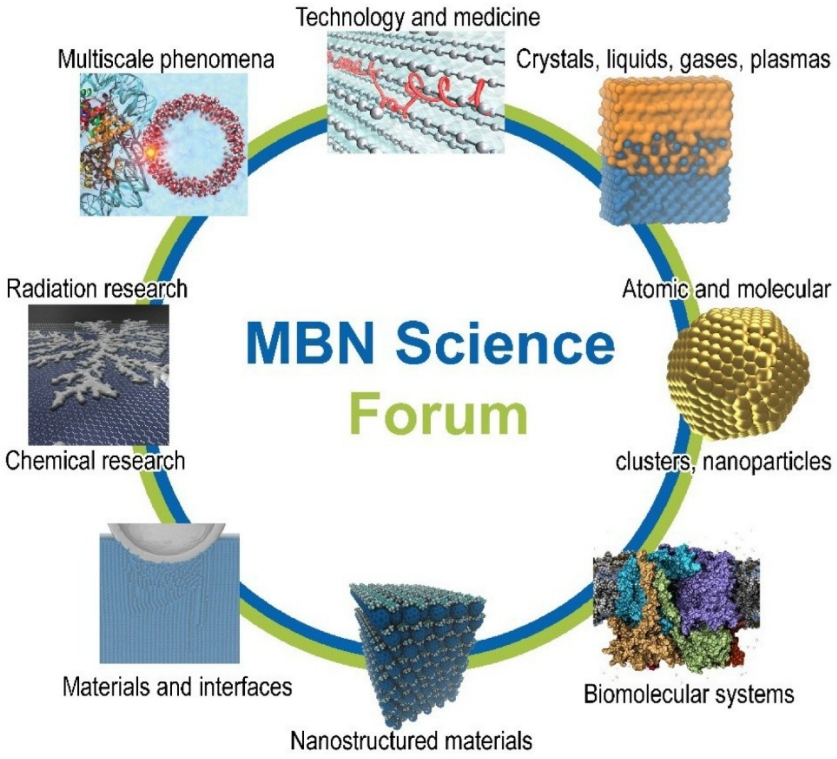
Meso-Bio-Nano Science Forum 2026



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Carl von Ossietzky University of Oldenburg
Oldenburg, Germany

31 August – 4 September 2026

Second Announcement

Scope

The inaugural **Meso-Bio-Nano (MBN) Science Forum 2026** will take place from **31 August to 4 September 2026** in Oldenburg, Germany. The event is organized jointly by the Carl von Ossietzky University of Oldenburg (Oldenburg, Germany) and the MBN Research Center (Frankfurt am Main, Germany).

The Meso-Bio-Nano (MBN) Science Forum is founded upon the successful development of the interdisciplinary research area known as MBN Science, which lies at the intersection of physics, chemistry, biology, and materials science. MBN Science studies the structure formation and dynamics of animate and inanimate matter at the nano- and mesoscales up to the macroscales. Research in this area brings together many traditional topics and methods in theoretical physics and chemistry with problems in life sciences and materials research under a common theme. Although mesoscopic, nano- and biomolecular systems often differ in their nature and origin, many fundamental problems and topics are common to all of them. The variety of topics in this research area is very wide and growing rapidly, facilitating the development of relevant novel theoretical and computational tools and methods.

MBN Science has many links to atomic and molecular physics. In particular, it involves theoretical and computational methods, such as many-body theory, density functional theory, and collision theory, as well as many algorithms that were originally developed for simulating atomic and molecular properties and were later generalised to larger-scale simulations. Similarly, experimental methods, which have shifted more and more from gas-phase experiments involving single atoms and simple molecules to experiments on more sophisticated molecular and condensed matter systems, while maintaining atomic or, at least, nanoscopic resolution.

The theoretical and computational developments in MBN Science are of great importance to the entire research community, leading to new ideas and predictions, revealing new phenomena, and opening up new research horizons. These developments lead to new ideas and predictions, revealing new phenomena, and opening up new research horizons. This can be seen from the development of the field over the past two and a half decades. This development has largely been driven by the European projects and initiatives, which were initiated and coordinated by the team of the MBN Research Center.

