

Croatian Microscopy Society
Ruđer Bošković Institute



4TH CROATIAN MICROSCOPY CONGRESS
with international participation

PROGRAM



Publishers

Croatian Microscopy Society and Ruđer Bošković Institute



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ANSAR-ANALITIKA
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EXHIBITORS



WELCOME TO THE CMC2022

We welcome you to the 4th Croatian Microscopy Congress (CMC2022) in Poreč, Croatia (18 - 20 May 2022). The Congress is jointly organized by the Croatian Microscopy Society and the Ruđer Bošković Institute, Zagreb, Croatia's leading scientific institute in natural sciences, biomedicine, marine and environmental research.

CMC2022 has gathered more than 100 researchers, industry representatives and exhibitors from the region and Europe, focusing on the latest methodological developments in microscopy and applications of electron, light and scanning probe microscopy in biomedicine, biology, physics and chemistry of materials and related research areas. The Congress will include invited, oral, and poster presentations, as well as industry exhibits.

This edition of the Congress also marks the 30th anniversary of the Croatian Microscopy Society as an independent organization and the 40th anniversary of the Electron Microscopy Section of the Croatian Society of Natural Sciences. We are particularly pleased to have the opportunity to award the "Spiridion Brusina" medal to prof.dr.sc. Miran Čeh, which will be presented to him by the President of the Croatian Society of Natural Sciences as a token of our gratitude for his contribution to microscopy in Croatia. In addition, the Congress will present a brief history of microscopy in Croatia through a lecture and an exhibition of historical photographs and events.

We are glad that you will spend three days dedicated to microscopy with us and we thank you for your participation in this event.

Suzana Šegota, chair of the Scientific Committee and
Danijela Poljuha, chair of the Organizing Committee



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PROGRAM

Wednesday, 18th May 2022

08:00–13:00

BUS ZAGREB-POREČ

Departure from Ruđer Bošković Institute at 8:00
30' stop at Vrata Jadrana

15:30–16:30

POREČ CITY WALKING TOUR

16:00–17:30

REGISTRATION AND POSTER SETUP

Lobby

17:30–18:00

OPENING CEREMONY

Lecture hall Lavanda

18:00–18:45

SPIRIDION BRUSINA LECTURE

MIRAN ČEH

SEM and TEM investigations of materials at the centre for electron microscopy and microanalysis (CEMM)

Lecture hall Lavanda

19:00

WELCOME RECEPTION

Restaurant / Outdoor



Labena

Thursday, 19th May 2022

PARALLEL SECTIONS

09:00–10:20

LIFE SCIENCES

Lecture hall Lavanda

Chairpersons: M. Radić, V. Filić

MATERIALS SCIENCE

Lecture hall Lovor

Chairpersons: J. Macan, T. Čižmar

INVITED LECTURES

09:00–09:25

VEDRANA FILIĆ

Functions of Dictyostelium protein IqgC in macropinocytosis

09:25–09:50

MARTINA RADIĆ

The subcellular localization and oligomerization preferences of NME1/NME2 upon radiation-induced DNA damage

INVITED LECTURES

09:00–09:25

MILIVOJ PLODINEC

Chemical dynamics of nanocatalysts revealed by operando transmission electron microscopy

09:25–09:50

SAŠO ŠTURM

Nucleation pathways of nanomaterials studied by advanced transmission electron microscopy

SELECTED LECTURES

09:50–10:05

KRUNO VUKUŠIĆ

Peripheral chromosomes positioned behind the spindle poles are prone to chronic unalignment in tumour cell lines

10:05–10:20

MARKO ŠOŠTAR

Rac1 dynamics in Dictyostelium cells: A combined experimental and theoretical approach

SELECTED LECTURES

09:50–10:05

ANDREJA JELEN

Decoding the multi-spatial-scale structure of high-entropy alloys by electron microscopy

10:05–10:20

SARA MARIJAN

Structural and electrical studies of sodium vanadium niobium phosphate glasses and glass-ceramics

10:20-11:00

COFFEE BREAK

outdoor / Lecture hall Magnolia



PARALLEL SECTIONS

11:00-11:45

LIFE SCIENCES

Lecture hall Lavanda

Chairpersons: M. Herak Bosnar, I. Weber

MATERIALS SCIENCE

Lecture hall Lovor

Chairpersons: I. Jelovina Badovinac, K. Juračić

SELECTED LECTURES

11:00-11:15

ENA DUMANČIĆ

Reactive oxygen species (ROS) confocal laser scanning imaging in TROL mutants

11:15-11:30

TEA MIŠIĆ RADIĆ

Marine microalgae under temperature and salinity stress-insight from AFM study

11:30-11:45

KRUNOSLAV VINICKI

Fully automatic whole slide imaging using faster than real-time image recognition neural network

