cost
EUROPEAN COOPERATION
IN SCIENCE & TECHNOLOGY

EU4MOFs

# COST Action CA22147

# Combining research and development to promote technological solutions

# Biannual newsletter

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# About EU4MOFs Action

Read more

**EU4MOFs** is a COST Action (CA22147) that aims to efficiently transform lab-designed metal-organic frameworks (MOFs) into practical solutions for healthcare, clean water, and sustainable energy.

The EU4MOFs network brings together 41 experts from 20 COST full-member countries and 2 international partnered countries. Our multidisciplinary team spans chemistry, materials engineering, physics, nanotechnology, medicine, and biology. Together, we are shaping the future of MOF materials for high-need applications.

EU4MOFs integrates European and international expertise to address the engineering, evaluation, optimization, and market assessment of nano-to-macroscale MOF materials in five working groups.

## Our objectives:

- Enhancing production processes for MOFs
- Developing controllable and scalable manufacturing methods
- Establishing clear and standardized publication guidelines
- Elucidating structure-activity relationships to improve material design
- Strengthening collaboration between industry and academia to drive innovation

- **300+ action members**
- **59 management committee**
- **40+ institutions**
- **20+ countries**
- **15+ partner companies**
- **14 core group members**
- **5 working groups**

**500+ followers**

**2000+ followers**

# Welcome

Dear EU4MOFs community,

As we conclude the second year of our Action, we are pleased to share this biannual newsletter reflecting on our progress, key milestones, and upcoming plans. It has been a productive period marked by rich collaboration across countries.

A central priority moving forward is the further strengthening of the interconnection between academia and industry. We are committed to translating scientific excellence into real-world impact, fostering knowledge exchange, and creating opportunities for meaningful engagement with industrial partners. This focus will be strongly reflected in our forthcoming activities and events, including the upcoming meeting in Copenhagen and the next Management Committee meeting in Brussels, where academia–industry dialogue and collaboration will be further promoted.

We extend our sincere thanks to all members, early-career researchers, industry partners, and stakeholders for your commitment.

In this issue, you will find highlights from our events, research advances, capacity-building efforts, outreach activities, and glimpses into Year 3 priorities. We hope it offers both insight and inspiration.

Warm wishes,

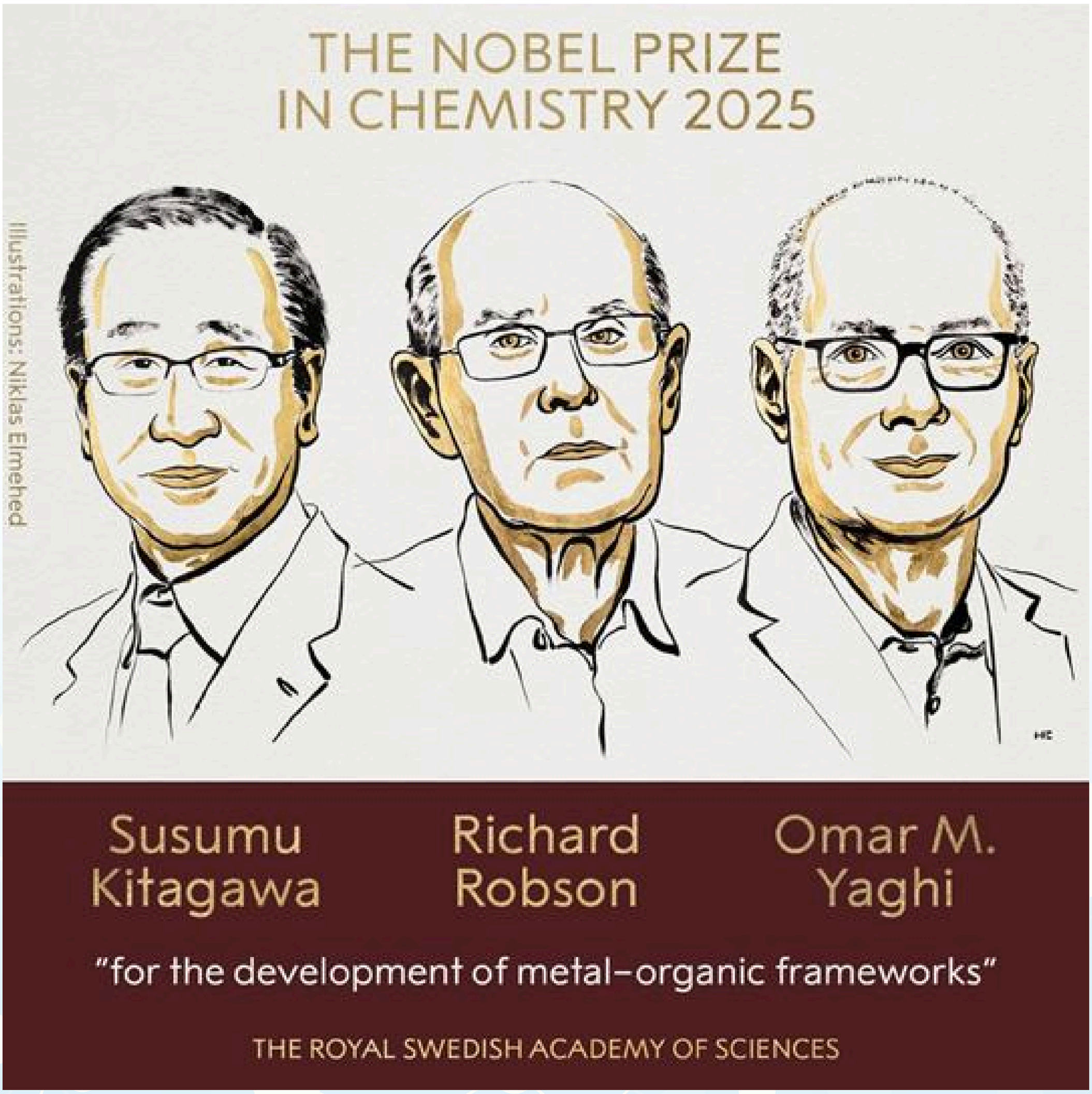
**Prof. Stefan Wuttke**
**Action Chair**

