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INNOVATION IS THE KEY.

SUSTAINABILITY LEADS THE WAY.

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Editorial

Because collaboration underpins almost every aspect of our daily lives–spanning both the business and private spheres–it rightfully demands our highest priority. True collaboration is rarely passive; it exists in a space of natural tension. Yet, when managed wisely, this very tension is what **sharpens our focus and elevates our outcomes**. While some goals can only be achieved by joining forces, we all have faced situations where it seemed impossible to get to the next step, related to barriers we cannot overcome alone. What is needed in such a situation? An "**enzyme**" capable of easing the friction, sparking momentum and support us to overcome hurdles.

It was likely this exact mindset that triggered Frank Sinner and Fritz Andreae back in 2006 when they founded the BioNanoNet Forschungsgesellschaft mbH, which is now–20 years later–known as BNN. Their vision to create a true "enabler" was well received by the province of Styria, which funded a 2-years project to launch this organization as a network. Some of you may well remember those early days. With the foundational funding, the province of Styria served as the ultimate enabler, allowing our organization to start working, to develop a profile, to establish technology platforms, and to become a community-creator/connector–or in other words the "glue" binding together like-minded scientists, researchers, and stakeholders. Today, BNN remains 100% focussed on evidence-based scientific content and is dedicated to delivering value back to our members and the entire society.

Besides the identity created during the years, we also have gained key competencies in safety and sustainability, regulatory support, scientific dissemination and outreach as well as stakeholder engagement, that allow us to be ready to drive collaboration and cooperation across the Advanced Materials and Chemicals ecosystem.

At its core, every successful collaboration relies on a shared focus on content and close partnership between scientists and technical developers. In this edition of our digital magazine, we focus specifically on "**Women in Science**." Our coverage spans Advanced Materials research, high-tech applications, medical technologies, and semiconductor material developments, as well as dissemination, communication, and stakeholder engagement to raise public awareness of science and research. This broad spectrum of competencies highlights the exceptional expertise that our members can offer you. Please let us know if you would like to be connected with our leading scientists and researchers. It will be our pleasure to be the "enzyme" that sparks future collaborations for our members and the wider community.

Sincerely,

Andreas & the BNN Team

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BNN News

BAM workshop on Advanced Materials

At a workshop on 3rd March in Gothenburg, stakeholders in advanced materials from Sweden and the EU gathered to discuss further initiatives in the field. The road ahead looks exciting, to say the least.

The Swedish BAM-project (Bridging Advanced Materials) held a workshop in Gothenburg in early March. Thirty people from industry, academia, innovation arenas and research institutes worked together to shape ideas for a future Swedish cluster of excellence in advanced materials.

It was a great day! We brought together the right people and had interesting discussions to continue the work on the direction forward for advanced materials, says project leader Johan Ek Weis.

The BAM-project is a planning project for a Swedish Cluster of Excellence in Advanced Materials, funded by the Swedish innovation agency Vinnova. The project partners are Chalmers Industriteknik, RISE Research Institutes of Sweden, KTH Ventures and THINGS, together with a large stakeholder group from industry and academia.

Here, the goal is to create an AdMa-cluster that will build on research excellence, facilitate growth for small and medium-sized enterprises and scale-up companies, increase the uptake in larger companies, reduce the time frame for innovation and development cycles, and work with policies and regulations – plus increase the teamwork among Swedish and other European AdMa-initiatives.

Advanced materials are building our future on so many levels. We believe in intensified collaboration going forward, where we build bridges between financiers, academia and industry, says Johan Ek Weis.

The workshop was attended by Eva Schillinger, who heads the European partnership IAM-I, and Andreas Falk from BNN, who heads the EU project InnoMatSyn, companies such as Saab and Oxeon, universities such as Chalmers University of Technology and Linköping University, and representatives from IVL Swedish Environmental Research Institute, Business Sweden and Sahlgrenska University Hospital, among others. Want to know more? Please contact: johan.ek-weis@chalmersindustriteknik.se.

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Open Tech Talks

On 13 April, the OpenTech Talks event examined how the microelectronics ecosystem in the Swedish region of Skåne developed, and what is required to strengthen its position in Europe's semiconductor industry.

The seminar brought together industry experts, start-up founders and regional development stakeholders, including representatives from Ericsson, who discussed their four decades of radio hardware research in Lund; BeammWave/AlixLabs, who spoke about building semiconductor start-ups in Skåne; and Region Skåne, who presented on strengthening Europe's semiconductor ecosystem through regional collaboration. The strong focus on circular advanced materials made this meeting particularly interesting for colleagues from the **ATIMA** and **InnoMatSyn** projects. Furthermore, the event provided an opportunity for European regional delegations, companies, and researchers to network and establish connections across the microelectronics value chain.

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Fachhochschulforum 2026 – Graz

On 15 and 16 April 2026, CAMPUS 02 University of Applied Sciences in Graz, became the meeting point for Austria's Universities of Applied Sciences and research community. Around 300 participants from 17 Universities of Applied Sciences and higher education institutions, gathered for the 19th Research Forum of Austrian Universities of Applied Sciences (FFH 2026), as well as representatives from academia, industry and politics.