SELECTED LECTURES

11:00-11:15

JELENA MACAN

Chemical synthesis of manganite catalysts for simultaneous oxidation of aromatic compounds

11:15-11:30

ANDREJA GAJOVIĆ

Tungsten doped titania porous thin films for photocatalytic purification of water

11:30-11:45

TIHANA ČIŽMAR

Nanostructured CuO@TiO₂: an efficient photocatalyst for degradation of diclofenac from the aqueous solution

12:00–13:00

LUNCH BREAK*

hotel restaurant

*Lunch is included for all CMC participants

13:00–13:40

PLENARY LECTURE

Lecture hall Lavanda

MARC WILLINGER

Dynamics at catalytically active interfaces studied by multi-scale operando electron microscopy

Chairperson: A. Gajović

13:40–14:40

EQUIPMENT PRESENTATION

Lecture hall Lavanda

13:40–14:00

CARL ZEISS

ZEISS fs-laser assisted FIB/SEM & Correlative Cryo Workflow

Wolfgang Schwinger, Carl Zeiss

14:00–14:20

SCAN / JEOL

Latest JEOL developments for biology and material sciences

Guillaume Brunetti, JEOL

14:20–14:40

ITR LAB / THERMOFISHER SCIENTIFIC

DualBeams for diverse applications

Daniel Phifer, Thermofisher scientific

14:40–16:00

POSTER SESSION WITH REFRESHMENTS

Lobby

biosistemi

16:00–17:50

**VISIT TO THE INSTITUTE OF AGRICULTURE AND TOURISM, OLIVE OIL
DEGUSTATION**

GROUP 1 16:00 – 16:50

GROUP 2 17:00 – 17:50

18:30

GALA DINNER IN THE AGROTOURISM PALADNJAKI

Dinner starts at 19:00, return will be organized at 22:00, 23:00 and 24:00



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Friday, 20th May 2022

PARALLEL SECTIONS

09:00–09:45

LIFE SCIENCES

Lecture hall Lavanda

Chairpersons: I. Bočina, N. Bijelić

MATERIALS SCIENCE

Lecture hall Lovor

Chairpersons: N. Tomašić, D. Vrsaljko

SELECTED LECTURES

09:00–09:15

SOWMYA SUNKARA

Organotypic culture as a 3D model to study Alzheimer's disease in porcine brain

09:15–09:30

SNJEŽANA RADULOVIĆ

Segmentation of 3D SEM images of neurons: pre-processing steps

09:30–09:45

IVANA BOČINA

*Expression of NF, GFAP, and dendrin in the brain of small-spotted catshark *Scyliorhinus canicula* L.*

SELECTED LECTURES

09:00–09:15

KRUNOSLAV JURAIĆ

Surface morphology of textured transparent conductive oxide thin film seen by various probes: visible light, X-rays, electron scattering and contact probe

09:15–09:30

ANTONIO SUPINA

Specific and abstract feature analysis of wide area CVD grown 2D islands using deep learning

09:30–09:45

MARIN PETROVIĆ

Large-scale synthesis and electrochemical transfer of borophene

09:45–10:20

COFFEE BREAK

outdoor / Lecture hall Magnolia



PARALLEL SECTIONS

10:20–11:40

LIFE SCIENCES

Lecture hall Lavanda

Chairpersons: G. Kovačević, M. Kreft

MATERIALS SCIENCE

Lecture hall Lovor

Chairpersons: T. Zubin Ferri, M. Petrović

INVITED LECTURES

10:20–10:45

MARKO KREFT

Astrocyte energy metabolism measured by genetically encoded FRET nanosensors

10:45–11:10

DAVOR ŽELJEŽIĆ

Comet assay through the history and microscopy demands to follow it

INVITED LECTURES

10:20–10:45

NENAD TOMAŠIĆ

Micro-textural and micro-chemical evidences of mineral origin, alteration and weathering – case studies on REE minerals to understand REE distribution and accumulation in nature