**Dr. Romy L. Ettlinger**
**Action Vice Chair**

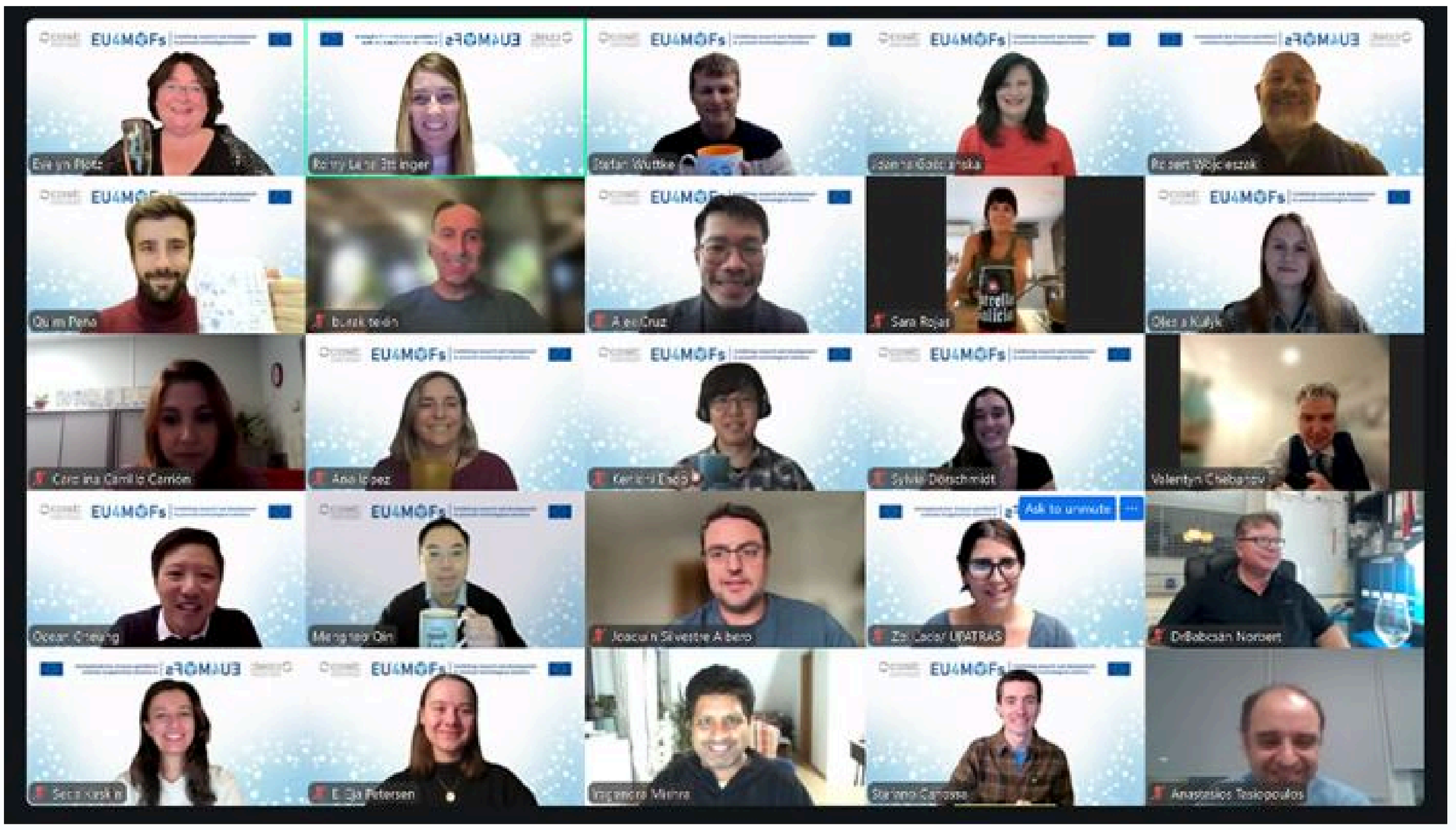