Under the motto *"Smart Science. Better Business."*, the event focused primarily on one key aspect: the tangible benefits of applied research for business and society. The forum demonstrated how practice-oriented research at Universities of Applied Sciences can drive innovation, develop sustainable solutions, and enable scientific knowledge to be transferred into practical applications.

A total of 136 research projects were presented in the form of lectures, poster presentations, and pitches. Topics ranged from automation and data management to innovation and finance, as well as sustainability, health, and social development. Particular emphasis was placed on interdisciplinary collaborations, successful transfer models, and the question of how research outcomes can create measurable social and economic value.

A particular highlight was the session *"Leading-Edge with Impact"*, which showcased innovative research projects from programs such as the Josef Ressel Centers, EU Horizon projects, and FFG flagship projects were presented in concise pitch formats. The Research Forum therefore not only provided space for scientific exchange, but also for inspiration, visibility, and the development of new partnerships.

In addition to the scientific program, personal interaction was also central. Networking formats such as the Cooperation Café encouraged connections between researchers, companies, and institutions, creating new momentum for future collaborations.

For CAMPUS 02 University of Applied Sciences, hosting the Research Forum was a tangible demonstration of its identity as a business-oriented university with a strong focus on applied research, innovation, and knowledge transfer. The event once again emphasized the crucial role of Austrian Universities of Applied Sciences in driving regional innovation ecosystems and as bridging the gap between science and practice.

CAMPUS 02 University of Applied Sciences would like to thank all contributors, partners, speakers, and participants who helped to make the 2026 Research Forum such an inspiring and successful platform for exchange and collaboration for shaping the future.

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FORSCHUNGSFORUM DER ÖSTERREICHISCHEN FACHHOCHSCHULEN

CAMPUS 02 GRAZ
FACHHOCHSCHULE DER WIRTSCHAFT

International collaboration along all dimensions of sustainability – STS 2026 Conference

At the STS Conference in Graz (May 2026), experts convened to examine gaps in social and ethical foresight for nano–enabled technologies. The session showcased new methodologies, highlighted key challenges, and called for stronger integration of ethics into Safe and Sustainable by Design (SSbD), fostering closer collaboration between STS, ethics, and innovation communities.

During the **Science Technology Society conference (STS)** from 4 to 6 May 2026 in Graz, a specific session entitled "**Identifying gaps in social and ethical foresight methodology for nano-enabled advanced technologies**" was initiated and implemented by the co-Chairs Ineke Malsch, Carlos E. Gómez-Camacho, Fernand Doridot, and Andreas Falk. This collaboration is based on their partnership within the international cooperation group of the NSC, the so-called International Network Initiative on Safe and Sustainable Nanotechnologies (INISS-nano).

Several items were addressed and discussed during the session:

- To refine social and ethical foresight with respect to "nano-enabled advanced technologies", including (among others) Ethical Impact Assessment, Ethics by Design, Scenario Exploration Systems, and Narrative ethics.
- To demonstrate state-of-the-art social and ethical foresight methodology on key enabling technologies and advanced materials (AdMa).
- To highlight methodological weaknesses and opportunities for improvement of the methodology and its relevance to real-world impacts of AdMa and advanced technologies.
- To focus the future research agenda in Safe, Sustainable and Responsible by Design (SSRbD) of nano-enabled advanced technologies on addressing these identified weaknesses and opportunities for improvement.

The interventions included Jesse de Pagter (CSI) highlighting the BIO-SUSHY project, Andreas Falk (BNN) about the establishment of a European and international ecosystem for SSbD of AdMa in the InnoMatSyn project and ATIMA – Austrian AdMa Community, as well as long-term NSC Community with the global cooperation initiative INISS-nano. Furthermore, Ineke Malsch (Malsch TechnoValuation) pledged for incorporating ethics in a professional SSbD training programme, to stimulate anticipation by taking dreamed outcomes of research as starting point to reflect on ethical and societal implications. Carlos Gomez (EMPA) explored ways to translate ethical principles and values into the hundreds of social indicators in current LCA databases, as a way to integrate ethics and responsibility in the quantitative SSbD methodology. The final presenter, Fernand Doridot (ICAM), built on this by advocating the integration of responsibility in the SSbD framework, towards SSRbD.

It can be concluded that SSbD is not yet very visible and/or known in the STS-ecosystem, however, the colleagues attending the session showed huge interest to connect STS, ethics and RRI into the emerging SSbD framework, and more in general, to bring the STS and Ethics research communities closer to the SSbD community. A potential harbor for this ambition could be the NSC Community, Working group on SSbD as well as the international cooperation via INISS-nano.

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80th Anniversary of the Latvian State Institute of Wood Chemistry at the BTechPro2026 Conference

On 6th May, the Latvian State Institute of Wood Chemistry (LSIWC) celebrated its 80th anniversary with the event "Technology Transfer & Cooperation", which was part of the International Conference for Young Scientists on Biorefinery Technologies and Products BTechPro2026. The event was dedicated to international and intersectoral cooperation and brought together a diverse audience, from students to experts of the field, from laboratory researchers to entrepreneurs and policy makers.