10:45–11:10

DOMAGOJ VRSAJJKO

Microscopy of polymer blends and polymer composites for 3D printing

SELECTED LECTURES

11:10–11:25

DOMINIK HAMER

Thick and cleared - Blood vessels and neurons can be visualized in the cleared mouse brain using inverted fluorescence microscopy

11:25–11:40

NIKOLA BIJELIĆ

Structural characteristics of femoral arteries in wild-type and Tff3 knock-out mice on standard and high-salt diet

SELECTED LECTURES

11:10–11:25

INA ERCEG

Simultaneous influence of titanate nanomaterials and chitosan on precipitation of calcium phosphate

11:25–11:40

RUMENKA MARKOSKA

SEM and EDS analyses of zeolite clinoptilolite water supernatants upon centrifugation

12:00–13:00

LUNCH BREAK*

hotel restaurant

*Lunch is included for all CMC participants

13:00–14:00

EQUIPMENT PRESENTATION

Lecture hall Lavanda

13:00–13:20

MIKROLUX / TESCAN

Gain the maximum throughput with artifact-free surfaces for sample characterization by using high current plasma FIB-SEM

Martin Suchanek, Tescan

13:20–13:40

ANSAR ANALITIKA

News related to Oxford Instruments/Asylum Research Atomic Force Microscopy (AFM) instruments

Krešo Mesarek, Ansar analitika

13:40–14:00

LABENA / ABERRIOR

STED nanoscopy in tissues using adaptive optics and MATRIX array detection

Jan Vavra, Abberior Instruments GmbH

14:00–14:40

PLENARY LECTURE

Lecture hall Lavanda

MATEJA ERDANI KREFT

Microscopy approaches for the analysis of biomimetic in vitro models used in preclinical testing

Chairperson: I. Weber

14:40–15:00

CLOSING CEREMONY

Lecture hall Lavanda

15:15

**DEPARTURE TO ZAGREB
& COSSETTO WINERY TOUR/WINE TASTING**

30 minute break at Vrata Jadrana around 18:30

return to Zagreb around 21:00

4th Croatian Microscopy Congress

18th-20th May 2022
Poreč, Croatia

Zadovoljstvo nam je pozvati Vas da nas posjetite na 4. hrvatskom mikroskopijskom kongresu u Poreču u Hrvatskoj.

TESCAN ima novu liniju proizvoda. Bit će nam zadovoljstvo više informacija dati Vam na našem izložbenom štandu.



Poster presentations

Life Sciences

- P1 Pancreatic islet surface and share of insulin granules after streptozotocin treatment in wild-type and Tff3 knock-out mice
- P2 Lipid profile of epicardial adipose tissue in obese individuals – preliminary data
- P3 The golden days are back: modern application of gold impregnation technique on rat brain cryosections
- P4 Particle Surface Functionalization Affects Mechanism of Endocytosis of Silver Nanoparticles in Mammalian Kidney Cells
- P5 Dependence of cell shape on spatial confinement
- P6 Effect of silver nanoparticles and ions on oxidative stress formation and antioxidative machinery of *Chlorella vulgaris*
- P7 *In situ* fluorescence-based confocal imaging for detecting early stress responses of tobacco plants after exposure to silver nanoparticles or silver nitrate
- P8 Morphometric characteristics of *Dreissena polymorpha* oocytes in the Drava River and in the Dubrava Reservoir
- P9 Histomorphometric evaluation of toxic effects of Na-PCP on the gill of the freshwater snail *Holandriana holandrii*
- P10 Tracking polystyrene nanoparticles and resolving their effect on the immune system in mussel *Mytilus galloprovincialis*
- P11 Glandular trichomes micromorphology of aerial parts of *Sideritis romana* L. and *Sideritis montana* L.
- P12 IqgC at the crossroads of RasGAP and IQGAP protein families
- P13 *In vivo* imaging to tackle the challenge of visualisation of dynamic processes – example of brain damage evolution after ischemic stroke
- P14 *Dictyostelium* IqgD is a Rho-regulated IQGAP involved in large-scale endocytosis
- P15 Small GTPases interacting with IqgC on *Dictyostelium* macropinosomes
- P16 Microscopic insight into the intriguing world of broccoli
- P17 A new approach to teaching about invasive species using a pocket paper Foldscope microscope
- P18 DNA damage and morphological changes to symbiotic and free-living hydra caused by norflurazon and UVB radiation
- P19 Deleterious effect of quercetin on green hydra and its endosymbiotic alga
- P20 Microalgae as „triggers“ to dynamics in freshwater microcosm