The MBN Research Center conducts an extensive programme of cutting-edge research. This is largely based on the use of the Centers's own state-of-the-art, universal, and powerful software packages, MBN Explorer and MBN Studio, which are designed for advanced scientific research and computational modelling of the molecular structure and dynamics of complex MBN systems.

The MBN Research Center team has long been the main driving force behind the organisation of the conference series "International Symposia on Atomic Cluster Collisions (ISACC)" and "Dynamics of Systems on the Nanoscale (DySoN)".

The ISACC conference series was launched in 2003, and twelve ISACC conferences have been held to date. Initially, ISACC focused mainly on the dynamics of atomic clusters, particularly in atomic cluster collisions. Since then, however, its scope has significantly broadened to encompass the dynamics of nanosystems, biomolecules and macromolecules, with a particular focus on the similarities between clustering phenomena in various fields of physics, chemistry, and biology.

During the ISACC conferences, it became clear that there was a need for an interdisciplinary conference covering a wide range of topics related to the dynamics of nanoscale systems. As a result, the DySoN conference series was launched in 2010, and eight DySoN conferences have been held so far.

However, it has become increasingly apparent that the MBN Science area is expanding beyond the scope of the well-established DySoN and ISACC conference series. Therefore, it has been decided that, from 2026 onwards, the MBN Science Forum will encompass the entire relevant research area, including the following topics:

- Structure and dynamics of atomic and molecular clusters, and nanoparticles
- Structure and dynamics of biomolecular systems
- Clustering, self-organization, phase and morphological transitions on the nanoscale
- Nanostructured materials, surfaces and interfaces
- Reactivity and nanocatalysis
- Photon, electron and ion-induced collisions with molecular and cluster systems

- Fusion, fission, and fragmentation processes
- Radiation-induced chemistry
- Irradiation-driven transformations, damage and fabrication of MBN systems
- Propagation of particles through media
- Clusters and biomolecules in external fields: electric, magnetic, laser, etc.
- Cluster and biomolecular research with free-electron lasers
- Biomedical and technological applications of radiation
- Related technologies: novel light sources, controlled nanofabrication, functionalized materials, etc.

Due to the large and growing number of topics, each new MBN Science Forum event will focus on a specific selection of topical highlights, such as ISACC, DySoN, radiation damage, and applications of MBN Science in technology and medicine. This list of topics is not exhaustive, and other relevant research areas may be added in the future.

MBN Science Forum 2026

The MBN Science Forum 2026 will focus on the topics related to ongoing European research projects:
- MSCA Doctoral Network "MultiScale phenomena in Radiation Damage" (MS-RADAM),
- Staff Exchanges project "Post-irradiation multiscale dynamics of materials" (PRISMA), and
- COST Innovators Grant "INnovative DIgital COntrol for 3D Nanoprinting" (INDICO).

These topics are closely bundled with theoretical, experimental, computational, and technological research in the aforementioned areas and have traditionally been discussed at the DySoN conferences.

Topics of the MBN Science Forum 2026:

DySoN-related topics:
- Structure and dynamics of Meso-Bio-Nano systems
- Nanostructured materials, surfaces and interfaces
- Reactivity and nanocatalysis

MS-RADAM-related topics:
- Radiation-induced phenomena with biomolecular and biological systems
- Mechanisms of nanoparticle radiosensitization
- Biomedical and technological applications of radiation

PRISMA-related topics:
- Irradiation-driven dynamics of condensed matter systems induced by photon, electron and ion beams
- Radiation-induced phenomena in materials induced by relativistic electrons

INDICO-related topics:
- Electron and ion irradiation-driven chemistry behind nanofabrication processes
- Controlled nanofabrication and 3D-nanoprinting with focused charged particle beams

Important Dates

Distribution of the first announcement	April 08, 2026
Distribution of the second announcement	May 27, 2026
Distribution of the final announcement	July 15, 2026
Deadline for early-bird registration	**June 15, 2026**
Deadline for abstract submission	**July 01, 2026**

Preliminary Conference Program

The scientific program of the MBN Science Forum 2026 will consist of interdisciplinary sessions, including invited lectures, review talks and progress reports. A number of hot topic reports will be selected from the submitted abstracts. Suggestions for possible candidates for invited speakers should be sent to the Chairman of the conference.

