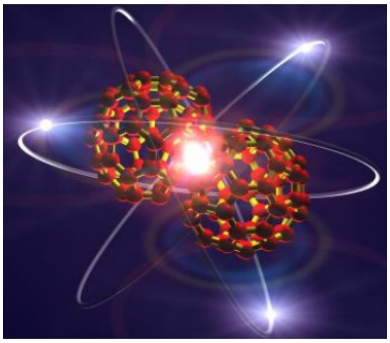
The 11th International Symposium *"Atomic Cluster Collisions"* ISACC 2023



and

Workshop of the COST Action CA20129 "MultIChem"

COST Action CA20129
MultIChem

cost
EUROPEAN COOPERATION IN SCIENCE & TECHNOLOGY

Hotel Örk
Hveragerði, Iceland
July 20-22, 2023

SECOND ANNOUNCEMENT

Scope

The 11th International Symposium "Atomic Cluster Collisions" (ISACC 2023) and a thematically-related Workshop of the COST Action CA20129 "Multiscale Irradiation and Chemistry Driven Processes and Related Technologies" (MultIChem) will take place on **July 20-22, 2023** in Hveragerði, Iceland.

The meeting is organized by MBN Research Center (Frankfurt am Main, Germany), Carl von Ossietzky University of Oldenburg (Oldenburg, Germany) and the University of Kent (Canterbury, United Kingdom).

A series of International Symposia "Atomic Cluster Collisions: structure and dynamics from the nuclear to the biological scale" started in 2003, and ten ISACC conferences have been held so far. The latest ISACC conference was organized in October 2021 jointly with the sixth International Conference "Dynamics of Systems on the Nanoscale" (DySoN) under the title "DySoN-ISACC 2021".

Most of the ISACC conferences were satellites of the International Conferences on Photonic Electronic and Atomic Collisions (ICPEAC). The ISACC 2023 will be held just before the ICPEAC 2023 conference (Ottawa, Canada, July 25-August 01, 2023).

The ISACC conference series promotes the growth and exchange of scientific information on the structure, properties and dynamics of complex nuclear, atomic, molecular, cluster, nanoscopic and biological systems studied primarily by means of photonic, electronic and atomic collisions. Particular attention is devoted to dynamical phenomena and many-body effects taking place in clusters, nanostructures, molecular and biological systems. These include problems of fusion and fission, fragmentation, collective electron excitations, phase transitions, radiation damage, and many more. Both experimental and theoretical aspects of cluster physics uniquely placed between nuclear physics on one hand and atomic, molecular and solid state physics on the other will be subject of the ISACC 2023 symposium. Particular attention at the Symposium will be devoted to the utilization of advanced computational techniques and high-performance computing for studying the aforementioned phenomena and effects. Links of the ISACC topics to novel and emerging technologies will be an important focus of the ISACC 2023.

Finally, ISACC 2023 will provide a platform to host discussions about current research, technological challenges and related initiatives within the ISACC Topical Areas.

Topical Areas of ISACC:

- Structure and dynamics of atomic clusters and nanoparticles
- Structure and dynamics of biomolecules
- Reactivity and nanocatalysis
- Clustering in systems of various dimensionality and degrees of complexity
- Electron-, photon- and ion collisions with clusters and nanoparticles
- Electron-, photon- and ion collisions with biomolecules
- Complex collision, radiative and fragmentation processes
- Clusters and biomolecules in external fields: electric, magnetic, laser etc.
- Cluster and biomolecular research with Free Electron Lasers
- Related technological and medical applications

The **MultIChem Workshop** will focus on experimental, theoretical and computational modeling studies of irradiation- and chemistry driven multiscale phenomena. The focus will be made on the following research studies relevant to technological applications discussed within the MultIChem COST Action:

- Photon, electron and ion beam irradiation of isolated biomolecules in the gas phase
- Photon, electron and ion beam irradiation of molecular and biomolecular clusters
- Photon, electron and ion beam irradiation of deposited metal clusters and nanoparticles, and nanoparticles placed in a molecular environment.