AstraFokus

FOKUSIRANI NA MIKROSKOPIJU



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Poster presentations

Materials Science

- P21 Photocatalytic properties of thin PE-ALD ZnO films: the role of crystal structure
- P22 Atomic layer deposition of ZnO and Al₂O₃ on cellulose for photocatalytic antibacterial performance
- P23 Photocatalytic activity of thin ZnO ALD films deposited on porous substrates
- P24 Ceria-zirconia-based high entropy oxides as catalysts for pinacol-type reactions
- P25 Modified TiO₂ nanotubes with iron-based metal-organic framework as solar-light active photocatalysts
- P26 Experimental validation of novel fluorite-type rare earth high-entropy oxides for photocatalytic water splitting applications
- P27 Split-second photothermal processing of thin film titania nanotubes using intense pulsed (white) light
- P28 Correlation between synthesis parameters and optical/morphological properties of PbI₂ nanocrystals
- P29 Role of polyvinylpyrrolidone glass transition temperature in the performance of formamidinium perovskite solar cells
- P30 Morphological analysis of fibres extracted from lignocellulosic biomass – resources of renewable bioenergy
- P31 Voltage cycling induced surface changes for enhancing sensing characteristics of graphene paste modified screen-printed electrodes
- P32 Determination of morphology, dopant amount and oxygen nonstoichiometry in lanthanum manganites by SEM-EDXS technique
- P33 Optical characterization of PbI₂ nanosheets prepared by a simple precipitation process
- P34 Microscopy study of calcium phosphates and calcium carbonates precipitation in the presence of differently charged liposomes
- P35 Light microscopy application in determination of visible particles in injections
- P36 Effect of silver nanoparticles on the precipitation of calcium phosphates
- P37 The impact of a novel photo-activation protocol on dental composite's degree of conversion – a Raman study
- P38 The importance of SEM BSED in paintings and wooden polychrome cross-sections analysis
- P39 Mechanochemical dispersions of platinum over nanocrystalline SnO₂ and α-Fe₂O₃ supports



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Oxford Instruments plc vodeći je proizvođač visokotehnoloških instrumenata i tehnologija:

Mikroskopi atomske sile (AFM)

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RENISHAW 

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JASCO

Jasco Inc. je japanski proizvođač FT-IR mikroskopa, FT/IR i UV-VIS spektrometara, CD spektrometara te spektrofluorimetara.

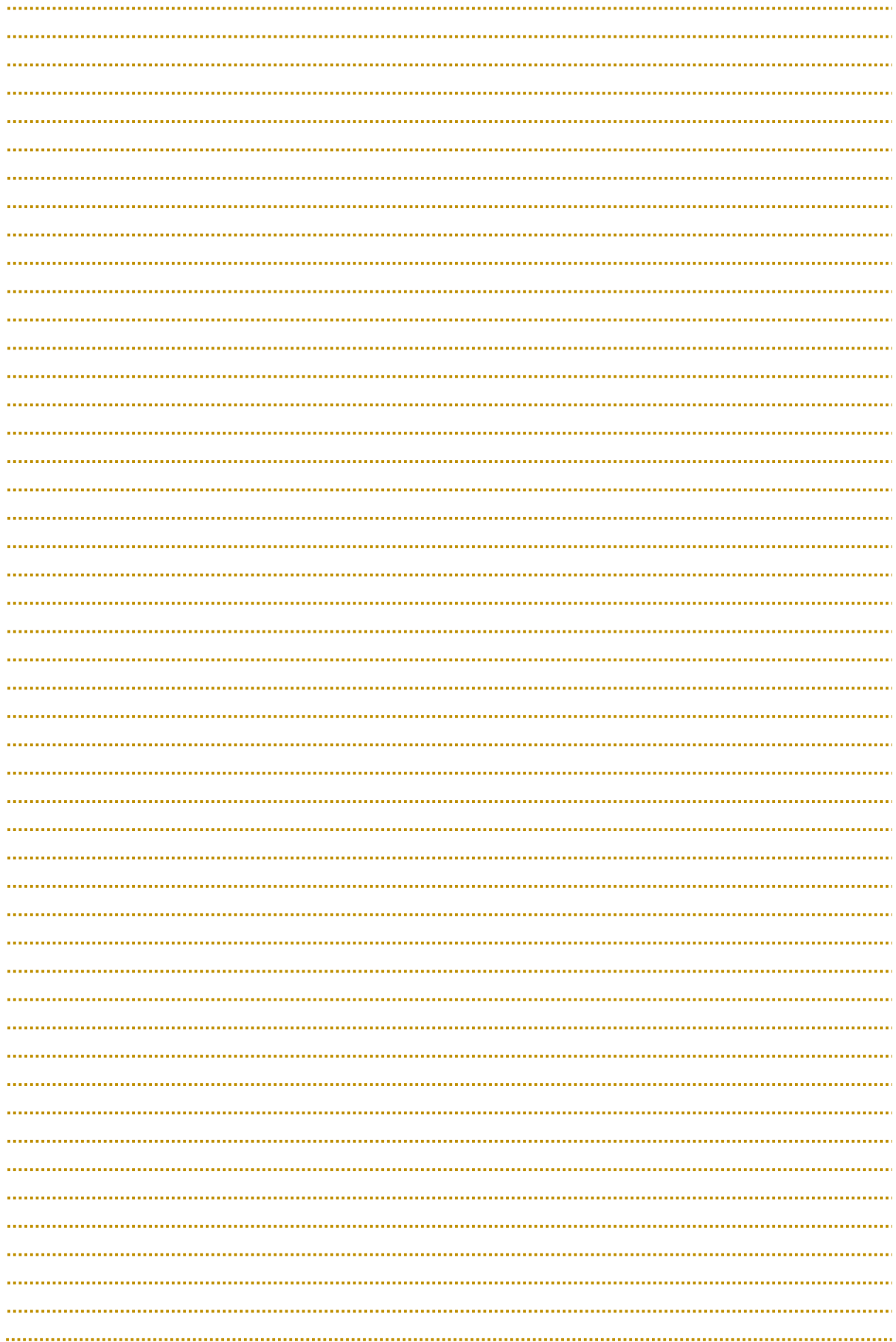
Također imamo u ponudi:

