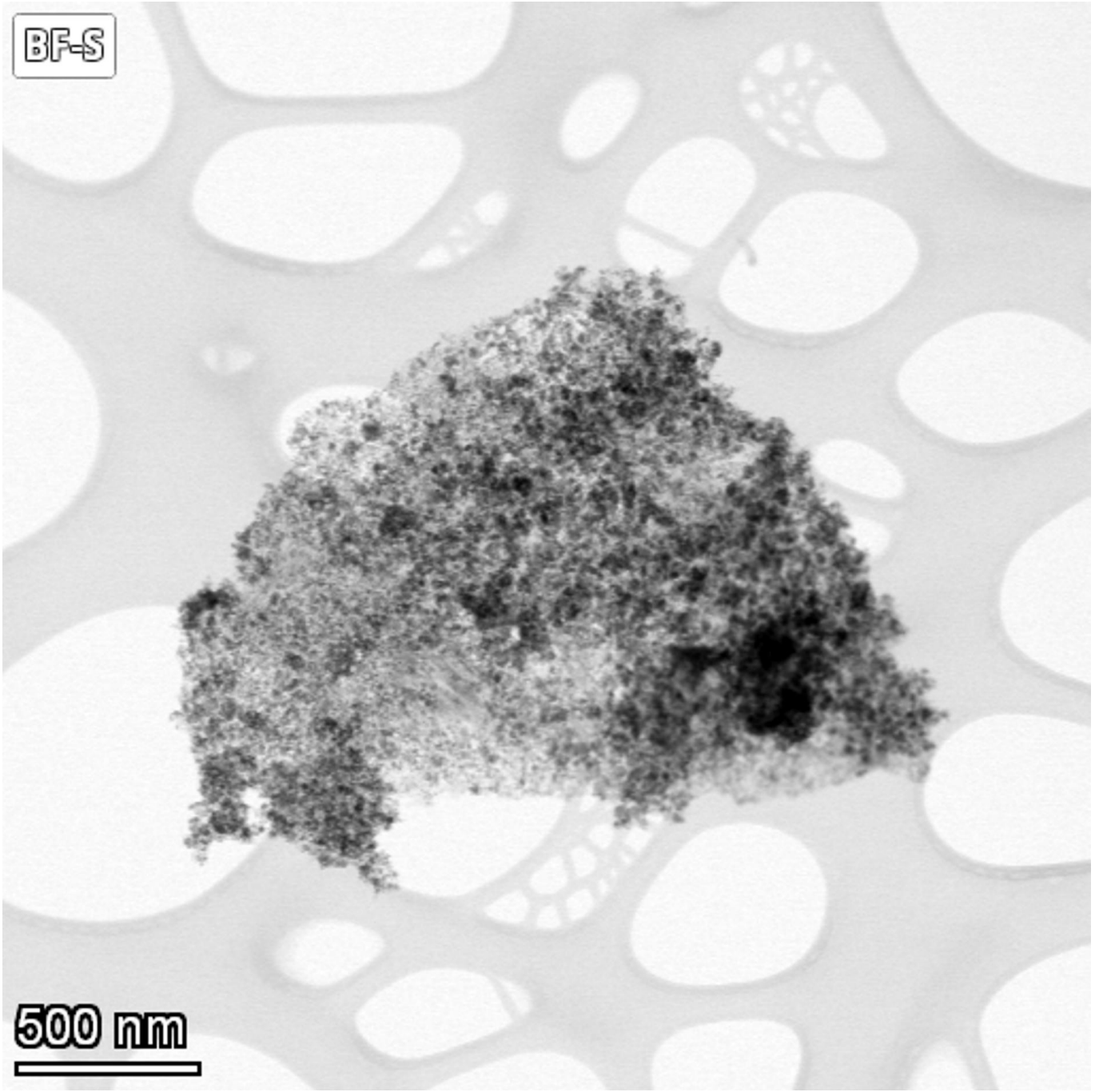


Valovito morje telocitov

Urška Dragin Jerman

Faculty of Medicine, Slovenia;
andreja.erman@mf.uni-lj.si

3D model telocitov (imunofluorescenčno označenih proti CD34 in eNOS) v lamini proprii mišjega sečnega mehurja rekonstruiran iz niza optičnih rezin zajetih s konfokalnim mikroskopom z Airyscan detektorjem.

