

COST Action CA20129

MultIChem



The Second Conference
*" Multiscale Irradiation and Chemistry
Driven Processes and Related Technologies "*

MultIChem 2023

Villa Lanna
Prague, Czech Republic
April 26-28, 2023

<https://www.jh-inst.cas.cz/multichem/>



Second Announcement

Scope

The 2nd Conference of the [COST Action CA20129 “Multiscale Irradiation and Chemistry Driven Processes and Related Technologies” \(MultiChem 2023\)](#) will take place on **April 26-28, 2023**, in Prague, Czech Republic. The venue will be Villa Lanna, a conference center of the Czech Academy of Sciences. The conference is co-organized by the [J. Heyrovský Institute of Physical Chemistry CAS](#) (Prague, Czech Republic) and [MBN Research Center](#) (Frankfurt am Main, Germany).

The MultiChem Conference will be preceded by the 7th International Conference [“Dynamics of Systems on the Nanoscale” \(DySoN 2023\)](#), which will take place on April 24-26 at the same venue.

The MultiChem conference will bring together experts from different disciplines, such as physics, chemistry, biology, and materials science, specializing in the theoretical, multiscale computational modeling and experimental studies of irradiation-driven chemistry processes involving complex molecular systems exposed to radiation.

The scientific sessions will be followed by the MultiChem Management Committee meeting on Friday, April 28 to discuss further activities of the Action.

The following topics will be addressed at the MultiChem 2023 Conference:

- Collision and radiation processes involving nano- and biomolecular systems
- Radiation-induced chemistry
- Irradiation-driven transformations of molecular systems
- Biomedical and technological applications of radiation
- Related technologies: controlled nanofabrication with charged particle beams, functionalized materials, etc.

Important Dates

Distribution of the first announcement	November 16, 2022
Distribution of the second announcement	February 07, 2023
Deadline for registration	March 01, 2023
Deadline for hotel reservation	March 01, 2023
Deadline for abstract submission	April 01, 2023

Scientific program

Wednesday, April 26

10 ⁰⁰ – 13 ⁰⁰	Participants registration
14 ⁰⁰ – 14 ¹⁵	MultiChem 2023 Opening
14 ¹⁵ – 15 ⁴⁵	Afternoon session I: Irradiation-driven transformations of molecular systems
15 ⁴⁵ – 16 ¹⁵	Coffee break
16 ¹⁵ – 17 ⁴⁵	Afternoon session II: Radiation-induced chemistry (industry related session)
17 ⁴⁵ – 19 ⁰⁰	Discussion on the Roadmap paper (ca. 20-25 min) Poster session

Thursday, April 27

09 ³⁰ – 11 ⁰⁰	Morning session I: Irradiation-driven transformations of (bio)molecular systems and biological systems
11 ⁰⁰ – 11 ³⁰	Coffee break
11 ³⁰ – 13 ⁰⁰	Morning session II: Irradiation-driven transformations of (bio)molecular systems and biological systems
13 ⁰⁰ – 14 ³⁰	Lunch

14 ³⁰ – 16 ⁰⁰	Afternoon session I: Nanofabrication with focused particle beams
16 ⁰⁰ – 16 ³⁰	Coffee break
16 ³⁰ – 18 ⁰⁰	Afternoon session II: Irradiation-driven chemistry in nanofabrication processes
19 ³⁰ – 22 ⁰⁰	Conference dinner

Friday, April 28

09 ⁰⁰ – 10 ³⁰	Morning session I: Biomedical and technological applications of radiation
10 ³⁰ – 11 ⁰⁰	Coffee break
11 ⁰⁰ – 12 ³⁰	Morning session II: Mechanisms of nanoparticle radiosensitization
12 ³⁰ – 13 ³⁰	Lunch
13 ³⁰ – 15 ⁰⁰	Afternoon session I: Radiation induced chemistry
15 ⁰⁰ – 15 ¹⁰	MultiChem 2023 Closing
15 ¹⁰ – 15 ³⁰	Coffee break
15 ³⁰ – 17 ⁰⁰	MultiChem Management Committee Meeting

Confirmed speakers

Richard Amos, Translational Proton Therapy Physics, University College London, United Kingdom
Planning and delivery of ion beam cancer therapy: Limitations of contemporary clinical practice

Gérard Baldacchino, Université Paris-Saclay, France
What chemistry in the Bragg peak of protons and carbon ions?