Monday, 31 August (DySoN-related sessions)

08^{00} – 09^{15}	**Participants registration**
09^{15} – 09^{30}	**MBN Science Forum 2026 Opening**
09^{30} – 18^{00}	**Scientific sessions (presentations)**
19^{00} – 21^{00}	**Welcome reception**

Tuesday, 1 September (INDICO- & PRISMA-related sessions)

09^{30} – 18^{00}	**Scientific sessions (presentations)**

Wednesday, 2 September (INDICO- & PRISMA-related sessions)

09^{30} – 16^{00}	**Scientific sessions (presentations)**
16^{00} – 18^{00}	**Excursion through Oldenburg**

Thursday, 3 September (MS-RADAM-related sessions)

09^{30} – 18^{00}	**Scientific sessions (presentations)**
19^{00} – 22^{00}	**Conference dinner**

Friday, 4 September (MS-RADAM related sessions)

09^{30} – 13^{00}	**Scientific sessions (presentations)**
13^{00} – 13^{15}	**MBN Science Forum 2026 Closing**

Confirmed Speakers

Richard Amos, Dept. of Medical Physics and Biomedical Engineering, University College London, UK
Improving ion beam cancer therapy to increase the therapeutic index

Bobby Antony, Department of Physics, Indian Institute of Technology (ISM), Dhanbad, India
Electron and positron scattering from molecular and radical ions

Gérard Baldacchino, Université Paris-Saclay, CEA, Gif-sur-Yvette, France
Fluorescence changes of Eu nanoparticles in proton Bragg peak

Sadia Bari, Deutsches Elektronen-Synchrotron DESY, Hamburg, Germany
Watching biomolecules in action: Structure, function, and radiation damage

José María De Teresa, Instituto de Nanociencia y Materiales de Aragón, Zaragoza, Spain
Growth of functional nanostructures through the decomposition of spin-coated metalorganic films by Focused Electron and Ion Beams

Brendan Dromey, Centre for Light Matter Interactions, Queen's University Belfast, United Kingdom
Direct capture of the solvated electron lifecycle in water under extreme proton dose-rates

Martin Falk, Institute of Biophysics, Czech Academy of Sciences, Brno, Czech Republic
Surprisingly complex multifactorial mechanism of metal nanoparticle-mediated radiosensitization

Felipe Fantuzzi, University of Kent, Canterbury, United Kingdom
Quantum interference analysis of nucleobase tautomerism: Towards a descriptor for radiation-relevant biomolecular chemistry

Amalio Fernández-Pacheco, TU Wien, Vienna, Austria
3D printing of magnetic nanostructures by focused electron beam induced deposition

Luca Gerhards, Carl von Ossietzky University Oldenburg, Germany
Multiscale spin dynamics problems in complex systems – Challenges and solutions in theory

Vincenzo Guidi, University of Ferrara, Italy
A multi-scale characterization strategy for the design of innovative nanostructured materials for gas sensing

Remco Havenith, Stratingh Institute for Chemistry & Zernike Institute for Advanced Materials, Groningen, the Netherlands
Computational design of radiopharmaceuticals

Michael Hausmann, Kirchhoff-Institute for Physics, Heidelberg University, Germany
Self-organization of chromatin networks on the meso- and nano-scale after ionizing radiation attacks

Oliver Jäkel, German Cancer Research Center (DKFZ), Heidelberg, Germany
Helium ion beams for radiotherapy at HIT

Katja Höflich, Ferdinand-Braun-Institut, Berlin, Germany
Magic in a liquid: Localized electrochemical deposition for the fabrication of metallic microstructures

Ulrich Kleinekathöfer, School of Science, Constructor University, Bremen, Germany
Multiscale simulation of light harvesting in plants and algae: Effects of intrinsic electric fields

Jaroslav Kočišek, J. Heyrovský Institute of Physical Chemistry, Czech Academy of Sciences, Prague, Czech Republic
Radiation damage to well defined DNA sequences using DNA origami