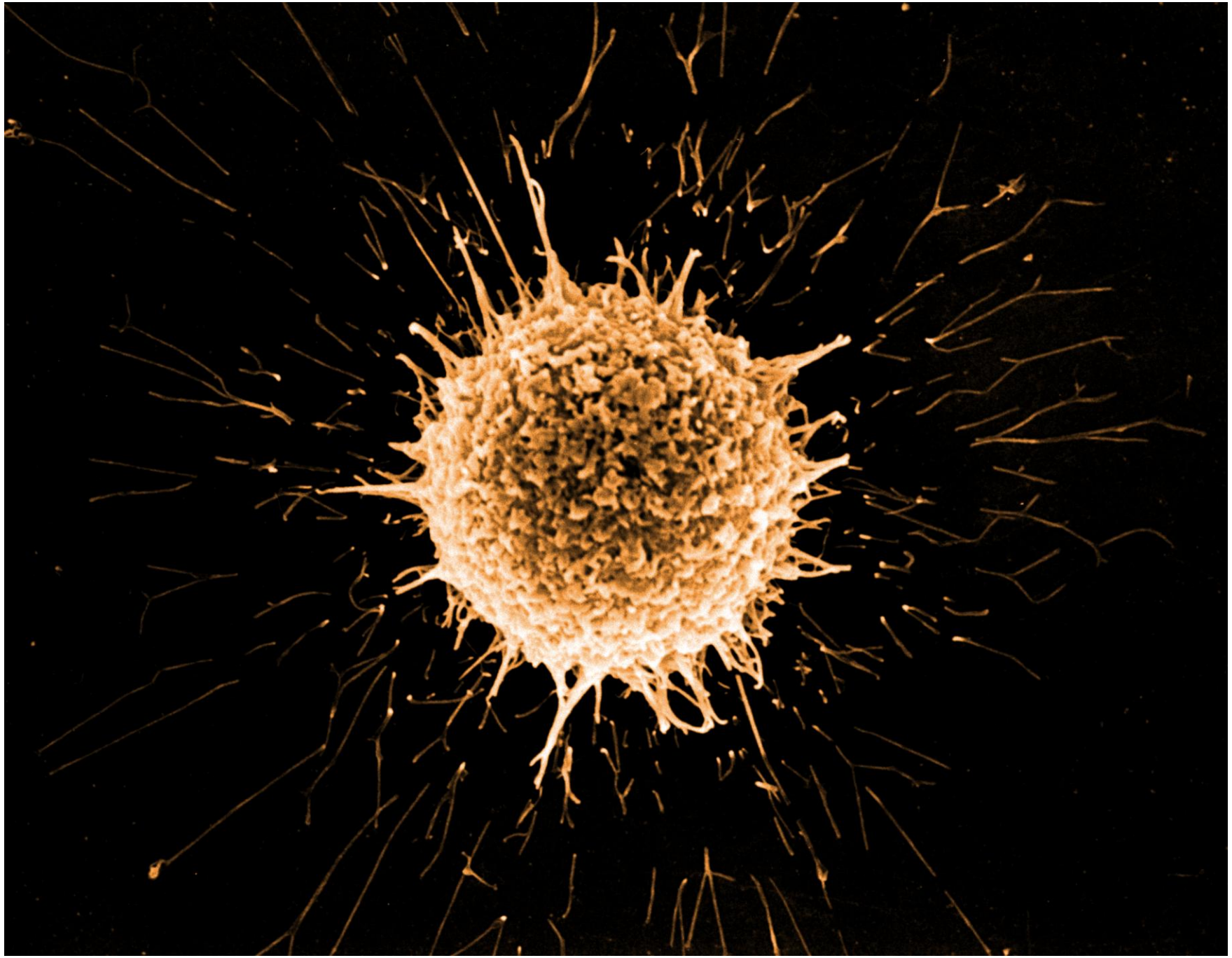


NanoFish – The invisible swimmer

Nina Križaj Kosi[1,2]

[1]Jožef Stefan Insitute, Slovenia;
[2]Jožef Stefan International Postgraduate School, Slovenia;
nina.krizaj@ijs.si

STEM image of a nanocatalyst resembling a silent sea creature in a nanoscale ocean. Beneath its cloud-like morphology lies a complex nanostructure that is key to its catalytic activity.

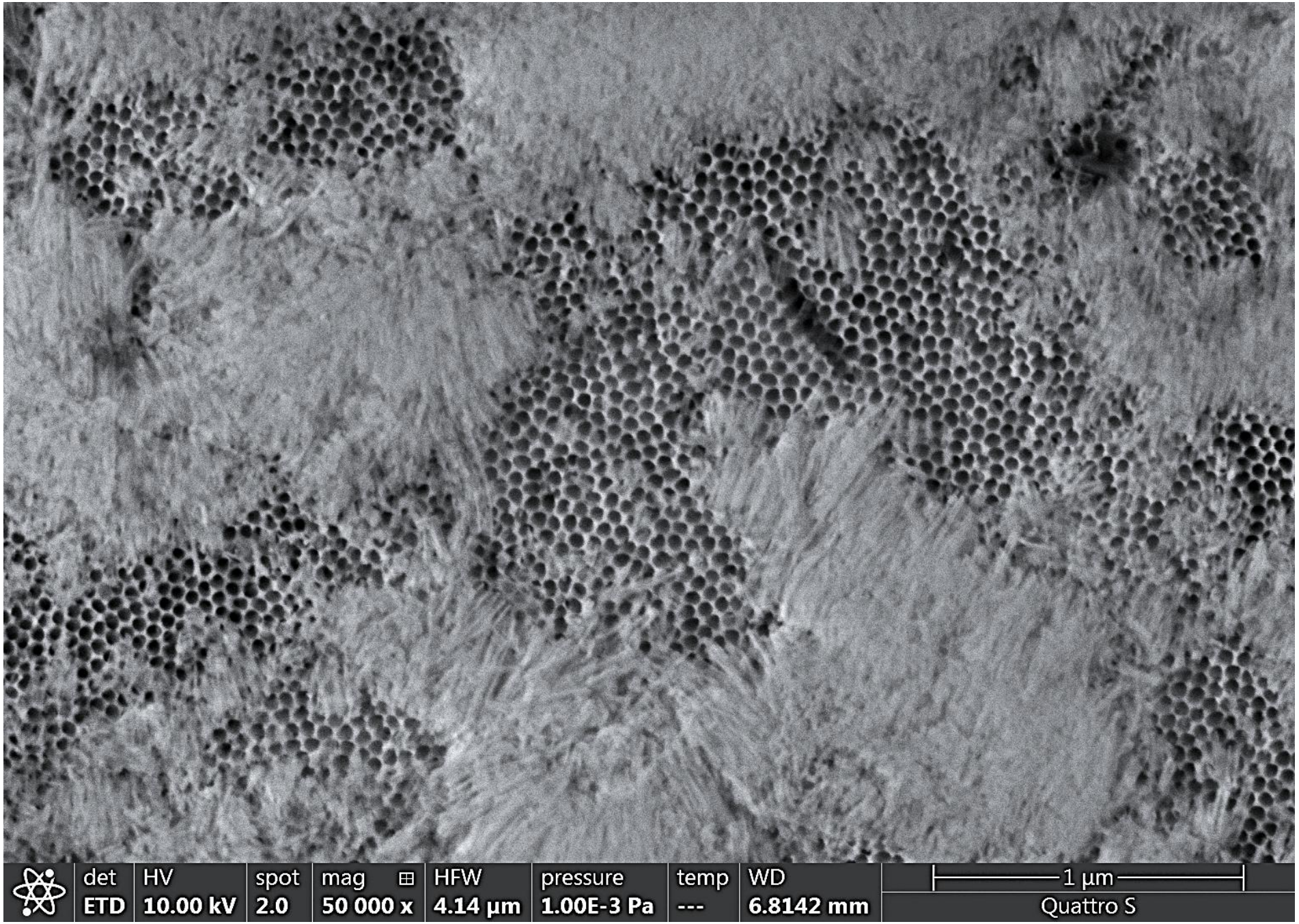


"Heliocit"-sončna celica

Urška Dragin Jerm

Faculty of Medicine, Slovenia;
andreja.erman@mf.uni-lj.si

Invazivna rakava urotelijska celica T24 posneta z vrstičnim elektronskim mikroskopom.