The first part of the event included an opening speech by Uģis Cābulis, the Scientific Director of LSIWC, where he highlighted the institute's rich history while also outlining its vision for the future. LSIWC was happy to receive thoughtful congratulations from partners, especially, Investment and Development Agency of Latvia, LIAA (Vita Balode-Andrews), BioNanoNet Association (Andreas Falk), VTT Technical Research Centre of Finland (Mark Borrega), Kimpur polyurethane (Cahit Can Çanakçı).

The evening continued with a panel discussion, which explored various prerequisites for successful technology transfer and innovation – education and training, communication, strategy and regulation. The discussion was moderated by Kristīne Meile (LSIWC), and the panelists were Vita Balode-Andrews (LIAA), Nelo Emerencia (Bio-based Industries Consortium), Aigars Jirgensons (Latvian Institute of Organic Synthesis), and Laura Andže (LSIWC).

After the formal part, the participants engaged in an active networking at the LSIWC Pilot-Scale Hangar. Jānis Rižikovs, Chair of the LSIWC Scientific Council, introduced the guests with the opportunities provided by LSIWC's equipment for up-scaling biorefinery technologies up to TRL 4–6, and gave floor to researchers, who showcased their developed products in the EXPO of recent success stories of LSIWC's collaboration with the industry. The demonstrated products included composites, polymers, biologically active extracts, microbiological preparations, carbon materials, green chemicals, wood materials, as well as testing services.

Panel discussion, from the left: Kristīne Meile (moderator), Nelo Emerencia, Aigars Jirgensons, Laura Andže, Vita Balode-Adrews © Guntis Sosins.

“Technology Transfer & Communication” event at LSIWC © Guntis Sosins.

The anniversary event was an exciting interlude for the BTechPro2026 conference, which later on brought the participants and guests to the quiet, but beautiful town of Sigulda, where seven scientific sessions on various biorefinery technologies were held. Other highlights of the conference included useful workshops, interesting competitions, excellent plenary and keynote lectures, including, “Ecosystem thinking in the field of advanced materials” by Andreas Falk, where he highlighted the core areas and recent initiatives of BNN.

The 3rd edition of the biannual BTechPro! conference was organised by LSIWC, and it is an encouraging platform for students and postdoc level researchers to present their work (everybody speaks at BTechPro! – the format is only oral presentations). In 2026, the conference brought together 87 participants from almost 20 countries, and the program held 50 top-notch presentations. LSIWC is grateful to all participants, guests and supporters of the event, and the organisers are looking forward to new wonderful experiences and connections at BTechPro! in two years.

Andreas Falk with a speech at LSIWC © Guntis Sosins.

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BNN Supports ReachGlio with Advanced Training in Regulatory Strategy and Nanomedicine Development

As part of the European ReachGlio project, BNN delivered on June 4th and June 12th the training course *"Understanding Regulatory Pathways and Value Creation in Early-Stage Drug Development"*. The course was intended for members of the ReachGlio consortium, including biomedical researchers working on the translation of novel health technologies with the potential to address significant unmet medical needs. The training focused on regulatory and strategic aspects of early-stage innovative drug development, with particular emphasis on nanomedicines for glioblastoma treatment.

One of the main objectives of the training was to bring researchers closer to the regulatory structures and procedures governing pharmaceutical product development, with a special emphasis on nanomedicines.

The course aimed to help participants better understand the mechanisms, pathways, and support tools offered by European regulators to facilitate the translation of innovative medical technologies from research to clinical application.

ReachGlio is dedicated to the development of multifunctional nanomedicines designed to improve the delivery of antitumoral therapies to the brain to slow down the progression of glioblastoma, one of the most aggressive brain tumours and still associated with very poor clinical outcomes.

The project brings together several European research and healthcare institutions with the shared objective of advancing toward future clinical trials using nanoparticles capable of crossing the blood-brain barrier and specifically targeting tumour cells.

Within this framework, the training sessions addressed key topics related to European medicines regulation, the strategic positioning of innovative biomedical technologies, and the specific challenges linked to the development of nanomedicines and orphan drugs.

The first session, took place on June 4th at the Instituto de Salud Carlos III (ISCIII), in Madrid in a hybrid format, providing an introduction to EU medicines regulation. Topics addressed included the categorization of medical technologies, the regulatory framework for nanoparticle-based medicinal products (NBMPs), value-creation strategies for innovative biomedical products, and the key steps required to advance toward First-in-Human (FIH) studies.

The second session, scheduled on June 12th, focused on orphan drug development and the orphan designation process in the European Union. Particular attention was given to glioma as an orphan disease, including eligibility criteria, the application process to the European Medicines Agency (EMA), and the regulatory incentives and benefits associated with orphan designation.