Paola Bolognesi, CNR-Istituto di Struttura Della Materia, Monterotondo, Italy
Photoionisation studies of dipeptides

Jose Maria De Teresa, University of Zaragoza, Spain
Metallic structures grown by focused ion beam decomposition of condensed precursor layers and of metallorganic films

Stefan Denifl, Institute for Ion Physics and Applied Physics, University of Innsbruck, Austria
Exploring reaction pathways of electron induced DNA damage

Jiří Dluhoš / Miloš Hrabovský, TESCAN, Czech Republic
TBA

Alicja Domaracka, Centre de Recherche sur les Ions, les Matériaux et la Photonique, Normandie Université, Caen, France
Ions interacting with complex molecular systems: the effect of a surrounding environment

Brendan Dromey, Queen's University Belfast, United Kingdom
Narrow energy spread proton beams from a laser driven accelerator for high precision spatiotemporal measurements of ion damage in matter

Martin Falk, Institute of Biophysics, Czech Academy of Sciences, Brno, Czech Republic
Is there a simple explanation for metal nanoparticle-mediated cell radiosensitization?

Felipe Ferreira da Silva, Universidade NOVA de Lisboa, Caparica, Portugal
Electron interactions with astrochemical relevant molecules

Alexander Gerbershagen, The University Medical Center Groningen (UMCG), Groningen, Netherlands
UMCG - from radiobiology to treatment planning

Majdi Hochlaf, Université Gustave Eiffel, Champs-sur-Marne, France
Irradiation-driven formation of abiotic O₂ from SO₂

Tomáš Homola, Roplass, Czech Republic
Atmospheric pressure plasma sources for rapid treatment of nano and bio surfaces

Stanislav Kadlec, Eaton European Innovation Center, Czech Republic
Radiation-induced effects in power distribution industry - switching arcs, streamers and breakdown in low and medium voltage devices

Anne Lafosse, Institute of Molecular Sciences of Orsay, Université Paris-Saclay, France
Quantifying non-thermal desorption from molecular ices - Comparative study of photon and electron irradiation in the valence- and core-shell energy ranges

Nigel Mason, University of Kent, Canterbury, United Kingdom
Solid state chemistry in astronomy – A New age

Aleksandar Milosavljević, Synchrotron SOLEIL, Gif-Sur-Yvette, France
Near-edge x-ray absorption fine structure (NEXAFS) spectroscopy of protonated adenosine triphosphate molecule

Andrew Nisbet, Department of Medical Physics & Biomedical Engineering, University College London, United Kingdom
TBA

Kate Ricketts, Division of Surgery and Interventional Science, University College London, United Kingdom
TBA

Thomas Schlathölder, Zernike Institute for Advanced Materials, University of Groningen, Netherlands
Heavy ion collisions with gas-phase DNA

Lukas Seewald, Institute of Electron Microscopy and Nanoanalysis, Graz University of Technology, Austria
Recent progress in functional nanofabrication via 3D Nanoprinting

Revaz Shanidze, Kutaisi International University, Georgia
New hadron therapy center in Kutaisi, Georgia

Cécile Sicard-Roselli, University Paris Saclay, France
Do we always want nanoparticles to enhance radical production?