Nanoporoznost na površini aluminija

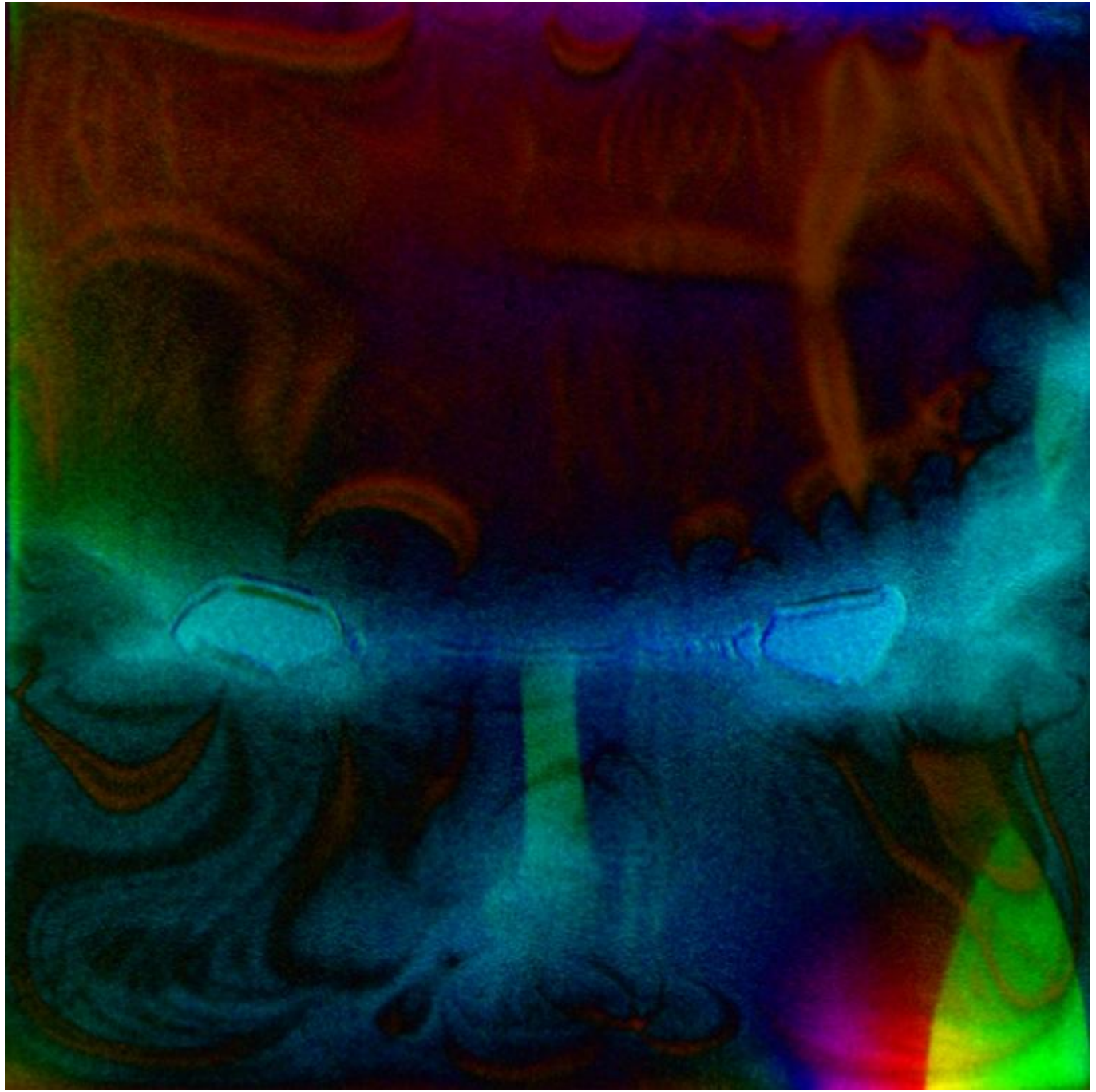
Katarina Kern, Milan Bizjak, Anastasia Samodurova

University of Ljubljana, Faculty of Natural Science and Engineering, Slovenia; Anastasia.Samodurova@ntf.uni-lj.si

Scanning Electron Microscope - FEG-SEM Thermo Fisher Scientific Quattro S

Detector - ETD

Magnification - 50000

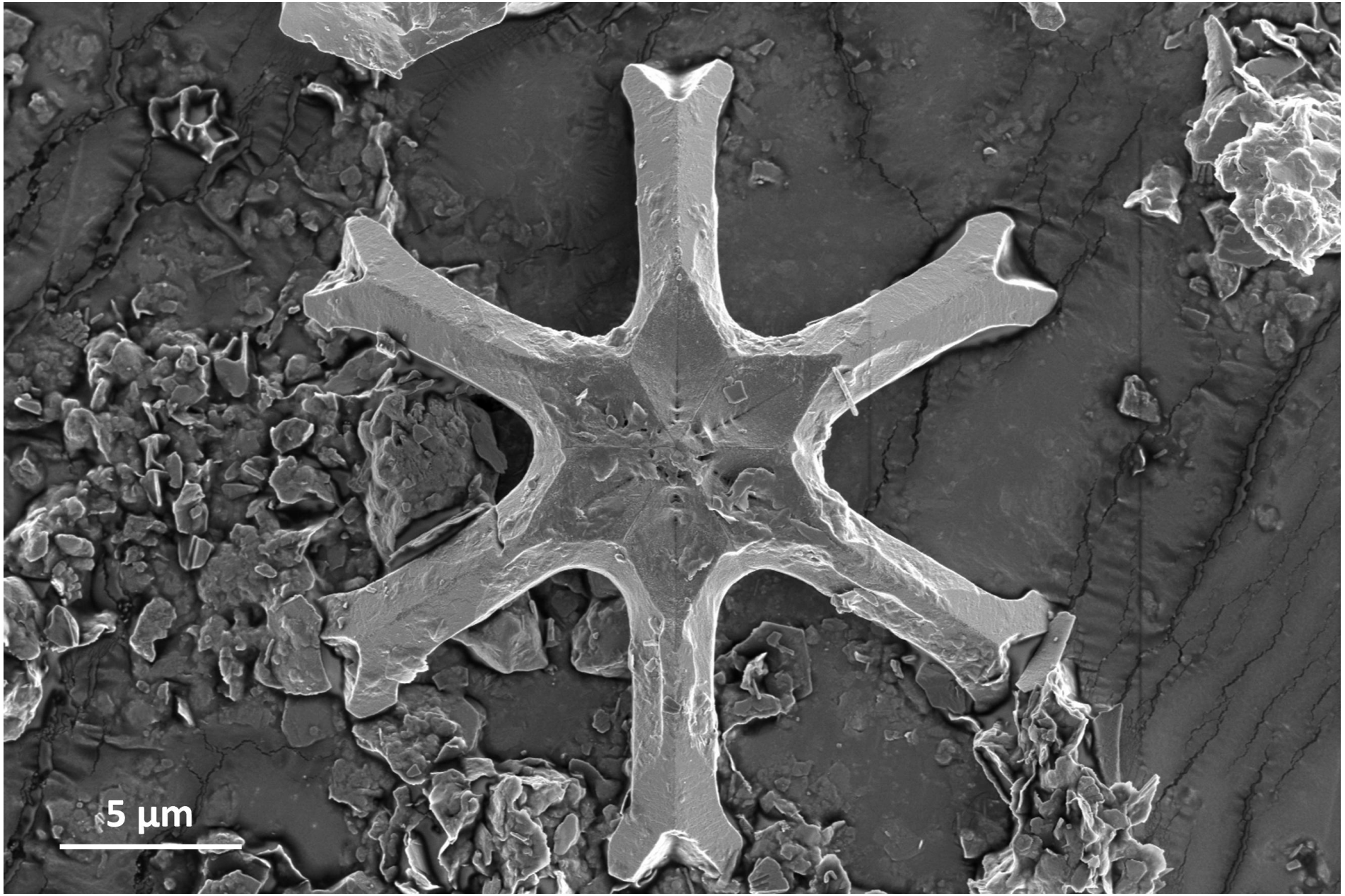


Optimus Prime

Sergej Ražnjević

Jožef Stefan Institute, Slovenia;
Sergej.Raznjevic@ijs.si

Field-free DPC imaging exposes the intricate interplay of magnetic order and material structure, forming patterns that seem almost intentional, like a portrait of Optimus Prime.