BNN would like to thank the ReachGlio consortium for their trust and collaboration, with special acknowledgment to **Ibane Abasolo** and **Miriam Royo** from Instituto de Química Avanzada de Cataluña (IQAC-CSIC), and **Pilar Sánchez** from Instituto de Salud Carlos III for their support in the organization and development of this activity.

The training was delivered by Daniel García from BNN, an expert in regulatory strategy and early-stage biomedical development, who provides a practical perspective on the mechanisms that facilitate the clinical translation of innovations in nanomedicine.

Initiatives such as this one reinforce one of ReachGlio's main objectives: bridging advanced nanomedicine research with future clinical application by strengthening the connection between science, regulation, and therapeutic development for patients with glioblastoma.

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Anna Galler © Lunghammer - TU Graz.

GRAZ UNIVERSITY OF TECHNOLOGY

New Analysis Method for Semiconductor Materials

TU Graz physicist Anna Galler and her colleagues are conducting research on semiconductor materials using the characteristic spectra of high harmonics (light with integer multiples of the original laser frequency).

When interesting phenomena become apparent in experiments, it is often not immediately clear what they mean, why they occur and what effects they have. Theoretical researchers who get to the bottom of such questions as part of their research work can redress this. For example, Anna Galler, theoretical physicist at Graz University of Technology (TU Graz). “Colleagues from Korea approached us because they had seen exciting oscillations and peaks in the spectrum in an experiment with tungsten disulphide, but couldn’t explain why.” So the researcher set out on a quest.

Tungsten disulphide is a 2D material; in other words, it only consists of a thin layer of atoms. When a powerful laser hits this crystalline material in the infrared range, spectra are created that consist of integer multiples of the original radiation—so-called high harmonics. “We can think of it like the overtone spectra of a musical instrument,” explains Anna Galler. These spectra can provide information about the tone colour of the respective instrument – and it was assumed that the high harmonics could also reveal information about the irradiated material. “This is particularly interesting for semiconductors such as tungsten disulphide, because they are used in electronics,” explains Galler. For example, to build transistors that can be constructed on an extremely small scale and efficiently thanks to the 2D materials. “That’s why we want to find out more about the materials, for example how quickly they can switch.” This is revealed by the electrical band structure—i.e., the energy distribution of the electrons in a solid — and the movement of the electrons in the material.

Tungsten disulphide has a band gap of around two electron volts and could be controlled using light in the optical range. It also has what is known as valley selectivity. The electronic band structure basically has a characteristic shape with different valleys.

The energy gap in the band structure is smallest at the valleys and a laser can rapidly excite electrons there in a controlled manner. “This valley selectivity behaves similarly to qubits in quantum computing and could also be relevant for this.”

Researchers have now seen exciting phenomena in experiments. Depending on the intensity of the laser, there are peaks in the spectrum that split up. Oscillations also occur when the laser intensity varies. However, why the material behaved in this way was not clear. “We tried to explain these effects using various theories and were ultimately successful with the semiconductor Bloch equations,” says Galler, explaining the path of discovery. “These equations, which are based on quantum theory, describe the optical response of semiconductors to light sources such as lasers, and it is precisely the effects described there that we saw in the experiment. Peak splitting is an interference phenomenon that occurs when electrons are driven through the Brillouin zone.”

Anna Galler talks about her work with 2D materials in a podcast interview (podcast in German only)
Listen to the podcast **Talk Science to Me #35: Anna Galler**, here.

The researchers discovered that high harmonics are an interesting new method for analysing semiconductor materials and their properties. “We believe that high harmonics are also characteristic of other materials and that we have found a great new method of analysis. However, further research is needed to confirm this.”

The results were recently published in the renowned journal Nature Communications. You can find the paper Quantum interference and occupation control in high harmonic generation from monolayer WS_2 in the journal **nature communications** [DOI: 10.1038/s41467-025-65725-9].

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JOHANNES KEPLER UNIVERSITY LINZ

FemMED: A Network to empower Women in Science and Innovation in Medicine

For decades, medical science has relied heavily on data derived from male study populations, often overlooking the fact that diseases, treatments and medications affect women differently. This has significant consequences: symptoms of cardiovascular disease in women may be misdiagnosed, drug dosages may produce different side effects, and chronic conditions are often under-researched. The FemMED network [1], an initiative founded in June 2022 at the Faculty of Medicine of the Johannes Kepler University Linz, aims to address these disparities by increasing the number of women involved in biomedical and clinical research.

The FemMED Network is an interdisciplinary university platform that brings together female researchers in biomedical and clinical research with the aim of strengthening women's participation in health research and closing long-standing gaps in medical knowledge. The network exemplifies how scientific institutions can foster a culture of collaboration and inclusion in research.

The FemMED Network at its 2025 annual meeting © JKU Linz.

The initiative's primary goal is to increase the visibility of women scientists at different career stages. Through workshops, mentoring activities and research exchanges, FemMED is a professional network that can help young researchers navigate an academic landscape that is still marked by structural inequalities. In such highly competitive environments, support systems like this are often crucial for retaining female talent in research and innovation sectors.