# Nobel Prize in Chemistry 2025

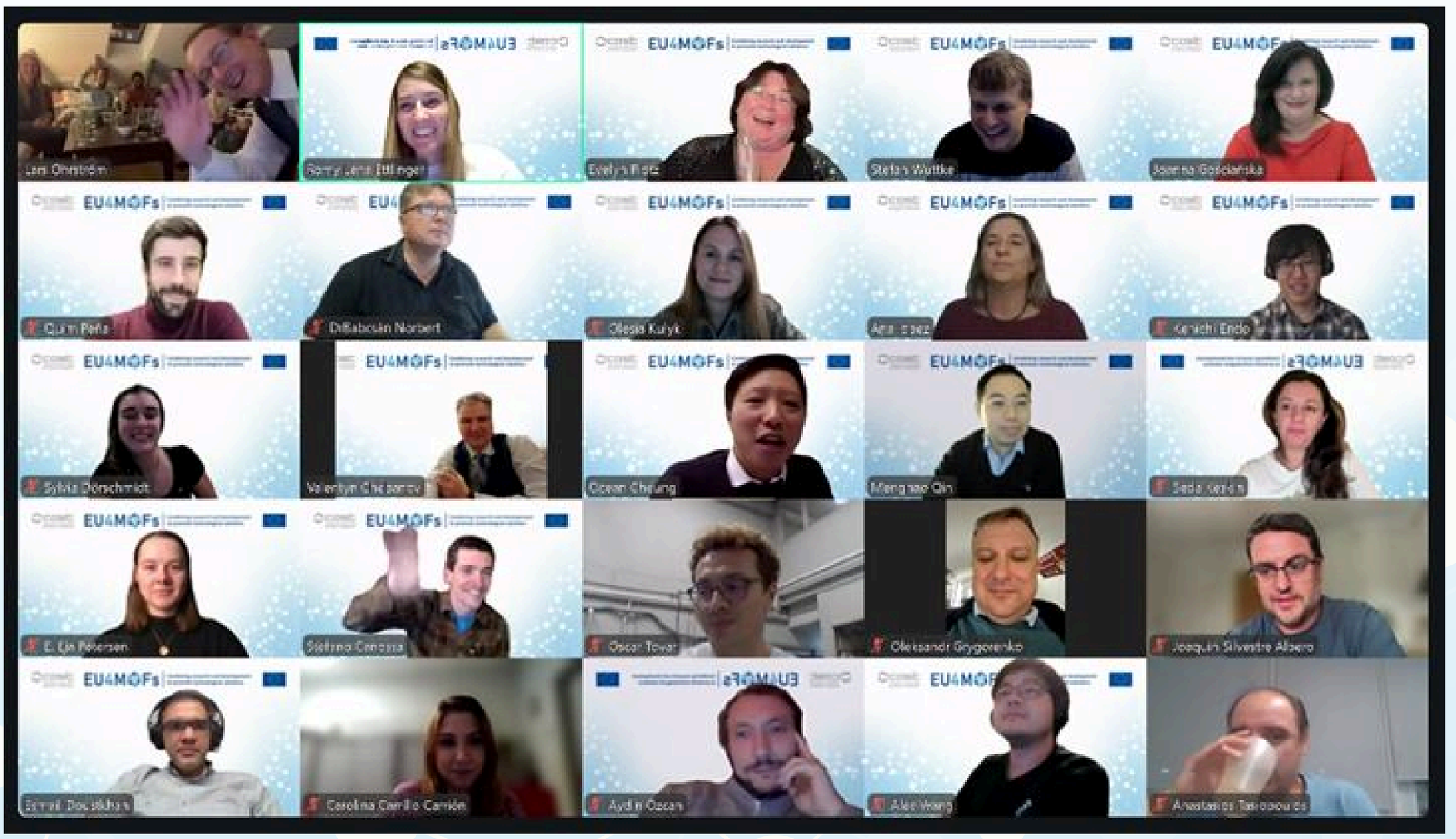
## A Landmark Moment for the MOF Community

