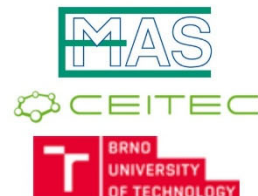


12-15 May 2024
Brno, Czech Republic



EMAS 2024

14th REGIONAL WORKSHOP ON
The Edge of new EM and Microanalysis Technology



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The Edge of new EM and Microanalysis Technology

12 - 15 May 2024

Brno University of Technology, Brno, Czech Republic

ANNOUNCEMENT AND PROVISIONAL PROGRAMME

Organized in collaboration with:

Brno University of Technology (VUT)

Central European Institute of Technology (CEITEC)

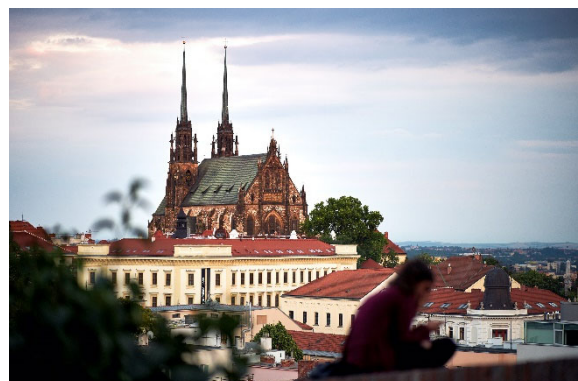
1. AIMS AND SCOPE

The EMAS 2024 Regional Workshop stands in a line of biennial events held by EMAS, designed to provide postgraduate-level and research workers in materials science, material engineering and related subjects, with basic knowledge of the capabilities and limitations of electron probe-based analytical techniques. The 14th workshop aims to provide an overview of current and new electron microscope and dual-beam technology, together with the analytical possibilities they offer. The workshop is organised as low-budget meeting with lectures on practical and theoretical aspects of electron microscopy given by experts in their fields. The format and content of the meeting is tailored to the needs of research workers, as well as practical microscopists, keen to obtain a broader overview of analytical techniques currently available on the platform of an electron microscope or dual-beam system.

Past EMAS Regional Workshops were held in Finland (1994), Hungary (1996), Spain (1998), the Czech Republic (2000), Poland (2002), Slovenia (2004), Germany (2006), Italy (2008), the Netherlands (2010), Italy (2012), Austria (2014), France (2016), and Great Britain (2018).

The core topics of the 14th EMAS Regional Workshop are:

- ◇ Fundamentals of new EM technology
 - *Introduction to SEM*
 - *Introduction to TEM*
 - *Introduction to FIB-SEMs*
 - *Overview of microanalytical techniques*
 - *Volume analysis by FIB-SEM*
 - *In-situ experiments in SEM/TEM*
- ◇ Visits to and programme organised by TESCAN and Thermo Fisher Scientific at their development labs
- ◇ Applications of new EM technology
 - *Sample preparation for SEM*
 - *Application of EM in steel research*
 - *Application of EM in mineralogy/geology*
 - *Multiscale analysis of materials*
 - *Combined SEM + AFM studies*



2. SCIENTIFIC PROGRAMME

The programme will consist of invited lectures delivered by renowned experts, and two poster sessions. The invited lectures and poster abstracts will be published in the workshop's *Book of Tutorials and Abstracts*. The official language of the workshop will be English.

2.1. Provisional programme

Sunday 12 May 2024

- 17h00 Registration at the Faculty of Business and Management of the Brno University of Technology (Kolejní 2906/4, Brno)
- 18h00 Welcome get-together

Monday 13 May 2024

- 08h00 Registration
- 09h00 **Welcome and opening addresses**
- *N. N.*, Brno University of Technology
- *N. N.*, CEITEC
- *Hans Dijkstra*, EMAS President
- 09h15 **Introduction to SEM**, *Ivo Kuběna*, Czech Academy of Sciences, Institute of Physics of Materials, Brno, Czech Republic
- 10h00 **Introduction to TEM**, *Mariana Klementová*, Czech Academy of Sciences, Institute of Physics, Prague, Czech Republic
- 10h45 Refreshment break
- 11h15 **Introduction to FIB-SEMs**, *Michal Urbánek*, CEITEC, Brno, Czech Republic
- 12h00 **Overview of microanalytical techniques**, *Ondřej Man*, Brno University of Technology, Nano Research Infrastructure, Structural Analysis Laboratory, Brno, Czech Republic
- 12h45 Lunch