Important Dates

Distribution of the first announcement	November 30, 2022
Distribution of the second announcement	April 18, 2023
Distribution of the final announcement	July 01, 2023
Deadline for early-bird registration	May 01, 2023
Deadline for abstract submission	June 15, 2023

Scientific Program

Thursday, July 20

$09^{00} – 11^{15}$	Participants registration
$11^{15} – 11^{30}$	**ISACC 2023 Opening**
$11^{30} – 13^{00}$	**Morning session I: Structure and dynamics of atomic clusters and nanoparticles**
$13^{00} – 14^{30}$	Lunch
$14^{30} – 16^{00}$	**Afternoon session I: Structure and dynamics of atomic clusters and nanoparticles**
$16^{00} – 16^{30}$	Coffee break
$16^{30} – 18^{00}$	**Afternoon session II: Structure and dynamics of biomolecules**

Friday, July 21

$09^{30} – 11^{00}$	**Morning session I: Reactivity and nanocatalysis**
$11^{00} – 11^{30}$	Coffee break
$11^{30} – 13^{00}$	**Morning session II: Clustering in systems of various dimensionality and degrees of complexity**
$13^{00} – 14^{30}$	Lunch
$14^{30} – 14^{40}$	**MultIChem Workshop Opening**
$14^{40} – 16^{10}$	**Afternoon session I: Electron-, photon- and ion collisions with clusters and nanoparticles**
$16^{10} – 16^{30}$	Coffee break
$16^{30} – 18^{00}$	**Afternoon session II: Electron-, photon- and ion collisions with biomolecules**
$19^{00} – 22^{00}$	Conference dinner

Saturday, July 22

$09^{30} – 11^{00}$	**Morning session I: Complex collision, radiative and fragmentation processes**
$11^{00} – 11^{30}$	Coffee break
$11^{30} – 13^{00}$	**Morning session II: Clusters and biomolecules in external fields: electric, magnetic, laser etc.**
$13^{00} – 14^{30}$	Lunch
$14^{30} – 16^{00}$	**Afternoon session I: Cluster and biomolecular research with Free Electron Lasers**
$16^{00} – 16^{30}$	Coffee break
$16^{30} – 18^{00}$	**Afternoon session II: Related technological and medical applications**
$18^{00} – 18^{15}$	**ISACC 2023 Conference & MultIChem workshop Closing**

Confirmed Speakers

Stefan Bergmeister, Institute for Ion Physics and Applied Physics, University of Innsbruck, Austria
New developments in helium nanodroplet experiments

Florent Calvo, University Joseph Fourier, Grenoble, France
Interplay between shape, size, and surface segregation in high-entropy nanoalloys

Himadri Chakraborty, Northwest Missouri State University, USA
Femtosecond to attosecond electron dynamics in fullerene materials

Fred Currell, Dalton Cumbrian Facility, University of Manchester, United Kingdom
Modelling Inhomogeneous Radiation Chemistry using Linear Expansions (MIRaCLE), a promising approach

Matthew Dickers, School of Physics and Astronomy, University of Kent, United Kingdom
Atomistic modelling and structural characterisation of coated gold nanoparticles for biomedical applications

Luca Gerhards, Carl von Ossietzky University Oldenburg, Germany
Modelling collision processes in complex molecular systems using VIKING

Hannes Jonsson, University of Iceland, Reykjavík, Iceland
Reassignment of 'magic numbers' for Au nanoclusters in the range of 50 to 2000 atoms

Shiv Khanna, Virginia Commonwealth University, USA
Using superatomic metal-chalcogenide clusters and charge transfer ligands for nano p- n- junction with tunable band gaps and band alignment, light harvesting and CO_2 conversion

Alexander Kuleff, Institute of Physical Chemistry, Heidelberg University, Germany
Ultrafast non-adiabatic relaxation in XUV-excited molecules: Dynamics in correlation bands

Jozef Lengyel, Department of Chemistry, Technical University of Munich
Size effects in cluster chemistry and catalysis for the activation of small molecules

Franck Lépine, Institut Lumière Matière, Université Lyon 1, France
First instants following XUV ionization in complex (bio-)molecules: towards attosecond experiments in proteins and DNA

Christoph Lienau, Carl von Ossietzky University Oldenburg, Germany
Two-dimensional electronic spectroscopy: Probing strong couplings and charge transfer dynamics on the nanoscale

Nigel Mason, School of Physics and Astronomy, University of Kent, United Kingdom
Clusters, aerosols and microdroplets – Complex chemistry revealed

Duncan Mifsud, Institute for Nuclear Research (Atomki), Debrecen, Hungary
Intermolecular interactions in ice clusters: Relevance to radiation astrochemistry

Bart Oostenrijk, Deutsches Elektronen-Synchrotron DESY, Hamburg, Germany
Keeping it together: the stabilizing intra-peptide interaction between Sulphur and aromatic groups studied using VUV action spectroscopy

Richard Palmer, Swansea University, United Kingdom
Nanoclusters in the real world

Anatoli Popov, Institute of Solid State Physics, University of Latvia, Riga, Latvia
Distinctive features of point defect annealing in irradiated ceramic materials