The initiative also promotes interdisciplinary collaboration. It brings together researchers from medicine, artificial intelligence, digital health, engineering and the natural sciences, who collaborate to overcome health challenges, focusing on personalised technical and translational medicine. Since February 2024 the network is partner of the FEMclub – Female Excellence in Medicine Female network [2].

Furthermore, the network reflects a broader transformation within the scientific community, where innovation is increasingly dependent on diverse perspectives. Studies have shown that heterogeneous research teams often generate more creative solutions and produce technologies that are more responsive to society's needs. By amplifying women's expertise and contributions to medical research, FemMED not only promotes equity in science, but also improves the quality and relevance of scientific discovery.

As global healthcare systems face the challenges of ageing populations, chronic diseases and rapidly evolving technologies, initiatives such as the FemMED Network demonstrate the importance of inclusive research. Science advances most effectively when it reflects the diversity of the people it serves, and at JKU Linz, female researchers are spearheading this change.

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[1] https://www.jku.at/en/medizinische-fakultaet/forschung/forschung-an-der-med/research-funding/femmed/

[2] https://www.femclubmed.org/

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GRAZ UNIVERSITY OF TECHNOLOGY
JOANNEUM RESEARCH
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Celebrating Women in Science: Driving Innovation in Styria and Beyond

On 10 February 2026, Styria once again placed women in science in the spotlight. The SPIRIT Award for Women in Science 2026 honored outstanding female researchers whose work is shaping the future, from groundbreaking quantum materials to life-saving medical diagnostic devices. More than just an awards ceremony, the event highlighted why empowering women in science is essential for progress.

In front of over 200 guests, the "*Marie*" trophy – named after pioneering physicist Marie Curie – was awarded across several categories. We are more than proud that the three winners are all members of the BioNanoNet Association:

- **Anja Haase**, senior researcher (Hybrid Electronics and Structuring Group) at **JOANNEUM RESEARCH**, was recognized with the first place in the category "*Applied Research Senior*" for her work in developing novel blood diagnostics capable of identifying dangerous viruses such as Ebola without laboratory infrastructure.

- **Anna Galler**, physicist at the **Graz University of Technology**, took the first place in the category "*Basic Research Junior & Senior*" for her research in next-generation semiconductors based on 2D quantum materials.

- **Raquel González de Vega**, chemist at the **University of Graz**, took the first place in the category "*Applied Research Junior Scientist*" for her innovative method to detect micro- and nanoplastics, a pressing environmental challenge.

The winners of the SPIRIT Award for Women in Science 2026 – From left to right: Raquel González de Vega, Anna Galler, and Anja Haase. © Spirit of Styria/Wolf/Fuchs.

The breadth of these achievements demonstrates the immense value women bring to scientific discovery. From environmental protection to healthcare and technology, their contributions address some of the most urgent issues of our time. Importantly, their work also illustrates how diversity in research fosters more comprehensive and creative solutions.

The strong participation of over 100 applicants from 22 institutions (from academia, research institutions, and industry) sends a powerful message: women are a driving force in Styria's research landscape. Yet recognition remains crucial. Events like the SPIRIT Award not only celebrate excellence but also create visibility, inspiring the next generation of female scientists to pursue their ambitions.

Ultimately, supporting women in science is not just about equality, it is about unlocking innovation. By creating opportunities, recognizing achievements, and promoting role models, we ensure that the scientific community reflects the full potential of society.

Further information can be found in the Spirit of Styria magazine, n°1 of 2026.

Other editions the "Spirit of Styria" magazine are available here.

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PLANETS PROJECT

Women at the Forefront of Science & Innovation in the PLANETS Project

Scientific progress thrives when diverse voices, experiences, and perspectives come together to solve complex challenges. Across research institutions, laboratories, and innovation projects worldwide, women are making vital contributions to science, technology, engineering, and mathematics (STEM), helping shape a more sustainable, inclusive, and forward-looking future. Yet, despite significant progress, women remain underrepresented in many STEM fields, making visibility, representation, and recognition more important than ever.

The EU-funded project PLANETS stands as an example of how collaboration and diversity drive innovation. Bringing together expertise from multiple disciplines and sectors, the project benefits from the knowledge, creativity, and leadership of women working across scientific research, project management, communication, stakeholder engagement, and technical development. Their work not only advances the project's objectives but also demonstrates the essential role women play in addressing global scientific and societal challenges.

In this article, we highlight some of the women behind the PLANETS project and the unique contributions they bring to the consortium. From conducting innovative research and coordinating complex activities to fostering collaboration and ensuring effective communication and dissemination of results, each of them contributes to the project's success in meaningful ways. Alongside their professional roles, they also share personal reflections on why encouraging women in STEM matters, emphasizing the importance of equal opportunities, diverse perspectives, and inspiring future generations of girls and young women to pursue careers in science and innovation.

By celebrating the women of PLANETS, we also celebrate the broader message that science is strongest when it is inclusive, collaborative, and representative of the society it serves.