- 13h45 **Sample preparation for SEM, microanalysis and EBSD**, *Grzegorz Cios*, AGH - University of Science and Technology, Academic Centre for Materials and Nanotechnology, Krakow, Poland
- 14h15 **In-situ experiments in SEM/TEM - overview**, *Miroslav Kolibal*, CEITEC, Brno, Czech Republic
- 14h45 **Seamless 4D-STEM workflows for characterisation of materials and nanoscale devices**, *Daniel Němeček*, TESCAN Group a.s., Brno, Czech Republic
- 15h15 Refreshment break / Poster Session I
- 16h00 **Very fast EM with multi-beam SEM**, *Antonio Casares*, Carl Zeiss AG, Oberkochen, Germany
- 16h30 **Accelerating microanalysis in SEM using the backscattered electron and X-ray (BEX) technique**, *Haithem Mansour*, Oxford Instruments NanoAnalysis Ltd., High Wycombe, Great Britain
- 17h00 **Latest development on direct-detect EBSD cameras and spherical indexing**, *René De Kloe*, Ametek BV, EDAX Business Unit, Tilburg, The Netherlands
- 17h30 **New developments in detecting low-energy X-rays by using new type of SXES**, *Georg Raggl*, JEOL (Germany) GmbH, Freising, Germany
- 18h00 **SEM-XRF: Full range EDS data on large and irregular samples**, *Andrew Menzies*, Bruker Nano GmbH, Analytics Division, Berlin, Germany
- 18h30 End of session
- 19h00 Workshop dinner at “*Technical Museum in Brno*” (Purkyňova 105, Brno - Královo Pole)
Dinner talk: “**History of electron microscopy in Brno**” by Dr. Iлона Müllerová (Czech Academy of Sciences, Institute of Scientific Instruments, Brno, Czech Republic)

Tuesday 14 May 2024

Please note that competitors of TESCAN Group and/or Thermo Fisher Scientific are kindly requested not to join the site visits. These two companies also reserve the right to refuse entry to individuals. Taking pictures or movies on their sites is not permitted.

- 08h30 *Departure of buses from the EMAS 2024 Workshop venue to TESCAN and Thermo Fisher Scientific*
- 09h00 **Programme organised by TESCAN and Thermo Fisher Scientific**
- 12h30 Lunch at TESCAN or Thermo Fisher Scientific
- 13h30 *Buses will take participants from TESCAN to Thermo Fisher Scientific and vice versa*
- 14h00 **Programme organised by Thermo Fisher Scientific and TESCAN**
- 17h30 *Buses will take participants from TESCAN and Thermo Fisher Scientific to the EMAS 2024 Workshop venue*

Wednesday 15 May 2024

- 09h00 **LVEM: contrast-enhancing technology for applications from 0D to 3D materials**, *Jaromír Bačovský*, DELONG INSTRUMENTS a.s., Brno, Czech Republic
- 09h30 **Application of EM in steel research**, *Šárka Mikmeková*, Czech Academy of Sciences, Institute of Scientific Instruments, Brno, Czech Republic
- 10h00 **Application of EM in mineralogy/geology**, *Iris Buisman*, University of Cambridge, Department of Earth Sciences, Cambridge, Great Britain
- 10h30 **Refreshment break / Poster Session II**
- 11h30 **Correlative and multi-scale analyses of advanced materials**, *Bartłomiej (Bart) Winiarski*, Thermo Fisher Scientific, Brno, Czech Republic & The Royce Institute for Advanced Materials, Manchester, Great Britain
- 12h00 **4D-STEM powder diffraction in SEM**, *Miroslav Šlouf*, Czech Academy of Sciences, Institute of Macromolecular Chemistry, Prague, Czech Republic
- 12h30 Lunch
- 13h30 CEITEC visit

2.2. Poster presentation

All participants to the workshop are invited to make a poster presentation. Abstracts of poster contributions to be presented during the workshop should fit two A4 page; the Word-template is available on the EMAS website (www.microbeamanalysis.eu). Detailed guidelines are mentioned on the template. Online submission details are given on the workshop webpage.

The abstract has to be submitted by 15 March 2024. Authors will be notified of the acceptance of their poster by 23 March 2024.