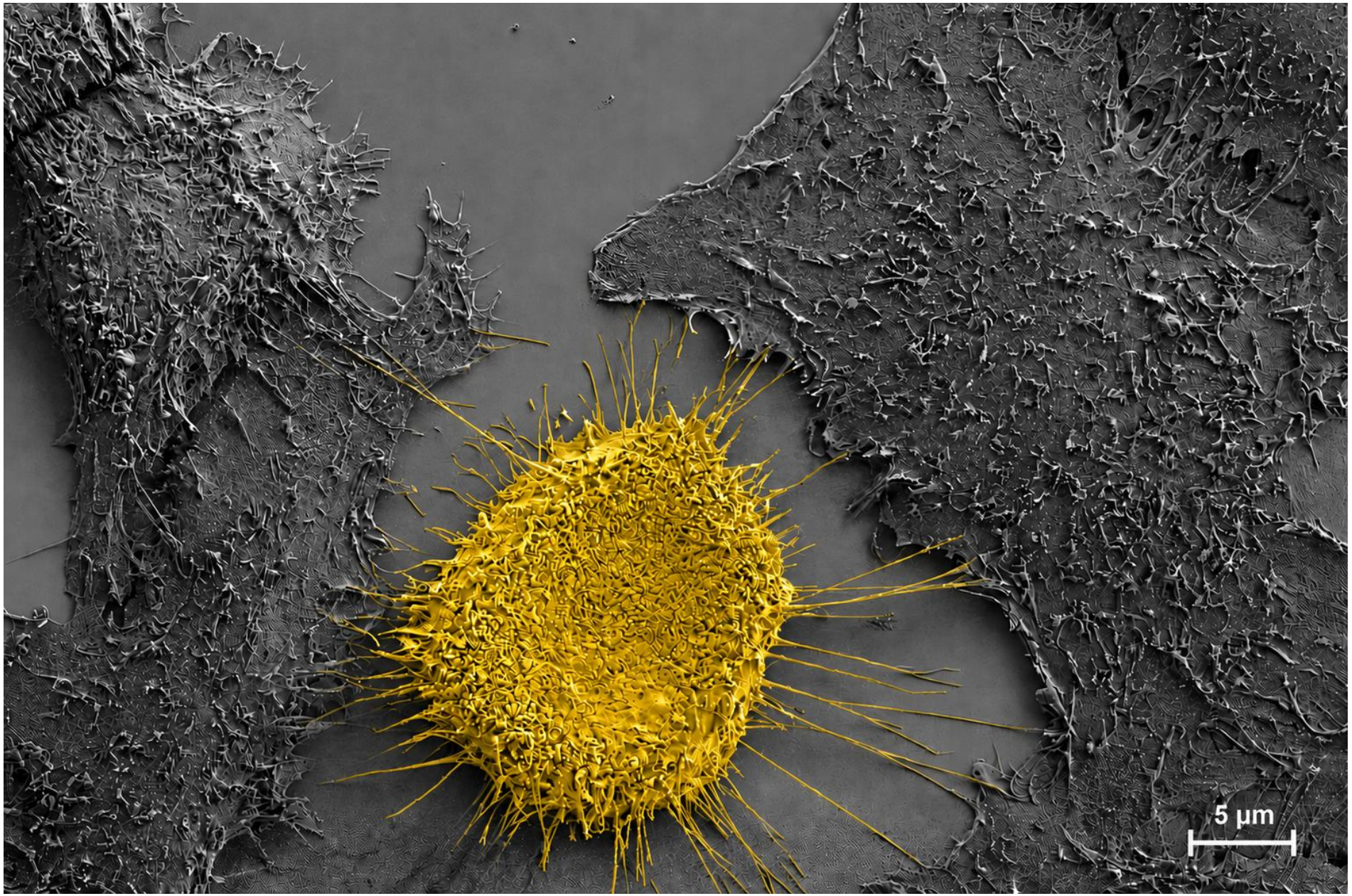


Diving Into the Deep: The Radiance of Discoaster sp.

Tara Gudžulić[1,2], Saša Kos[1]

[1]Center for Electron Microscopy and Microanalysis, Jožef Stefan Institute, Ljubljana, Slovenia; [2]Jožef Stefan International Postgraduate School, Ljubljana, Slovenia; tara.gudzulic@ijs.si

This capture honors the "star power" of *Discoaster sp.* These extinct, calcareous nannofossils measuring a mere 5-40 µm once drifted *through* oceans like microscopic disco balls.



Here Comes the Sun

Tina Petrišič[1], Marjan Bele[2]

[1]Biotechnical faculty, University of Ljubljana, Slovenia; [2]Chemical institute, Ljubljana, Slovenia; tina.petrisic@bf.uni-lj.si

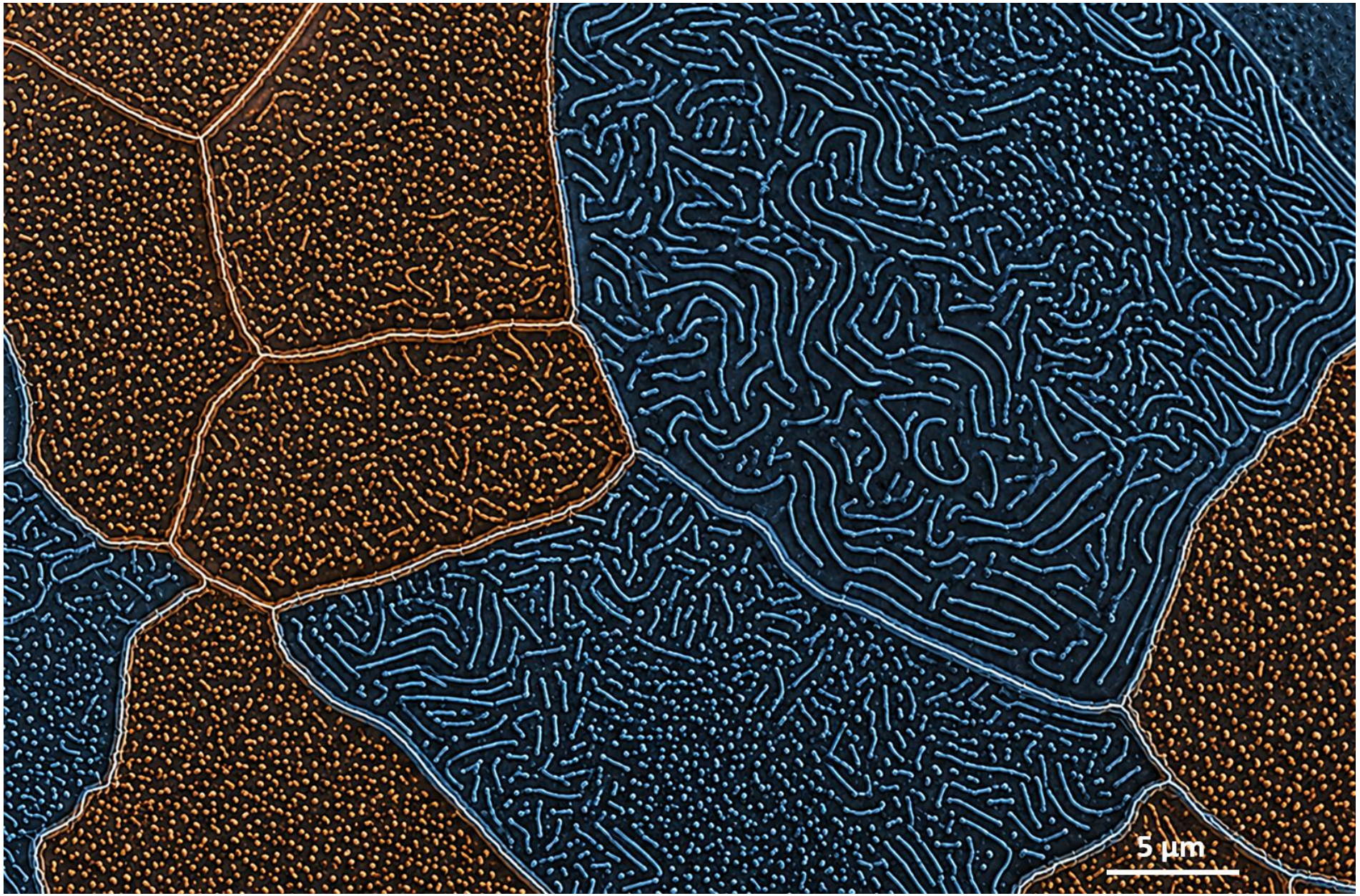
Digitally colorized scanning electron microscope (SEM) image of human alveolar epithelial cells, revealing the intricate surface morphology and ultrastructural detail of the cellular environment.