The **2025 Nobel Prize in Chemistry** has been jointly awarded to **Susumu Kitagawa** (Kyoto University, Japan), **Richard Robson** (University of Melbourne, Australia), and **Omar M. Yaghi** (University of California, Berkeley, USA) for their pioneering development of metal–organic frameworks (MOFs). Their visionary contributions laid the conceptual and experimental foundations of an entire field that continues to grow at remarkable speed.



For the **EU4MOFs COST Action community**, this award is deeply inspiring. It honors the very foundations on which our network is built and reaffirms the central role of MOF research in redefining the frontiers of innovation across chemistry, physics, and engineering. This milestone was marked by a warm and lively online celebration within the EU4MOFs network, bringing together members from across Europe to collectively celebrate this historic achievement.





# Nobel Week 2025

## Stockholm, 6–12 December 2025

Read more on our website

Our community was actively represented during Nobel Week 2025 in Stockholm (6–12 December 2025). **Stefan Wuttke**, Vice Chair of the EU4MOFs COST Action, attended the Nobel Prize lectures and engaged in scientific discussions with leading researchers, representing our network at this historic event. In parallel, **Romy L. Ettlinger**, Action Vice Chair, together with **Stefan Wuttke**, participated in the commemorative symposium “A Celebration of MOFs and the Nobel Prize in Chemistry 2025”, where the scientific impact of MOFs and future directions of the field were highlighted.

Together, these moments reflect both the global significance of MOF science and the strong presence of the EU4MOFs community at the heart of this landmark achievement.

# Scientific progress within WGs

# WG1

## MOF Synthetic Protocols and Optimisation

The working group aims to develop sustainable, efficient, and scalable strategies for the synthesis and functionalization of MOF materials across different size ranges, from nanoparticles to macroscopic 3D structures. Group members identify and evaluate existing protocols, select representative MOFs for different applications, and promote greener, faster, and higher-yield synthesis methods, supported by computational modelling tools.

**More about WG 1**

## Scientific progress

WG1 has focused on improving reproducibility in MOF synthesis through coordinated Round Robin testing involving over 30 laboratories worldwide. A key achievement is the development of the Material Preparation Information File (MPIF), a standardised, machine-readable format for reporting synthesis conditions. The group also expanded the MOF Universe into a global interactive map, strengthening visibility and collaboration across the community.

**View full report on our website**

**Prof. Dariusz Matoga**
**WG1 Leader**

**Dr. Anna Sinelshchikova**
**WG1 Co-Leader**

# WG2

## MOF Processing, Manufacturing, and Upscaling

WG 2 focuses on customizing, processing, and manufacturing MOFs into usable materials, shapes and devices over a wide range of scales. Challenges in processing of MOF are related to their ultrahigh surface area, porosity and the hybrid organic-inorganic crystalline structures. Work in this field is therefore motivated by the need to maintain the crystalline framework properties while ensuring the ability to adapt and apply the required manufacturing technologies with good reproducibility and scalability.

**More about WG2**

## Scientific progress

WG2 is addressing the challenge of translating MOFs into practical shapes and devices. Through surveys and workshops, the group identified shared issues such as scalability, solvent use, and property retention during shaping. These activities are guiding future efforts in standardisation, industry engagement, and hands-on training for MOF processing and manufacturing.