Jan-Michael Rost, Max Planck Institute for the Physics of Complex Systems, Dresden, Germany
Ion spectra reveal spectra of neutral fragments ejected from fullerenes by FEL-XUV double pulses

Jefferson Shinpaugh, East Carolina University, USA
Radiosensitization properties of nanostructured gold and iron oxide (SPION) for irradiation by ions

Andrey Solov'yov, MBN Research Center, Frankfurt am Main, Germany
On the mechanisms of radiation-induced structural transformations in metal clusters and biomolecules

Ilia Solov'yov, Carl von Ossietzky University Oldenburg, Oldenburg, Germany
Modelling photoinduced electron transfers in complex molecular systems

Eric Suraud, Université Paul Sabatier, Toulouse, France
On the stability of hole states in molecules and clusters, a generic mechanism?

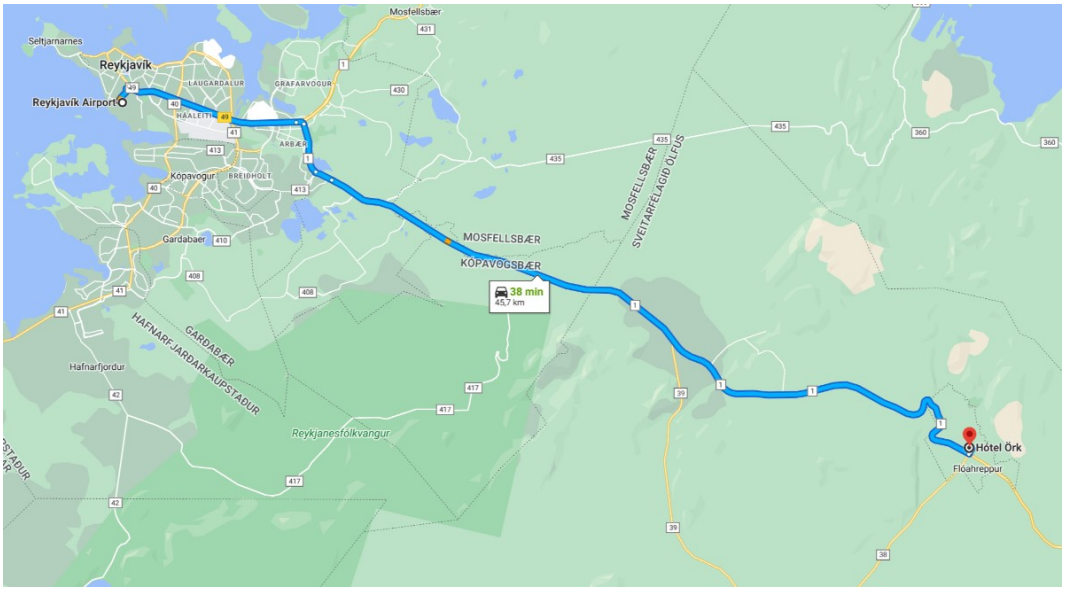
Hidetsugu Tsuchida, Quantum Science and Engineering Center, Kyoto University, Japan
Damage of nucleotide molecules in liquid water caused by fast ion irradiation

Alexey Verkhovtsev, MBN Research Center, Frankfurt am Main, Germany
Irradiation-induced fragmentation of organometallic complexes studied by means of reactive molecular dynamics

Conference Venue and Travel Information

The Conference will be hosted by Hotel Örk, Breiðumörk 1c, 810 Hveragerði, Iceland.

The hotel is located in Hveragerði, one of Iceland's most popular destinations known as **"The Hot Spring Town"**. The town known for its geothermal area with active hot springs is located in the south of Iceland, 45 km east (30 minutes) from the capital Reykjavík on Iceland's main ring road, Route 1.



Detailed information on how to reach the conference venue will be circulated with the final announcement.

Registration

The **early-bird** participation fee for the ISACC 2023 conference is **450 €**. After the early bird registration deadline on **May 01, 2023** the conference fee will amount **550 €**.

The registration fee includes access to the conference venue, poster session, coffee breaks, lunches, dinners on July 20 and 22, and the conference dinner on July 21.

The payment to the order of "ISACC 2023" can be made **by bank transfer** to

Bank Account Name:	MBN Research Center gGmbH
Bank name:	Deutsche Bank
Branch Address:	Hauptstr. 561462 Koenigstein Germany
IBAN:	DE15500700240137588000
BIC:	DEUTDEDBFRA

Please quote your **NAME** and **ISACC2023** on the transfer. Please ensure there are NO charges to us. If you need an invoice for the payment or want to pay with a credit card, please send a short email to isacc.conference@gmail.com.