Anita Sosnowska
Senior R&D specialist at QSAR Lab, Poland

As a Scientist at QSAR Lab, I contribute to PLANETS by applying my expertise in in silico New Approach Methodologies (NAMs) and SSbD strategies for advanced materials and chemicals to identify safer, more sustainable alternatives to substances of concern. My work combines predictive modelling and data-driven analysis to support the transition toward more relevant non-animal safety assessment and to help embed safety and sustainability from the earliest stages of material and chemical development.

I believe it is important to have more women in STEM careers because diverse perspectives strengthen the drive to solve complex problems more creatively, boost innovation, and create technology that better responds to real-world challenges. Women's participation in STEM also helps inspire future generations and shows that scientific careers are open to everyone, regardless of gender, and that these careers are both achievable and rewarding.

Laura Helena Schmitz
Master student at Paris Lodron University Salzburg, Austria

My work in PLANETS involves Tier 3 SSbD assessment of both market benchmarks and alternative replacements to plasticizers, flame retardants, surfactant substances and end products. I took a central role in the implementation and optimization of OECD-validated in vitro assays for cytotoxicity and endocrine disruption in our lab, and continue to investigate and employ troubleshooting strategies, coordinate laboratory workflows and planning of every experiment to ensure reproducibility and robust data generation while meeting project deadlines. I'm also responsible for preparing chemical samples and researching their physicochemical properties (such as solubility, stability, and storage requirements), as well as the implementation of appropriate handling procedures. Lastly, I am heavily involved in data analysis and in the development of robust and reproducible analytical pipelines using computational tools, and in the organization and compilation of our experimental data to support data integrity, interpretation, and FAIRification.

As a biologist, I recognize diversity as a fundamental principle of life – after all, genetic diversity is what enables survival in the game of evolution – and I believe this principle extends to the social and scientific worlds. In science, where peer review is the currency of credibility and biases are the primary source of deception, plurality in worldviews and perspectives are crucial for progress and should be continuously encouraged until diversity reaches leadership and decision-making spaces.

I contribute to the PLANETS project by leading the social acceptance assessment of SSbD alternatives developed within the project. My work focuses on understanding stakeholders' perceptions, expectations, and concerns regarding the project's innovations, including through the design and implementation of a multilingual survey targeting different value chains and stakeholder groups.

For a long time, STEM careers have been perceived as a predominantly male field, resulting in a persistent gender imbalance across scientific and technical disciplines. This gap is not the result of a lack of women's abilities, but rather of structural and cultural barriers that continue to influence opportunities, confidence, and representation within scientific fields. In a context where innovation increasingly requires interdisciplinary and socially aware approaches, improving women's participation in STEM is not only a matter of equality, but also an opportunity to strengthen scientific and technological development through a broader range of perspectives, experiences, and problem-solving approaches.

Elena Monaldi
Junior Social Compliance Consultant at RINA, Italy

Catherine Colin
Research program manager at IPC, France, and Chairwoman of CEN/TC 462

I am research program manager within IPC. I have a special attachment to the PLANETS project as I was part of the team who created the project. I now oversee PLANETS execution by the IPC team and contribute to SSbD practice and dissemination. I also connect the PLANETS team with standardization technical groups, in relation with my role of chair of CEN/TC 462 on regulated substances of products.

I am convinced that multidisciplinary and diverse teams boost benefits and results of the project they execute. That is why I pay a special attention to the motivation and skills development of the women I manage within the PLANETS team. This simply relies on sharing my personal experience to help them expanding their career faster.

I have the great honor and pleasure to coordinate PLANETS and therefore to share insights with all the partners. In addition, I am in charge of developing the PLANETS SSbD approach and of summarizing our main outcomes to support policy.

I think it is crucial to promote inclusivity – not only regarding men and women, but for people of all backgrounds – across every career field, especially in STEM. A diverse and inclusive environment encourages different perspectives, which ultimately fosters creativity, innovation, and progress.

Joséphine Steck
SSbD project manager at CEA, France, and PLANETS Coordinator

Sabine Hofer
Research Associate at Paris Lodron University Salzburg, Austria

My role is overarching, encompassing almost all work packages and case studies of the project, where I contribute my knowledge of the SSbD process as well as my experience in hazard and exposure assessment. This comprehensive overview is essential for my tasks in SSbD upskilling and guidance for industry regarding future substitution, adoption of regulatory frameworks and industry directives.

Even during my first studies of computer science many years ago – and at that time I was usually one of only three women among one hundred students in the lecture hall – I experienced that we are in no way inferior to men when it comes to STEM careers.

I am an expert in safety and SSbD, and within the PLANETS project I fulfil several roles, ranging from project management (WP lead) to more technical tasks. This technical aspect involves assessing chemical risks and worker exposure within the framework of the SSbD approach. To carry out this work, I collaborate closely with researchers to ensure that safety considerations are incorporated into their technological development. This involves conducting chemical risk assessments and formulating recommendations aimed at better addressing these risks. I am also required to conduct experimental tests to measure whether or not there are particle emissions at workstations (in connection with the assessments), as well as throughout the product's life cycle. For this last point, bespoke tests are developed to replicate conditions of use and verify that there are no emissions of particles or substances into the environment, thereby reinforcing the SSbD approaches for products developed within the PLANETS framework.