Andrei Korol, MBN Research Center, Frankfurt am Main, Germany
TBA

Gergő Lakatos, HUN-REN Institute for Nuclear Research (Atomki), Debrecen, Hungary
Radiation chemistry of Iron Pentacarbonyl ices: Structure and temperature related effects

Julie Lascaud, Dept. of Medical Physics, Ludwig-Maximilians-Universität München, Munich, Germany
Toward ionoacoustics-based dosimetry for treatment monitoring in radiotherapy

Nathalie Lidgi-Guigui, LSPM - CNRS / Université Sorbonne Paris Nord, France
From SERS (Surface Enhanced Raman Scattering) to PIERS (Photo Induced Enhanced Raman Scattering)

Christoph Lienau, Carl von Ossietzky University Oldenburg, Germany
Ultrafast charge carrier dynamics in cryptochrome proteins and their implicatons for radical pair formation

Hubertus Marbach, Zeiss SMT, Rossdorf, Germany
How to repair lithographic masks with molecules and electrons: basics of the Zeiss MeRiT product family

Nigel Mason, University of Kent, Canterbury, United Kingdom
Ion irradiation-induced dynamics within molecular thin films: New data reveal new phenomena

Tommaso Mazza, European XFEL, Schenefeld, Germany
Morphology of tungsten oxide clusters: a comparison between time-resolved x-ray scattering and molecular dynamics

Lisa McElwee-White, Department of Chemistry, University of Florida, Gainesville, USA
Electron- and ion-induced chemistry of $Fe(CO)_4$(alkene) complexes: Implications for FEBID and FIBID

Andy Nisbet, Dept. of Medical Physics and Biomedical Engineering, University College London, UK
Developments in micro and nano dosimetry for radiotherapy

Ramon Ortiz, University Medical Center Groningen, Groningen, the Netherlands
Preclinical particle therapy research at PARTREC: Towards multiscale radiobiological modeling within MS-RADAM

Pietro Pisciotta, University Medical Center Groningen, Groningen, the Netherlands
Model-based selection in radiation oncology: Clinical practice in the Netherlands and future perspectives

Kate Ricketts, Division of Surgery and Interventional Science, University College London, UK
Nanoparticle enhanced radiotherapy: Mapping and Mechanisms

Thomas Schlathölter, Zernike Institute for Advanced Materials, University of Groningen, the Netherlands
Soft X-ray induced processes in gas-phase protonated serine clusters

Christian Schneider, Carl von Ossietzky University Oldenburg, Germany
Magneto-optics of strongly coupled many-body quantum systems

Cécile Sicard-Roselli, Institut de Chimie Physique, University Paris Saclay, France
Metallic nanoparticle interaction with ionizing radiations: Impacts and benefits

Andrey Solov'yov, MBN Research Center, Frankfurt am Main, Germany
TBA

Hidetsugu Tsuchida, Quantum Science and Engineering Center, Kyoto University, Japan
Energy loss of heavy ions in liquid water using a liquid sheet target

Ivo Utke, EMPA, Thun, Switzerland
The fate of ligands from metalorganic molecules in e-nanoprinting

Alexey Verkhovtsev, MBN Research Center, Frankfurt am Main, Germany
TBA

Andrew Wheatley, Yusuf Hamied Department of Chemistry, University of Cambridge, United Kingdom
Photocatalytic chemical synthesis by metal(loid)-doped porous composites

Illia Zymak, ELI Beamlines, The Extreme Light Infrastructure ERIC, Dolní Břežany, Czech Republic
ELBA Beamlines parameters with positron production/guiding options

Registration

All conference participants should register on the dedicated webpage of the MBN Science Forum website.

The **early-bird** registration fee for the MBN Science Forum 2026 conference is **400€** for students and **500€** for regular participants. After the early-bird registration deadline of **15 June 2026** the conference fee will increase to **500€** for students and **600€** for regular participants.

The registration fee includes coffee breaks, lunches, the conference reception, and the conference dinner.

There will be a separate fee for accompanying persons, which will cover the conference reception and dinner. Please contact the conference organisers (team@mbn-science-forum.org) for further information regarding accompanying persons.