Blackwater voyager

Valentina Perc[1], Matej Hočevar[2]

[1]University of Ljubljana, Biotechnical faculty, Ljubljana, Slovenia; [2]Institute of Metals and Technology (IMT), Ljubljana, Slovenia; valentina.perc@bf.uni-lj.si

SEM micrograph of the water flea (*Daphnia magna*) exposed to the medium treatment, showing detailed external morphology and surface structures.

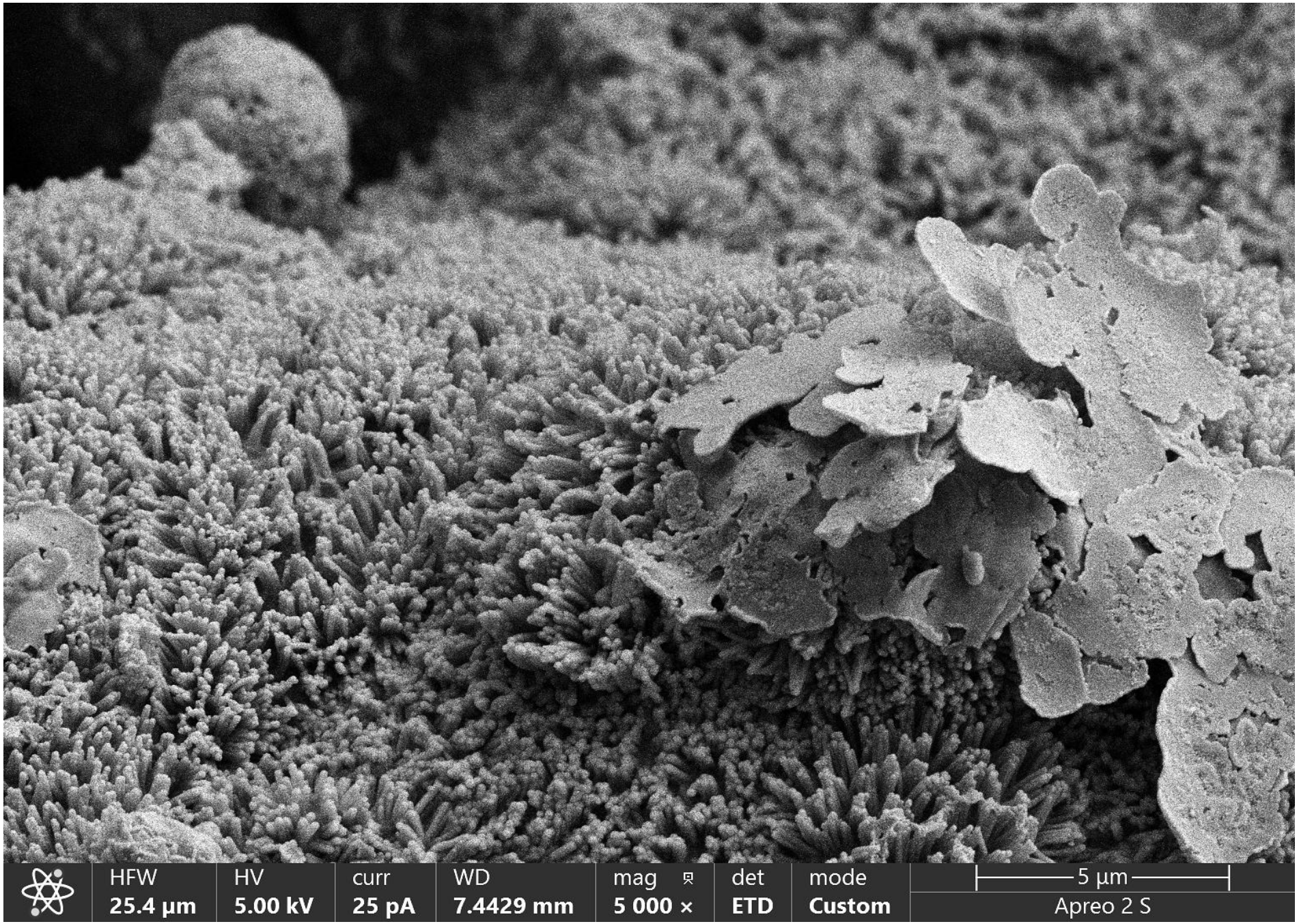


Epidermal labyrinth

Valentina Perc[1], Matej Hočevar[2]

[1]University of Ljubljana, Biotechnical faculty, Ljubljana, Slovenia; [2]Institute of Metals and Technology (IMT), Ljubljana, Slovenia; valentina.perc@bf.uni-lj.si

Digitally coloured SEM micrograph of the epidermal surface of zebrafish (*Danio rerio*) larva.