It may raise a smile, but in my view, for innovation to happen, it must be driven by a cohort representative of our society and, consequently, women must have their rightful place in scientific careers. In my view, this is one of the strengths of PLANETS, where women are well represented, which lends the project real depth.

Cécile Philippot
Project manager at
CEA, France

Claudia Asensio
I&AD assistant at
Budenheim, Spain

My role in the project involves not only organizational and management tasks, but also practical laboratory work. I play a supporting role in the development and characterization of polyurethane foams, as well as in researching new raw material options and their application in flame retardants, investigating how they affect and behave within the matrix in line with the SSbD framework.

I believe it is extremely important that women have a role in STEM careers, because otherwise we would be losing the talent and intelligence of half of society, and that simply makes no sense! We are at a point in history where there is nothing left for women to prove, and it is completely outdated to think that they are less capable than men in scientific roles.

Within the PLANETS project, I provide technical support focused on PUR performance and material characterization within the SSbD framework. My work involves assessing the performance of polyurethane formulations, analyzing their physical and chemical properties, and contributing to the optimization of materials to meet both technical requirements and sustainability criteria. I am also in close contact with other partners, ensuring effective collaboration.

For me, having more women in STEM is not just about representation, it is about shaping better science. Different perspectives lead to better questions, better decisions, and ultimately more meaningful innovation. Creating space for women in these fields means building a future where science is stronger, more inclusive, and more connected to real societal needs.

Adriana Gil
I&AD assistant at
Budenheim, Spain

Vanessa Estefanía Alvear Puertas
Researcher at AIMEN Centro Tecnológico, Spain

My role focuses on Data FAIRification and Digital Product Passport (DPP). My primary objective is to promote FAIR data practices, contributing to Open Science practices and enabling knowledge to be shared, reused and leveraged by the community.

I believe that women in STEM careers play a key role in fostering a more open, inclusive and accessible scientific ecosystem. As women, we don't only contribute to scientific and technological advancement but also bring science closer to society. By increasing the visibility of women in research, we can inspire future generations and help demonstrate that

Beatriz Alfaro Serrano
Scientific Communications at BNN, Austria

As the Communication, Dissemination, and Stakeholder Engagement Manager of the project, I create communication materials with tailored messages for different target audiences, ensuring that the project's results are accessible, engaging, and relevant. I also build strong relationships with stakeholders to foster collaboration, maximize the project's impact, and support the uptake of its outcomes. Additionally, I also support the organization of internal and external trainings to harmonise the internal knowledge, enable knowledge transfer, and reach out to wider scientific and innovation communities.

Women bring diverse perspectives that drive creativity, innovation, and better solutions to complex challenges. Greater representation of women in STEM also inspires future generations of girls to pursue scientific careers and helps create a more inclusive and equitable research community.

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SSBD4CHEM PROJECT

Women Driving Safer and Sustainable Innovation in SSbD4CheM

Innovation in chemistry and materials science plays a critical role in building a safer and more sustainable future. As the scientific community works toward developing chemicals and materials that are both effective and environmentally responsible, diverse perspectives and inclusive collaboration are essential to driving meaningful progress. Women in STEM continue to make invaluable contributions to this transformation, bringing expertise, creativity, and leadership to research and innovation across Europe and beyond.

The EU-funded project SSbD4CheM reflects this collaborative spirit by advancing the implementation of SSbD approaches within the chemicals and materials sector. Behind the project's achievements are women researchers, scientists, communication specialists, and project coordinators whose work supports the development of innovative solutions that prioritize safety, sustainability, and societal impact – all essential jobs in turning ambitious goals into practical outcomes.

This article highlights some of the women contributing to the success of the SSbD4CheM project and the important roles they play within the consortium. Alongside showcasing their professional expertise and responsibilities, the article also shares their personal reflections on the importance of women in STEM careers.

Their perspectives underline the value of diversity in research and innovation, the importance of representation and equal opportunities, and the need to inspire future generations of women and girls to pursue careers in science and technology.

By empowering the women of SSbD4CheM, we recognize not only their individual achievements, but also the broader importance of inclusion in shaping a safer, more sustainable, and more innovative scientific future.

As R&D Chemist in SSbD4CheM, my role is to connect scientific innovation with practical formulation work, contributing my knowledge in formulations and products development.

I believe that having women in STEM is essential, not only for equality, but also because science benefits from different perspectives, experiences, and ways of thinking.

Alexandra Blinderman
R&D Chemist at AHAVA Dead Sea Laboratories, Israel

Asmaa Ali
Associate Product Owner (Data & Knowledge / SSbD Platforms) at Edelweiss Connect, Switzerland

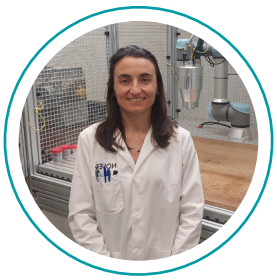
In SSbD4CheM, I contribute to the development of data- and knowledge-driven digital solutions that support SSbD research. My work focuses on transforming scientific data into structured, FAIR, and reusable knowledge, while supporting AI-assisted tools that help researchers explore complex safety and sustainability information more effectively.