The payment to the order of "MBN Science Forum 2026" 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 **MBN Science Forum 2026** on the transfer. Please ensure there are no charges to the organisers. If you need an invoice for the payment or want to pay with a credit card, please send a short email to isolovyeva@mbn-science-forum.org.

Conference Venue

The MBN Science Forum 2026 will be held at the Carl von Ossietzky University of Oldenburg.

The venue will be the "W32 - Experimentierhörsaal building" (Experimental lecture theater), see the photo to the right.

The address of the venue is:
Küpkersweg 48, 26129 Oldenburg, Germany

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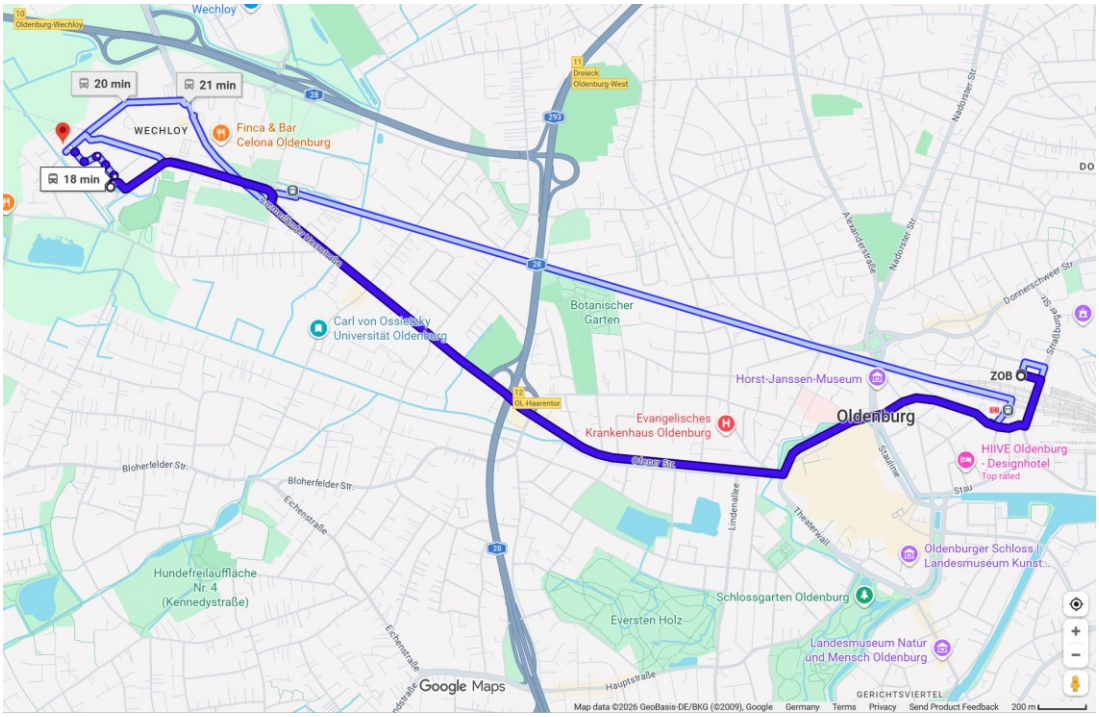
Location of the "W32 – Experimentierhörsaal" building on the Campus Wechloy of the University:

Oldenburg is a vibrant university city in Lower Saxony – the northwestern part of Germany, located about 45 km west of Bremen, roughly 170 km northwest of Hamburg, and around 50 km from the North Sea coast. The city is easily accessible via major transport routes: the nearest international airport is Bremen Airport (approximately 50 km), while larger hubs such as Hamburg Airport offer extensive global connections. Oldenburg is well connected by rail, with frequent regional and intercity services linking it to Bremen, Hamburg, and other major German cities, making travel convenient for conference participants.

Historically, Oldenburg served as the residence of the Counts, later Grand Dukes, of Oldenburg and retains a rich cultural heritage reflected in its neoclassical architecture, museums, and landmarks such as the Oldenburg Palace and the Lappan tower.

Travel Information



The conference venue can be conveniently reached from the Oldenburg city center by public transport (**Bus 306** and **Bus 310**). The bus ride from the stop "Oldenburg ZOB" to the stop "Uni/Campus Wechloy" takes approximately 15 minutes (see the map above).