Andrey Solov'yov, MBN Research Center, Frankfurt am Main, Germany
The fifth release of MBN Explorer and MBN Studio: advances and challenges in multiscale computational modeling

Ilia Solov'yov, Institute of Physics, Carl von Ossietzky University Oldenburg, Germany
Stochastic dynamics simulation of the focused electron beam induced deposition process

Petra Swiderek, Institute of Applied and Physical Chemistry, University of Bremen, Germany
Electron-driven chemistry of NH₃: New insights from molecular synthesis and fundamental processes of nanofabrication

Olivier Tillement, NH TherAguix, France
Chelating bio-polymer for metal extraction: from concept to clinic

Ivo Utke, EMPA, Thun, Switzerland
The role of ligand surface kinetics in focused electron beam induced deposition

Alexey Verkhovtsev, MBN Research Center, Frankfurt am Main, Germany
Quantum mechanical inputs for irradiation-driven molecular dynamics

Mateusz Zawadzki, Gdansk University of Technology, Gdansk, Poland
Experimental studies on electron collisions with fundamental molecular targets

Registration

The online registration for the MultiChem conference should be completed on a dedicated conference webpage, <https://www.jh-inst.cas.cz/multichem/registration.html>. The deadline for registration is March 01, 2023.

Registration Fee

The registration fee for the MultiChem 2023 Conference is **200 €**. The registration fee includes lunches, coffee breaks, and the conference dinner.

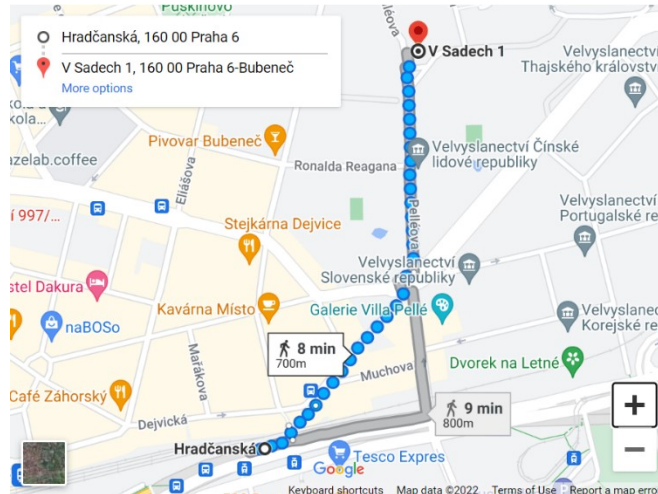
The payment should be made **by bank transfer** to:

IBAN:	CZ53 0300 0000 0004 7857 2593
SWIFT (BIC):	CEKOCZPP
Account Holder:	Ustav fyzikalni chemie J. Heyrovskeho AV CR
Bank Name:	CSOB a.s.
Bank Address:	Na Prikope 18, 115 20 Prague 1, Czech Republic
Message for Recipient:	MultiChem VS905722, "Participant's Name"

If you require a proforma invoice prior to your payment, please indicate this in the registration form.

Conference Venue and Travel Information

The conference will be held in [Vila Lanna](#) (V Sadech 1, 160 00 Prague 6), a cozy conference center of the Czech Academy of Sciences located in Prague. The conference venue is located within walking distance from the Prague metro line A, station Hradčanská.



The conference venue is well connected with Prague public transport. For more information, please visit the Prague public transport website: <https://www.dpp.cz/en>.

Reaching the conference venue from the Václav Havel international airport (Prague):

Take bus number 119, direction “Nádraží Veleslavín” and get off at the last stop. Transfer to metro line A (green line); the entrance to the metro station is located at the bus stop. Take the metro towards “Depo Hostivar”, get off at the station “Hradcanská” and follow the instructions mentioned above.

From the Prague central train station (Praha hlavní nádraží):

Two transport options exist:

- Option 1: walk for ca. 3 minutes towards the tram stop and take tram number 26, direction “Divoká Šárka” and get off at the “Hradcanská” stop.

- **Option 2:** From the central train station, take metro line C (Red line) toward “Háje” and get off at “Muzeum”. Transfer to metro line A (green line). Take metro line A toward “Nemocnice Motol” and get off at the station “Hradcanská”. Then follow the instructions mentioned above.

Accommodation

Accommodation in 27 rooms is possible directly in the Villa Lanna. Please, book your accommodation directly with the villa at recepce@vila-lanna.cz and quote “MultiChem”. The rooms will be reserved until **March 01, 2023** and will then be released, so please book early.