**View full report on our website**

**Prof. Thomas P. Burg**
**WG2 Leader**

**Dr. Andreas Kaiser**
**WG2 Co-Leader**

# WG3

## MOF Characterization and Performance Evaluation

The activities of WG3 focus on the characterization and standardization of MOFs across three length scales, with the specific aim of evaluating the performance of MOFs developed for cancer nanomedicine and drug delivery (nanoscale), energy-storage batteries (mesoscale), and wastewater purification (macroscale). A key aspect of WG3's work is ensuring batch-to-batch reproducibility and sustainability, alongside a rigorous assessment of physicochemical properties and application-specific performance metrics.

**More about WG3**

## Scientific progress

WG3 has led large-scale Round Robin studies to benchmark key characterisation techniques across the MOF community. Involving around 40 laboratories, these efforts have provided valuable insights into interlaboratory variability and best practices. WG3 also contributed to the development of MPIF and promoted EU4MOFs activities at major international conferences.

**View full report on our website**

**Dr. Evelyn Ploetz**
**WG3 Leader**

**Dr. Bettina Baumgartner**
**WG3 Co-Leader**

# WG4

## MOF Computational Tools and Machine Learning

WG4 focuses on the predictive design of MOFs by integrating high-throughput computational screening and machine learning tools to address the complexity arising from the vast number of reported MOF structures and the lack of standardized, application-oriented databases. The WG4 aims to establish structure–property–performance relationships across nano-, meso-, and macroscopic scales, enabling reliable prediction of MOF behavior.

**More about WG4**

## Scientific progress

WG4 advances computational modelling and machine-learning approaches for MOF research. Highlights include an international training school on AI and computational tools and the publication of a high-impact JACS perspective on AI paradigms for porous materials. Ongoing efforts focus on linking modelling, data, and experiments through shared databases.

**View full report on our website**

**Dr. İlknur Erucar Findikci**
**WG4 Leader**

**Prof. George E. Froudakis**
**WG4 Co-Leader**

# WG5

## Industrial Networking and MOF Market Assessment

The main objective of WG5 is to analyze and compile a comprehensive data package about the technological and market potential of MOFs for cancer nanomedicine, energy storage, water and air purification, including strengths and weaknesses that will help attract future investors. With a rapidly evolving and growing community, the WG5 ensure the dissemination of research and technologies for the benefit of European researchers and enterprises, as well as the public.

**More about WG5**

## Scientific progress

WG5 has strengthened connections between academia and industry, with 18 companies actively involved in the Action. A flagship academia–industry meeting fostered exchange through talks, networking, and roundtable discussions. The group continues to support innovation, funding initiatives, and dissemination of MOF technologies.

**View full report on our website**

**Companies**

**Prof. Joanna Gościańska**
**WG5 Leader**

**Dr. Robert Wojcieszak**
**WG5 Co-Leader**

# Networking activities

# Kick-off Management Committee Meeting

## Brussels, Belgium, November 2, 2023

The meeting, chaired by Prof. Stefan Wuttke, established the Action's strategic goals and organizational framework. During the session, the leadership positions and core team were appointed, setting the foundation for effective coordination across working groups. The event marked the start of a strong European network dedicated to advancing MOF research in medicine, water treatment, and energy.

# 1st Hybrid EU4MOFs Symposium and Workshop on MOFs for Medicine, Water Treatment and Energy; MC Meeting

## Bilbao, Spain, June 6-7, 2024

Read highlights on our website

The event brought together over 140 participants from more than 20 countries. The event featured inspiring keynote lectures and sessions on MOFs for medicine, energy, and water treatment. Workshops led by WG1 and WG2 promoted collaboration on reproducible synthesis, processing, and manufacturing of MOFs. Overall, the Bilbao meeting marked a significant step forward for EU4MOFs in fostering innovation and cooperation in the field of MOFs.

# Training School on Synthesis Protocols and Standardization of MOFs

## Munich, Germany, 11 October 2024

Read highlights on our website

The Training School brought together over 60 researchers to tackle one of the key challenges in the field: reproducibility in MOF synthesis. The event focused on identifying essential parameters for consistent synthesis, ensuring material quality, and developing standardized methodologies through a round robin study. Participants took part in hands-on sessions and expert-led discussions, contributing to the establishment of reliable synthesis protocols that will enhance the reproducibility and impact of MOF research across Europe.