Accommodation

A number of hotel rooms have been pre-booked for conference participants in the two following hotels:

Hotel Hermes (12 single rooms):

- The rooms are pre-booked for the dates from 31 August to 04 September 2026. Five rooms can be extended upon request.
- Price: €99/€109 incl. Breakfast
- The address of the hotel is: **Ankerstraße 19, 26122 Oldenburg**. The hotel is located right next to the Oldenburg main train station (Oldenburg Hauptbahnhof). The conference venue can be easily reached using Bus 306 (operates every 15 minutes) from the train station.

Hotel Sprenz (10 single rooms):

- The rooms are pre-booked for the dates from 30 August to 04 September 2026.
- Price: €128 incl. Breakfast
- The address of the hotel is: **Heiligengeiststraße 15-16, 26121 Oldenburg**. The hotel is located 300 m walk from the Oldenburg train station. From there, the university can be reached by Bus 306 (operates every 15 minutes).

!! Reservations at both hotels should be made using the keyword "Dyson26" before 15 June 2026.

!! Reservations should only be made by email (Hotel Hermes: oldenburg@hermes-hotels.de ; Hotel Sprenz: reservierung@hotel-sprenz.de**); no online reservations are possible.**
All guests are self-paying and will receive an invoice.

There are many other hotels and guest apartments spread across Oldenburg. These lodging options can be booked e.g. via booking.com.
!! **The organisers strongly recommend that conference participants book their accommodation as early as possible.**

Abstract Submission

Abstracts should be submitted electronically not later than **July 01, 2026**. Please send your abstracts to team@mbn-science-forum.org with the title "MBN Science Forum 2026 Abstract".

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 only accept files in the MS Word document (.docx) format.

Financial Support via COST

The COST Innovators Grant INDICO provides financial support to reimburse some of the conference participants for their expenses related to their participation in the conference. 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. 82-90).

The number of participants to be reimbursed is limited by the CIG INDICO budget allocated for this meeting. In order to be reimbursed, you must receive an official invitation through e-COST indicating that you are eligible for the reimbursement. Invitations will be sent to conference participants who have completed the registration and paid the registration fee.

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.
- Your stay in Germany 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 (max. 2 days can be reimbursed), as confirmed by your signature on the official attendance list, plus partial DA on travel days (travel to the event and departure from the event).

Official Invitation and Visa

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

Organizing Committee

- Andrey Solov'yov (MBN Research Center) – **Co-Chair**
- Ilia Solov'yov (Carl von Ossieztky University of Oldenburg) – **Co-Chair**
- Elzbieta Chojnowski (Carl von Ossieztky University of Oldenburg)
- Khilola Kamolova (MBN Research Center)
- Jorim Kornblueh (Carl von Ossieztky University of Oldenburg)
- Irina Solovyeva (MBN Research Center, Germany)
- Alexey Verkhovtsev (MBN Research Center, Germany)

MBN Science Forum 2026 International Advisory Committee

- Andrey V. Solov'yov (MBN Research Center, Frankfurt, Germany) – **IAC Chair**
- José María De Teresa (Instituto de Nanociencia y Materiales de Aragón, CSIC, Zaragoza, Spain)
- Martin Falk (Institute of Biophysics of the Czech Academy of Sciences, Brno, Czech Republic)
- Juraj Fedor (J. Heyrovský Institute of Physical Chemistry, Prague, Czech Republic)
- Nigel Mason (University of Kent, Canterbury, United Kingdom)
- Thomas Schlathölter (University of Groningen, The Netherlands)

Sponsors

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

- MBN Research Center gGmbH
- The Carl von Ossietzky University of Oldenburg
- COST Innovators Grant project IG20129 "INDICO"
- Horizon Europe MSCA Doctoral Network project "MS-RADAM"
- Horizon Europe Staff Exchanges project "PRISMA"

Contact Information

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MBN Science Forum Website

General information about the MBN Science Forum, as well as up-to-date information about the MBN Science Forum 2026, can be found on the website: https://www.mbn-science-forum.org/.

E-mail for inquiries

team@mbn-science-forum.org