2.3. EMAS Bursaries

A number of EMAS Bursaries are available to:

i) Early Career Scientist (ECS): They include a free student registration and free accommodation package for the duration of the EMAS Workshop (in a shared twin room) in a hotel assigned by the Workshop. The conditions for the award of an EMAS ECS Bursary are as follows:

- the applicant must submit an abstract for a poster contribution;
- the applicant must be an ECS and a member of EMAS;
- a letter from the applicant's project supervisor or principal investigator supporting the application must accompany the abstract.

ii) Early Career Technician (ECT): They include a free student registration and free accommodation package for the duration of the EMAS Workshop (in a shared twin room) in a hotel assigned by the Workshop. The conditions for the award of an EMAS ECT Bursary are as follows:

- the applicant must submit an abstract for a poster contribution;
- the applicant must be an ECT and a member of EMAS;
- a letter from the applicant's line manager supporting the application must accompany the abstract.

(Eligibility criteria for ECS and ECT status can be found on the 'EMAS Bursaries and Grants' subpage of the EMAS website).

The quality and relevance of the work presented in the abstract are the main criteria on which successful applications will be judged. A maximum of 2 bursaries per person can be awarded.

Bursary applications must be sent to the Workshop Secretariat referring to the relevant poster contribution abstract, reaching it before 15 March 2024. Applicants will be notified of the allocation of an EMAS Bursary by 23 March 2024.

3. REGISTRATION

Online registration is available on the EMAS website (www.microbeamanalysis.eu). Participants are encouraged to complete registration and arrange for their payment, preferably by 31 March 2024 to qualify for reduced rates.

3.1. Workshop registration fees

	Early registration (by 31 March)	Late registration (as of 1 April)
EMAS member	€ 300	€375
Non-member	€ 350	€ 425
Student (ID required) EMAS member in retirement	€ 200	€ 250
EMAS Bursary	free	
Extra workshop dinner ticket	€ 60	
1-day ticket (Sunday/Monday)	€ 250	
Hard copy of the Book of Tutorials and Abstracts	€ 40	not available

The registration fee for respectively EMAS members, non-members, students and EMAS Bursary recipients, includes a PDF copy of the workshop's *Book of Tutorials and Abstracts* (invited lectures manuscripts and poster abstracts), three lunches, and refreshment breaks during the workshop, the welcome get-together (Sunday 12 May) and the workshop dinner (Monday 13 May).

The 1-day ticket (Sunday/Monday) includes a PDF copy of the workshop's *Book of Tutorials and Abstracts*, attendance of the Sunday welcome get-together, and on Monday the lunch, the refreshment breaks and the workshop dinner.

3.2. Payment

Payment of the registration fee should be preferentially made through the EMAS website (www.microbeamanalysis.eu) using the online PayPal system (no account necessary); no credit card information will be stored on the EMAS website; various payment options are available (e.g., credit cards) depending on your country. An invoice/receipt will be generated by the system.

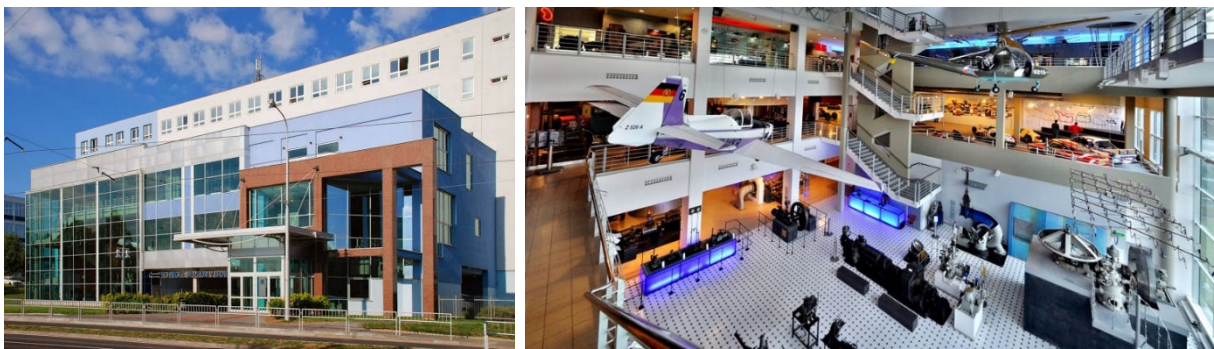
Alternatively, if you prefer to pay by bank transfer or any other offline payment method, please choose the "pay offline" button and follow the instructions; this will generate your invoice, which includes bank transfer and contact details.

3.3. Cancellation policy

A refund of the registration fee (less € 50 administration costs) will be granted only if notification of cancellation is given to the workshop secretariat by 1 May 2024. After this date no refund will be made. Refunds will be processed after the Workshop.