# Training School on MOF Computational Tools, Machine Learning, and Databases

## Istanbul, 14-15 October 2024

Read highlights on our website

The Training School gathered together around 60 participants to explore how computational tools and machine learning (ML) are advancing MOF research. Invited talks by distinguished specialists in the field of porous materials covered topics from ML potentials and MOF flexibility to deep learning (DL), open data, and AI-assisted material discovery. Hands-on sessions provided training in gas adsorption simulations, ML/DL workflows, and polymer modelling. The event fostered collaboration between experimental and theoretical researchers.

# EU4MOFs Working Group, Core Group, and Management Committee meetings

## Brussels, 27–28 February 2025

Read highlights on our website

**The WG meeting** on February 27 focused on advancing collaboration, standardization, and innovation within the MOF community. Breakout sessions addressed standardization, scale-up, and performance modelling, further strengthening collaboration across the network.


The **Core Group** and **Management Committee meeting** on February 28 reviewed progress and set priorities for upcoming activities. Science Communication Coordinator highlighted dissemination initiatives, while Working Group leaders outlined research achievements and next steps. The meeting marked another step forward in reinforcing EU4MOFs' commitment to innovation and cooperation across Europe's MOF community.

# EU4MOFs Meeting: Bringing Academia and Industry Together

## Kraków, 26-27 June 2025

Read highlights on our website


The EU4MOFs meeting brought together over 50 participants from academia and industry. Through insightful presentations, company showcases, and dynamic discussions, participants explored the latest scientific breakthroughs, commercialization strategies, and collaborative opportunities.

The event highlighted advances in bio-applications, AI-optimized synthesis, and reproducibility, alongside an industry showcase featuring leading companies in the field of porous materials. Special emphasis was placed on supporting young scientists by providing platforms for presenting their innovative research and connecting them with industry partners.

Overall, the meeting reinforced EU4MOFs' mission to unite academia and industry, driving the translation of MOF research into impactful real-world applications.

## 9th International Conference on MOFs and Open Framework Compounds

### Singapore, 15-19 July, 2024

Read more on our website

## 4th International School on Porous Materials: MOFschool2025

### Italy, 16-20 June 2025

Read more on our website

## EuroMOF2025

### Heraklion, 21-24 September, 2025

Read more on our website

# STSMs, VMs, YRIGs and ITC grants

# STSMs, VMs, YRIGs and ITC grants

Over the past two years of the EU4MOFs COST Action, remarkable progress has been made in supporting researcher mobility and collaboration:

**25 Young Researcher and Innovator Grants (YRIGs)**

**YRIGs** enabled participation in the EuroMOF2025 Young Scientist Symposium (Greece), the 1st Thermochemical Materials Summer School under the European Energy Research Alliance (EERA) – Energy Storage, the 2nd Mediterranean Conference on Porous Materials (Morocco), and the 19th International Symposium on Macrocyclic and Supramolecular Chemistry (ISMSC2025, Japan).

**11 Short-Term Scientific Missions (STSMs)**

**6 Virtual Mobility (VM) Grants**

**3 Inclusiveness Target Country Grants (ITCG)**

Read more about grants on our website:

**More about STSMs** | **More about VM Grants** | **More about ITC Grants**

# Symposium of STSM and VM Grantees

## Online, 23 October 2025


On 23 October 2025, over 50 EU4MOFs members joined the Online Symposium of STSM and VM Grantees to celebrate the achievements of researchers supported through STSMs and VM Grants.

These programs are vital for fostering collaboration, training, and open science across Europe, enabling researchers to share expertise and build lasting partnerships within the MOF community.

During the symposium, grantees reflected on how these opportunities have shaped their research, supported new collaborations, and inspired future projects.

**Read more on our website**

# Ongoing initiatives

## Catch up and stay connected with us

We’re building more ways for the MOF community to share ideas, data, and conversations across borders:

### MOFCast

Our podcast connecting MOF researchers worldwide through interviews, discussions, and insights.
Watch all 12 episodes of Season 1:

**MOFCast**


### MPIF

The Material Preparation Information Format, enabling reproducible and transparent data sharing.
Let’s make it part of our community practice:

**MPIF**

### MOF Universe 2.0

An evolving digital platform for collaboration, resources, and community engagement.
Connect with like-minded researchers:

**MOF Universe 2.0**

### MOFspace Webinars

Regular online events for knowledge exchange, discussion, and networking.
Watch the first two episodes:

**MOFspace Webinars**

# Upcoming events

## Training school for material processing and industry implementation

**Copenhagen - Denmark**

**26 Feb 2026** → **27 Feb 2026**

# Contacts

## Catch up and stay connected with us

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