Accommodation

A limited number of rooms is available at the Hotel Örk (the conference venue). The participants are asked to contact directly the hotel (booking@hotelork.is) to book accommodation as soon as possible.

Accommodation includes breakfast as well as access to a swimming pool, hot tubs, steam, and wireless internet. When booking accommodation, please quote "MBN23" to book one of the following rooms:

Room type	No. of people staying	Price per night	
		Icelandic Krónas (ISK)	EUR
Superior (27 m^2) *	1 2 3/4	25.291 36.285 41.785	170 244 281

*A surcharge for a superior balcony or terrace is 3,000 ISK (20 EUR) per night.

Further information on other types of rooms available at the hotel can be found here.

Abstract Submission

Abstracts should be submitted electronically not later than June 15, 2023. Please send your abstracts to isacc.conference@gmail.com with the title "ISACC 2023 Abstract".

The abstracts are to be supplied by the authors typewritten in camera-ready form in A4 format. The length of the abstract should not exceed two pages. The abstract template with more detailed preparation guidelines is available for downloading here.

Please note that we accept files in the MS Word document (.docx) format.

Official Invitation and Visa

Conference participants are advised to check the passport and visa requirements for travel to Iceland well in advance.

International Advisory Committee

- Andrey V. Solov'yov (MBN Research Center, Germany) **- IAC Chair**
- Catherine Bréchignac (Laboratoire Aime Cotton, CNRS, France)
- Michel Broyer (University of Lyon, France)
- Jean-Patrick Connerade (Imperial College London, United Kingdom)
- Francesco Gianturco (University of Innsbruck, Austria)
- Bernd Huber (Centre Interdisciplinaire de Recherche Ions Lasers, CIRIL - GANIL, France)
- Julius Jellinek (Argonne National Laboratory, USA)
- Shiv Khanna (Virginia Commonwealth University, USA)
- Nigel Mason (University of Kent, United Kingdom)
- Thomas Möller (Technical University of Berlin, Germany)
- Richard Palmer (Swansea University, United Kingdom)
- Eric Suraud (Université Paul Sabatier, France)

Organizing Committee

- Andrey Solov'yov (MBN Research Center, Germany) – **Chair**
- Nigel Mason (University of Kent, United Kingdom)
- Luca Gerhards (Carl von Ossietzky University of Oldenburg, Germany)
- Ilia Solov'yov (Carl von Ossietzky University of Oldenburg, Germany)
- Alexey Verkhovtsev (MBN Research Center, Germany)

Sponsors

The conference will be held under the auspices of the following sponsors:

- MBN Research Center, Frankfurt am Main, Germany
- H2020-MSCA-RISE Project "RADON"

MultIChem Workshop

Participants of ISACC 2023 are highly encouraged to participate in the MultIChem Workshop which will take place at the same venue. It is also envisaged that participants of the Workshop will attend the ISACC sessions on July 20 and in the morning of July 21.

Partial financial support will be provided to participants of the Workshop via the MultIChem COST Action to partially support their travel to Iceland and local accommodation expenses (for two days of the MultIChem Workshop + one travel day). More detailed information on financial support will be provided with the second announcement of ISACC 2023.

Contact Information

Prof. Nigel J. Mason, OBE
ISACC 2023 Co-Chair

School of Physics and Astronomy
University of Kent
Canterbury CT2 7NH
United Kingdom
E-mail: N.J.Mason@kent.ac.uk
Website: www.kent.ac.uk/physics-astronomy

Prof. Dr. Andrey V. Solov'yov
ISACC 2023 Co-Chair

MBN Research Center gGmbH
Altenhöferallee 3
60438 Frankfurt am Main
Germany
E-mail: solovyov@mbnresearch.com
Website: www.mbnresearch.com

Prof. Dr. Ilia Solov'yov
MultIChem Workshop Co-Chair

Carl von Ossietzky University
Carl-von-Ossietzky-Str. 9-11
26129 Oldenburg
Germany
E-mail: ilia.solovyov@uni-oldenburg.de
Website: https://quantbiolab.com/

Dr. Alexey Verkhovtsev
MultIChem Workshop Co-Chair

MBN Research Center gGmbH
Altenhöferallee 3
60438 Frankfurt am Main
Germany
E-mail: verkhovtsev@mbnexplorer.com
Website: www.mbnresearch.com

ISACC Conference Web Page

Updated information on the ISACC 2023 and the whole ISACC conference series is available at www.isacc-portal.org.

Conference e-mail

isacc.conference@gmail.com