3.4. Social events

These include the Sunday informal get-together at the workshop venue and the Monday evening workshop dinner at the “Technical Museum in Brno” (Purkyňova 105, Brno - Královo Pole).



3.5. Insurance

The organisers cannot be held responsible for any personal accident or damage to the property of the participants.

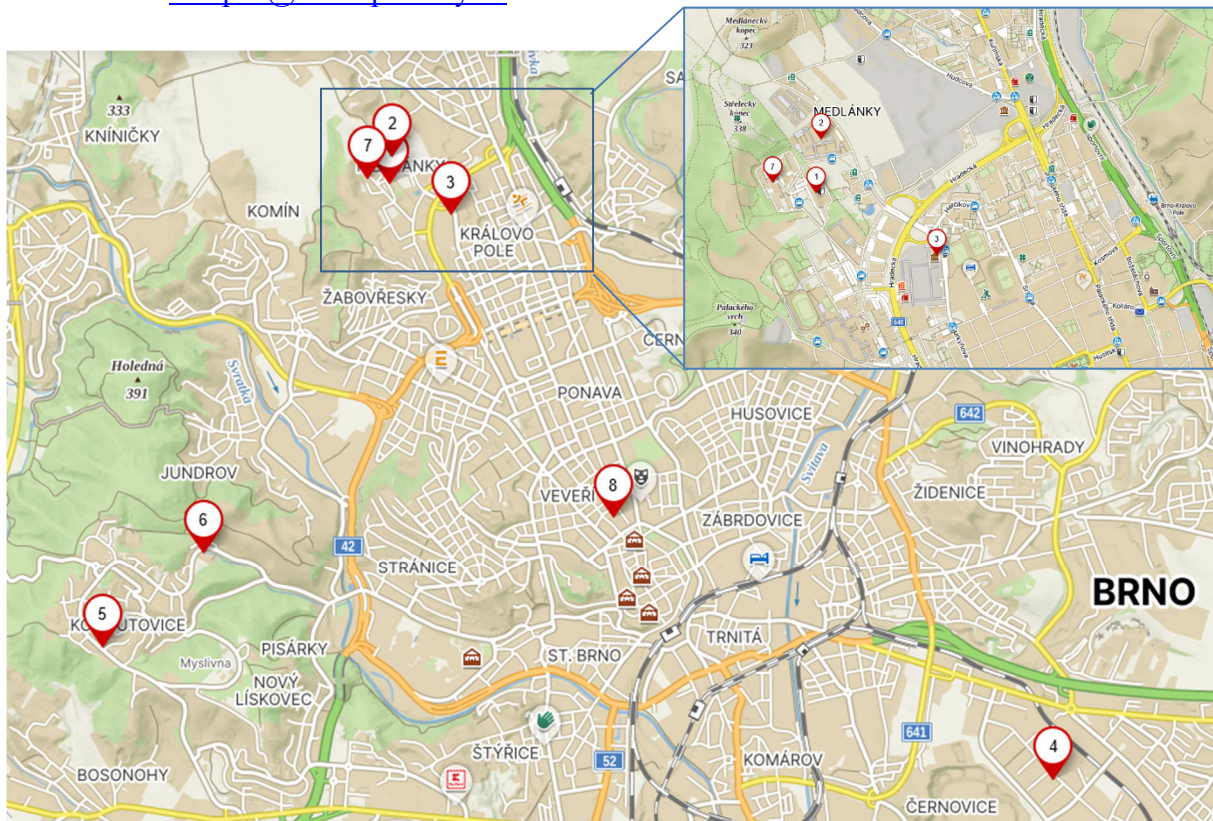
3.6. Personal data

Personal information supplied to EMAS will be held on computer and will be used only for purposes connected with the activities of the European Microbeam Analysis Society.

3.7. Hotel accommodation

A limited number of rooms have been blocked for EMAS 2024 attendees in two hotels in Brno:

- a) Hotel Continental Brno, Kounicova 6, 60200 Brno, Czech Republic; (www.continentalbrno.cz/en) – room rates of CZK 1,600 per night in single room and CZK 2,150 per night in double room (breakfast included) + CZK 19 per person/day of local tax. 40 rooms have been set aside, until April 30th, after which date bookings will depend upon availability. Bookings, mentioning EMAS 2024, can be done by e-mail to: info@continentalbrno.cz.
- b) Hotel Palacky (<http://www.hotel-palacky.cz/en>), which is the closest to the conference venue, offering double rooms only (twin beds) at rates of CZK 908 per night (single occupancy) and CZK 1,166 per night (double occupancy) (breakfast included) + CZK 15 per person/day of local tax. 20 rooms have been set aside, until April 17th after which date bookings will depend upon availability. Bookings, mentioning EMAS 2024, can be done by e-mail to: recepce@hotel-palacky.cz.