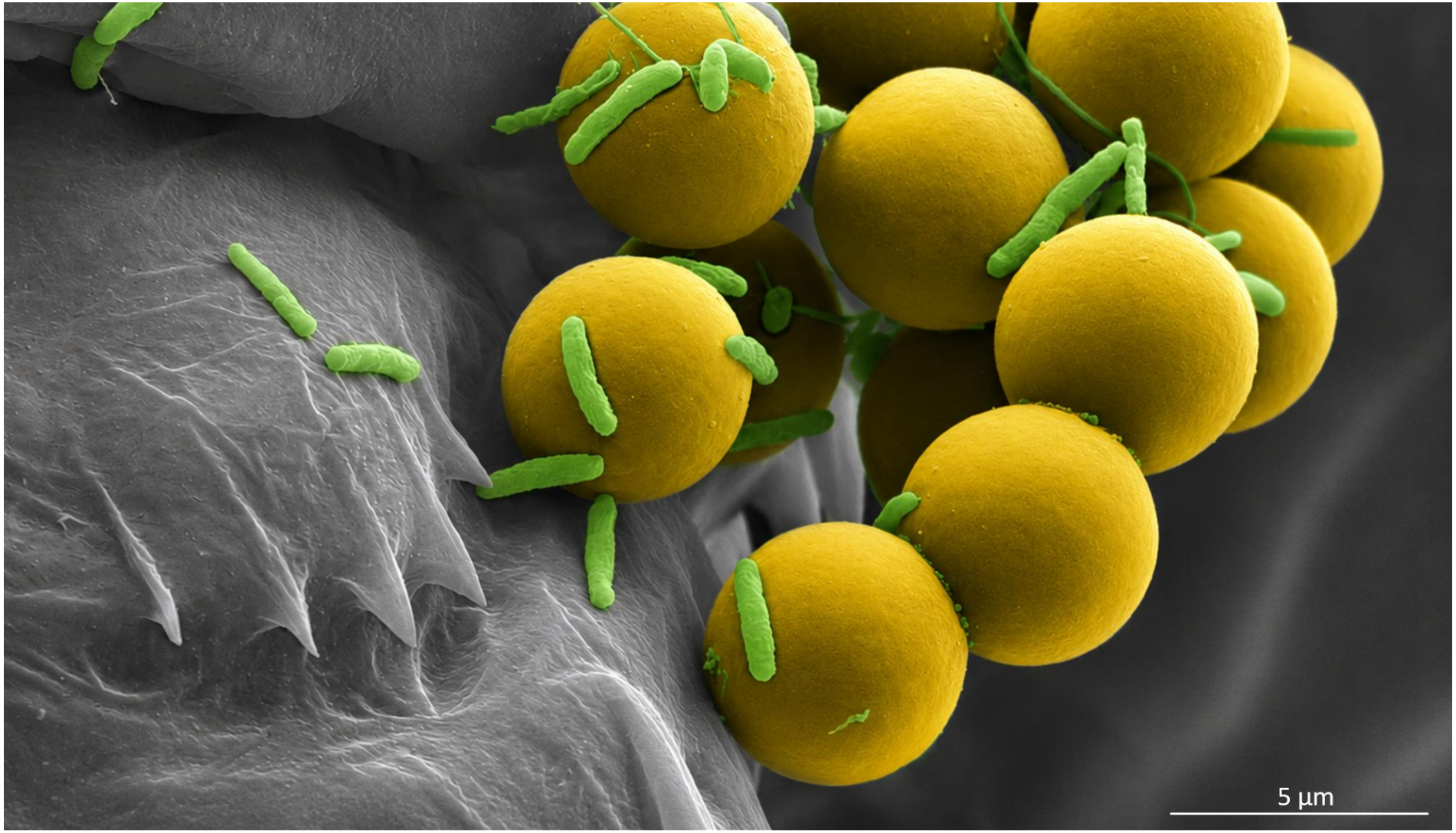


There's snow in the gut!

Sara Michelini[1], Marjan Bele[2], Katarina Šimunović[3]

[1]University of Ljubljana, Biotechnical faculty, Department of Biology, Ljubljana, Slovenia; [2]National Institute of Chemistry, Department of Materials Chemistry, Ljubljana, Slovenia; [3]University of Ljubljana, Biotechnical faculty, Department of Microbiology, Ljubljana, Slovenia; sara.michelini@bf.uni-lj.si

SEM micrograph showing flake-like extracellular polymeric substance (EPS) produced by *Campylobacter jejuni* covering a culture of microvilli-rich enterocytes.

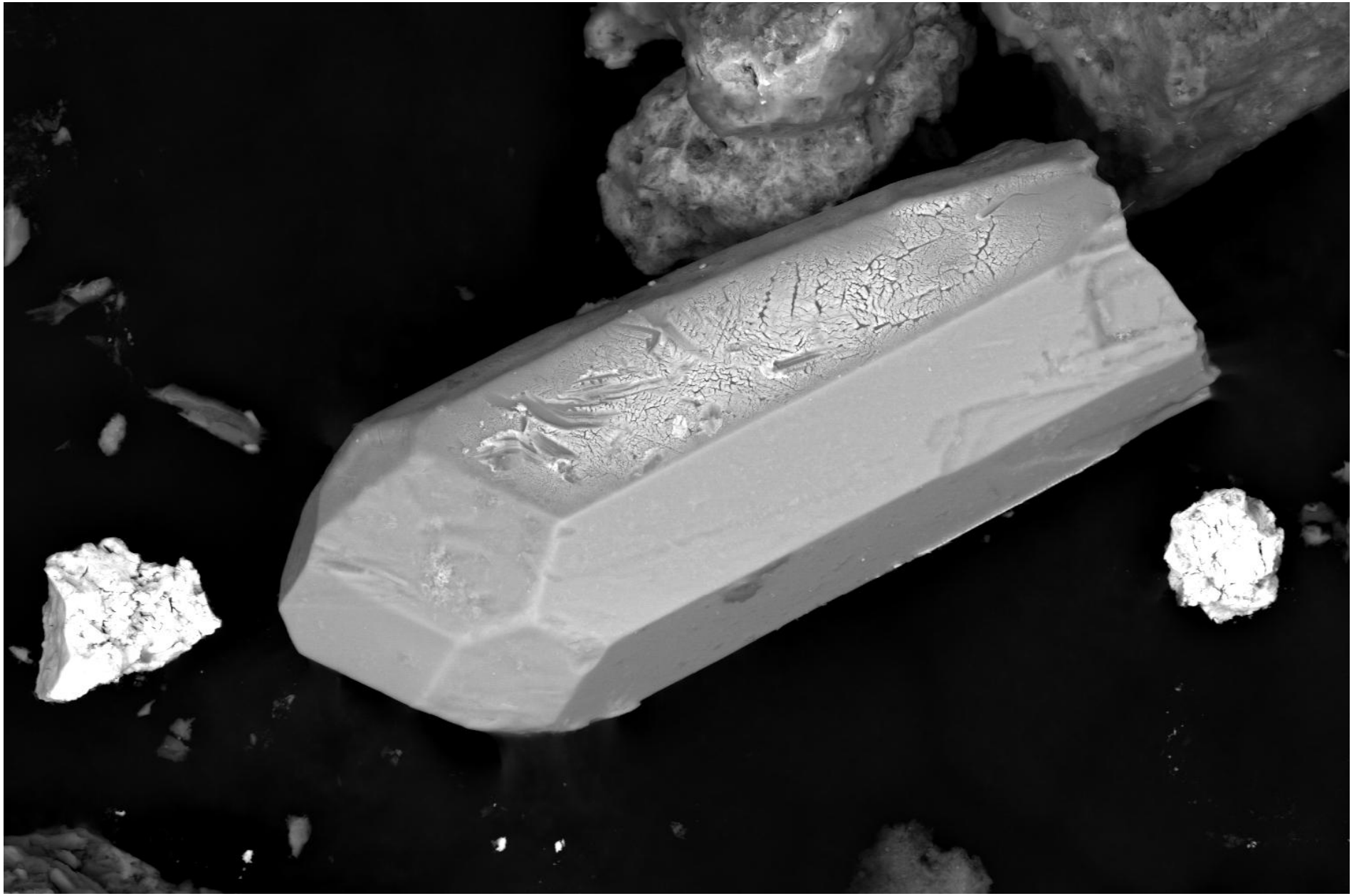


Plastisphere

Valentina Perc[1], Matej Hočevar[2]

[1]University of Ljubljana, Biotechnical faculty, Ljubljana, Slovenia; [2]Institute of Metals and Technology (IMT), Ljubljana, Slovenia; valentina.perc@bf.uni-lj.si

Digitally coloured SEM micrograph showing bacterial colonisation on spherical polystyrene microplastic particles attached to the surface of *Daphnia magna*.