Alternative options for accommodation:

There are a number of hotels, B&Bs, and apartments within walking distance of the meeting venue. Most of the lodging options in close vicinity are small apartments that can be booked via [booking.com](https://www.booking.com) or [airbnb.com](https://www.airbnb.com). Apart from it, there are several bigger hotels:

- Hotel Schwaiger, just around the corner;
- Art Hotel Praha, approx. 15 minutes walk;
- Hotel DAP, approx. 15 minutes walk;
- Hotel International, approx. 20 minutes walk;
- Hotel Diplomat Vienna House, approx. 20 minutes walk.

Reimbursement of the travel expenses

The MultiChem COST Action provides financial support to reimburse MultiChem participants for their travel expenses. Detailed information about the COST reimbursement rules can be found in the [Annotated Rules for COST Actions](#) (see Section A1-3.1 “Travel reimbursement rules”, pp. 84-90).

In order to be reimbursed, you must receive an official invitation through e-COST indicating that you are eligible for the reimbursement. After the meeting, you will be required to fill in your online travel reimbursement request (OTRR) through the link you will find in the invitation email.

When arranging your travel and accommodation, please consider the following rules (see the Annotated Rules for COST Actions for complete and detailed information):

- Any transport you take in your country (airplane, train, bus, car...) is reimbursed based on the supporting documents provided (tickets for flights, trains and buses; proof of distance for car travel, e.g. by Google maps). Taxi, car rental, fuel and parking expenses are not eligible.
- For the flight ticket: it must be a return and economy class ticket from the country of your primary affiliation (as registered in e-COST) to the country of the meeting.
- Your stay in Prague should be covered under the [flat-rate Daily Allowance \(DA\)](#). The DA is intended to cover accommodation, meals and transport in the host country. No receipts will be required.
- The maximum DA rate that can be claimed is calculated according to the actual number of days you attend the meeting (as confirmed by your signature on the official attendance list for each day of the meeting) plus one day, permitting you to arrive on the day before the meeting and/or leave one day after.
- On travel days, the DA is based on departure and arrival times (see p. 85 of the Annotated Rules for COST Actions).

Official Invitation and Visa

Conference participants are advised to check the passport and visa requirements for travel to the Czech Republic well in advance. For invitation requests, please contact Dr. Juraj Fedor (J. Heyrovský Institute of Physical Chemistry CAS); see the contact information below.

MultiChem Scientific Committee

- Alexey Verkhovtsev (MBN Research Center, Frankfurt am Main, Germany)
- Nigel Mason (University of Kent, Canterbury, UK)
- Andrey Solov'yov (MBN Research Center, Frankfurt am Main, Germany)
- Ilia Solov'yov (Carl von Ossietzky University, Oldenburg, Germany)
- Harald Plank (Graz University of Technology, Graz, Austria)
- Kate Ricketts (University College London, London, United Kingdom)
- Malgorzata Smialek-Telega (Gdansk University of Technology, Gdansk, Poland)
- Juraj Fedor (J. Heyrovský Institute of Physical Chemistry CAS, Czech Republic)

Organizing Committee

- Juraj Fedor (J. Heyrovský Institute of Physical Chemistry CAS, Czech Republic)
- Alexey Verkhovtsev (MBN Research Center, Frankfurt am Main, Germany)
- Jaroslav Kočíšek (J. Heyrovský Institute of Physical Chemistry CAS, Czech Republic)
- Barbora Kocábková (J. Heyrovský Institute of Physical Chemistry CAS, Czech Republic)
- Miloš Ranković (J. Heyrovský Institute of Physical Chemistry CAS, Czech Republic)
- Pamir Nag (J. Heyrovský Institute of Physical Chemistry CAS, Czech Republic)

Contact Information

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Conference website

<https://www.jh-inst.cas.cz/multichem/>

Up-to-date information about the MultiChem 2023 conference and the COST Action MultiChem is available on the webpage <http://mbnresearch.com/ca20129-multichem/main>

Conference e-mail

multichem@jh-inst.cas.cz