1. Hotel Continental Brno (Kounicova 6, Brno)
2. EMAS 2024 workshop venue (Brno University of Technology, Faculty of Business and Management, Kolejní 2906/4, Brno)
3. Palacky Hotel (Kolejní 2905/2, Brno)
4. TESCO Brno (T1) Libušina třída 21, Brno-Kohoutovice
5. TESCO Brno (T2) Libušina třída 1, Brno-Kohoutovice
6. Thermo Fisher Brno
7. Technical Museum in Brno: workshop dinner (Purkyňova 105, Brno - Královo Pole)

4. LOCATION



The workshop will be held at the Faculty of Business and Management of the Brno University of Technology, Kolejní 2906/4, Brno.

Brno is the second largest town in the Czech Republic with over 400,000 inhabitants and the capital of the South Moravian Region.

The city of Brno has a long-year tradition in science and technology; it is connected to prominent scientists and thinkers such as Johann Gregor Mendel, an Augustinian friar and the founder of modern genetics, who conducted his pea plant experiments here. For a few decades, Brno has been a place of research institutes and companies involved in development and production of electron microscopes. At present, it hosts companies such as Thermo Fisher Scientific (FEI), TESCAN, and Delong Instruments, all of them engaged in the business of electron microscopy and relevant nanotechnology tools and methods. Brno is also known as a student town hosting more than 80,000 students of 13 universities.

4.1. Sightseeing

You can find tips for your individual exploration of Brno – not only from the sightseeing perspective – on the Brno tourist office’s website (www.gotobrna.cz/en/).

4.2. How to get to Brno

- By air

a) Vaclav Havel Airport Prague (international airport): www.prg.aero/en/.

b) Brno Airport (regular flights to London Stansted): www.brno-airport.cz/en/.

c) Vienna Airport (international airport, usually easier to reach than the Prague airport): www.viennaairport.com/en/passengers.

There are regular bus connections between Prague as well as Vienna airport and Brno operated by Student Agency (www.studentagency.eu/en/), Flixbus (www.flixbus.cz), and other carriers.

- By train

Trains departing from the Brno Main Station (Hlavní nádraží) connect to Prague, Vienna, Bratislava, Budapest, Berlin and Ostrava.

- By car

Brno can be reached by the D1, D2 and D52 motorways. Current traffic information inside Brno can be accessed at www.doprava-brno.cz/, while traffic information for the whole of the Czech Republic can be accessed at dopravniinfo.cz/en/.

About the Brno University of Technology and CEITEC

Brno University of Technology (BUT) is the largest technical university in the Czech Republic, founded in 1899. It provides education, spanning from technology and science to economics and arts, to more than 10,000 students. BUT runs five research centres on its own and has a major share in two more.

CEITEC (Central European Institute of Technology) is a joint project of five universities and institutes of the Czech Academy of Sciences residing in Brno to create environment for excellence in research. Part of the project under the Brno University of Technology (CEITEC BUT) deals with advanced nano- and microtechnologies and advanced materials and hosts a unique scientific infrastructure CEITEC Nano providing access to the state of the art scientific instruments for nanotechnology and materials research in cleanroom environment.



5. KEY DATES

15 March 2024	deadline for submission of abstracts for poster presentations deadline for applications for EMAS Bursaries
23 March 2024	notification of acceptance of poster contributions notification of decisions on EMAS Bursary applications
31 March 2024	early registration deadline
12-15 May 2024	EMAS 2024 Regional Workshop, Brno, Czech Republic

6. WORKSHOP COMMITTEES, SECRETARIAT, WEBSITE

6.1. International Organising Committee

- Lucie Brnková TESCOAN Group, a.s., Brno
- Hans Dijkstra EMAS
- Ondřej Man CEITEC, Brno
- Michal Urbánek CEITEC, Brno
- Luc Van 't dack EMAS
- Petr Wandrol Thermo Fisher Scientific, Brno

6.2. Workshop Secretariat

European Microbeam Analysis Society (EMAS)
c/o University of Antwerp
Department of Chemistry, Research group PLASMANT
Mr Luc Van 't dack
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