Crystal in the Dark

Aleksander Učakar

Jožef Stefan Institute, Slovenia;
aleksander.ucakar@ijs.si

The crystal stands out with its sharp and elegant shape.

The black-and-white image creates a mysterious and almost futuristic atmosphere.

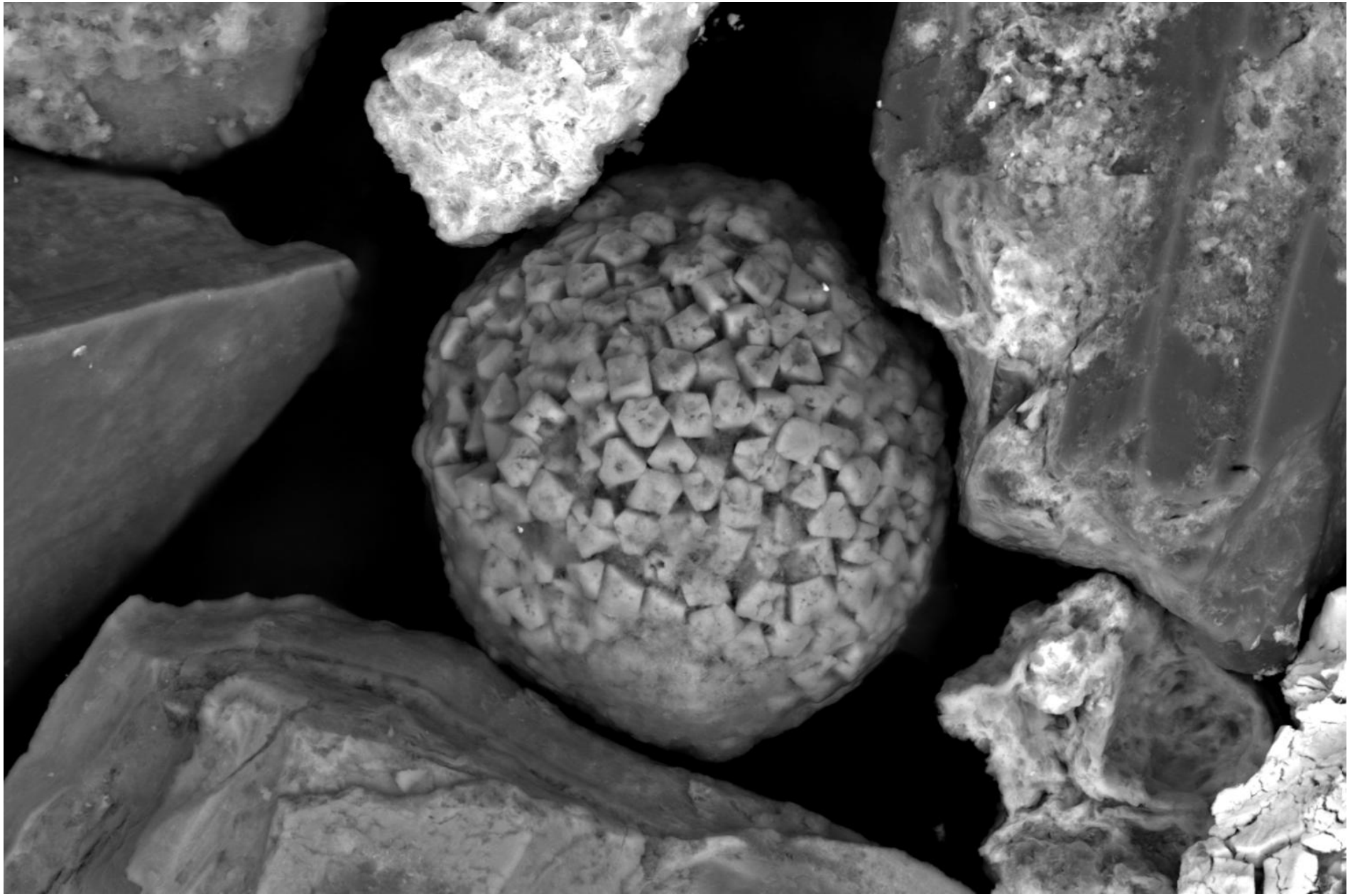
The cracks and textures on the surface give a sense of age and natural power.

Water E.T.

Valentina Perc[1], Matej Hočevar[2]

[1]University of Ljubljana, Biotechnical faculty, Ljubljana, Slovenia; [2]Institute of Metals and Technology (IMT), Ljubljana, Slovenia; valentina.perc@bf.uni-lj.si

Digitally coloured SEM micrograph of the head of zebrafish (*Danio rerio*) larva.