Potrošni materijal za AFM, elektronske i svjetlosne mikroskope
(dobavljača **Micro-to-nano** i **Agar Scientific**)

- Opću laboratorijsku opremu za mikroskopiju
- Krioskopsku opremu (spremnici, He3...)

NOTES

A series of horizontal dotted lines for writing notes.



4th Croatian Microscopy Congress

18th – 20th May 2022.

WED 18th May

THU 19th May

FRI 20th May

08:00 -13:00	BUS Zagreb-Poreč		
15:30 16:30	Poreč guided tour		
16:00 17:30	Registration and poster setup		
17:30 18:00	Opening ceremony		
18:00	Miran Čeh S. Brusina lecture		
19:00	Welcome reception		

09:00 09:50	IL: Vedrana Filić IL: Martina Radić	IL: Milivoj Plodinec IL: Sašo Šturm	
09:50 10:20	SL: Kruno Vukušić SL: Marko Šoštar	SL: Andreja Jelen SL: Sara Marijan	
10:20 11:00	Coffee break		
11:00 11:45	SL: Ena Dumancić SL: Tea Mišić Radić SL: Krunoslav Vinicki	SL: Jelena Macan SL: Andreja Gajović SL: Tihana Čizmar	
12:00 13:00	Lunch break		
13:00 13:40	Plenary lecture: Marc Willinger		
13:40 14:40	Presentation of equipment		
14:40 16:00	Poster session with refreshments		
16:00	Visit to the Institute of Agriculture and Tourism, olive oil degustation		
18:30	Gala dinner - agrotourism Paladnjaki (at 19:00 h)		

09:00 09:45	SL: Sowmya Sunkara SL: Snježana Radulović SL: Ivana Bočina	SL: Krunoslav Juračić SL: Antonio Supina SL: Marin Petrović
09:45 10:20	Coffee break	
10:20 11:10	IL: Marko Kreft IL: Davor Želježić	IL: Nenad Tomašić IL: Domagoj Vrsaljko
11:10 11:40	SL: Dominik Hamer SL: Nikola Bijelić	SL: Ina Erceg SL: Rumenka Markoska
12:00 13:00	Lunch break	
13:00 14:00	Presentation of equipment	
14:00 14:40	Plenary lecture: Mateja Erdani Kreft	
14:40 15:00	Closing ceremony	
15:15	Cossetto winery tour with vine tasting	

Plenary Lecture: 35 + 5 min - Invited Lecture : 20+5 min - Selected Lecture : 10+5 min

Life Sciences: Lavanda

Materials Science: Lovor