phere of Crystals

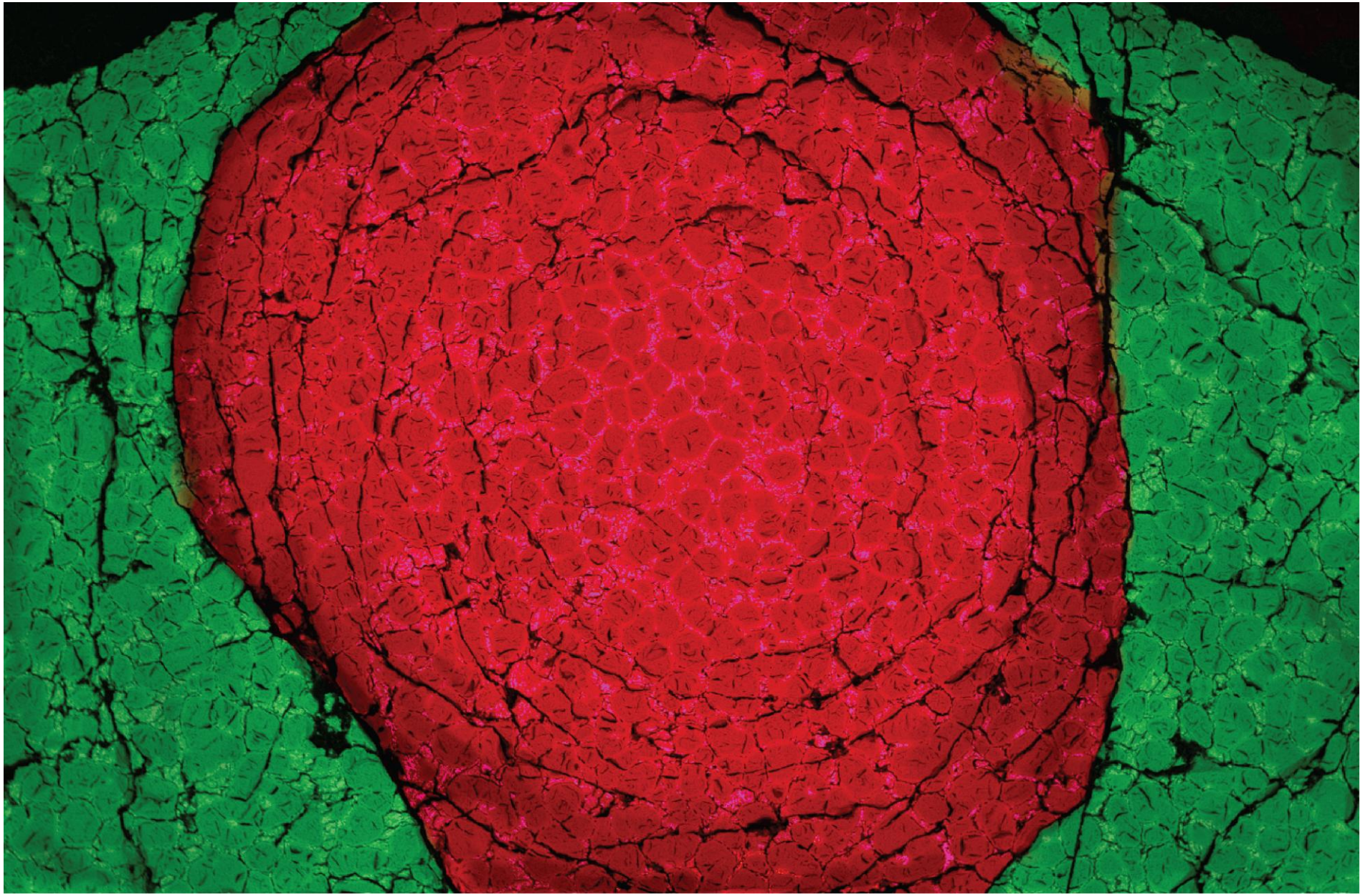
Aleksander Učakar

Jožef Stefan Institute, Slovenia;
aleksander.ucakar@ijs.si

The spherical mineral is covered with countless tiny crystal formations.

Its unusual texture creates a fascinating contrast with the rough rocks around it.

The monochrome tones give the image a calm yet mysterious scientific feel.

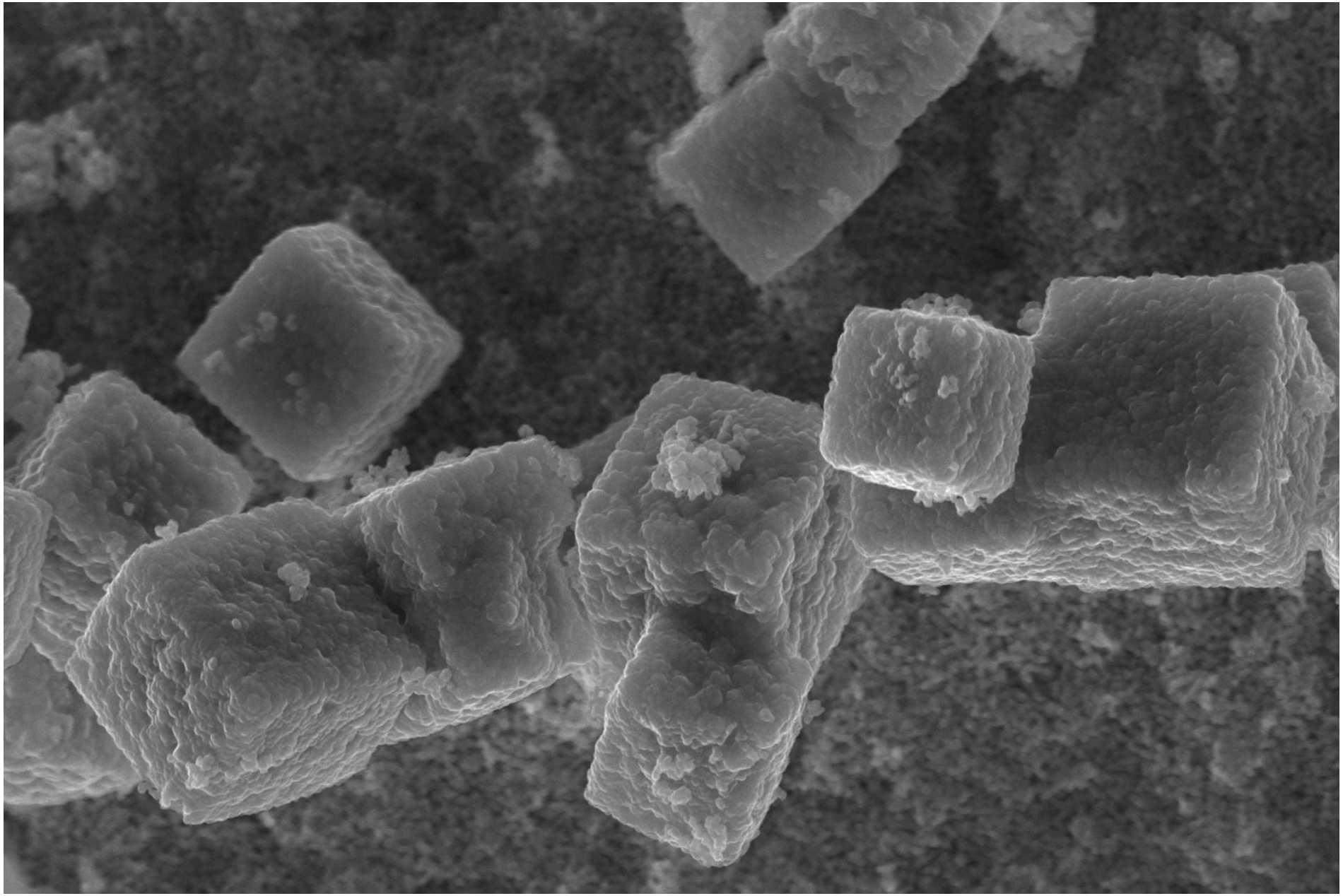


Reduced Rose

Aleksander Učakar

Jožef Stefan Institute, Slovenia;
aleksander.ucakar@ijs.si

The tinted surface of the reduced Sr–Fe oxide structure, shaped like a rose, evokes a fully blossomed flower encircled by green leaf-like structures.



Geometric Fragments

Aleksander Učakar

Jožef Stefan Institute, Slovenia;
aleksander.ucakar@ijs.si

The image reveals a collection of cube-like crystals with sharp and structured edges.

Their rough surfaces add depth and complexity to the geometric shapes.

The grayscale tones create a microscopic and almost otherworldly atmosphere.