I believe women in STEM bring essential perspectives, creativity, and problem-solving approaches that make science more inclusive and impactful. Having more women in STEM also helps inspire the next generation of young girls to see themselves as scientists, innovators, and leaders.

I am team and project leader and senior researcher, as well as mother. I play a key role in shaping numerous development projects at Kompetenzzentrum Holz GmbH (WOOD K plus), including those in the areas of wood binders and thermosets, carbon materials, biopolymers, natural fiber compounds for injection molding applications, and materials and processes for flexible sensors on paper and wood substrates. I have also developed new formulations for wood fiber-polypropylene compounds, which represent highly sustainable material solutions for automotive interior applications.

In my opinion, it is highly important to have women in STEM careers and in all global areas, where innovations are born and global technological decisions are made. Each half of society must be involved in scientific and technological decisions that have a major impact on society. In particular, also parents and families must be included in all relevant processes. More perspectives and opinions lead to better results. It is important to finally break historical gender stereotypes, to show that women can be both leading scientists and caring individuals.

Pretschuh Claudia
Senior researcher at Kompetenzzentrum Holz GmbH, Austria



María Martínez Falcón
Sustainability and Advanced Materials Technician at NOVEX, Spain

My scientific role in SSbD4CheM is to design innovative textile solutions aligned with the SSbD principles. I am developing more sustainable alternatives to PFAS-based textile finishes using atmospheric plasma surface treatments with bio-based precursors to provide hydrophobic and antimicrobial properties to these materials.

In my opinion, women make a significant contribution to STEM careers, not only through their scientific knowledge and technical competence, but also through their creativity, perseverance, collaborative skills, and fresh approaches to problem solving. I believe that mixed-gender teams are stronger, more balanced and more effective, as they combine diverse perspectives and ways of thinking, leading to the creation of more innovative and inclusive solutions.

Ghada Tagorti
Scientist at
Edelweiss Connect,
Switzerland

I lead the SSbD assessment for the safety evaluation of chemicals, focusing on evidence-based hazard and risk analysis across their lifecycle.

In my opinion, women matter in STEM because science and technology are meant to serve everyone, yet research and design have often overlooked women's experiences, creating important gaps in knowledge and solutions. Including women helps to close these gaps while also ensuring STEM benefits from the full range of talent and ideas needed to drive innovation forward.

Mine Türkay
Project and Product
Safety Chief
at KORTEKS, Türkiye

I am a chemist at the R&D Center of KORTEKS Polyester Yarn Manufacturing Company, contributing to SSbD4CheM which focuses, among others, on sustainable textile innovation. My role includes managing the production of PLA, recycled, and virgin polyester yarns, coordinating fabric weaving, and overseeing the shipment of samples for coating and microplastic research in collaboration with project partners. I also lead the collection, organization, and validation of data for LCA studies, supporting the environmental evaluation of new textile materials and promoting more sustainable production practices.

Within the framework of the project, I also actively support activities aimed at promoting gender equality and the empowerment of women in science, innovation, and industrial environments. By contributing to initiatives that encourage equal participation of women in economic and social life, I help foster inclusive and sustainable outcomes aligned with European Union priorities on gender equality.

Beatriz Alfaro Serrano
Scientific Communications at BNN, Austria

As the Communication, Dissemination, and Stakeholder Engagement Manager, I develop communication materials with tailored messages for different target audiences, ensuring that the project's results are clear, engaging, and accessible. I also build and maintain relationships with stakeholders to strengthen collaboration, maximize the project's impact, and promote the uptake of its outcomes. In addition, I coordinate the organization of internal and external training activities that strengthen knowledge-sharing within the consortium, facilitate the exchange of expertise, and engage the broader scientific and innovation communities.

Women contribute diverse perspectives that foster creativity, innovation, and more effective solutions to complex challenges. Increasing the representation of women in STEM not only strengthens research and innovation but also encourages and empowers future generations of girls to pursue careers in science and technology.

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NABIHEAL PROJECT

NABIHEAL's Perfect Formula: Science, Gender, and Innovation

When it comes to championing female leadership in European research, the NABIHEAL project is a prime example and is actively setting the standard, with women scientists serving as the project coordinator and leading nearly every major work package (WP).

Backed by nearly €5 million from the European Commission's Horizon Europe framework program, the project is a four-year initiative (2023–2026) focused on advancing the treatment of complex wounds through the creation of multifunctional healing biomaterials. NABIHEAL brings together 14 international partners across seven different countries. NABIHEAL's primary objective is to leverage an innovative technology with antimicrobial properties to enhance medical wound management strategies. By fostering global cooperation and multidisciplinary disciplines, the project aims to revolutionize medical wound care and deliver cutting-edge biomaterial-based solutions for difficult-to-heal wounds and injuries. The project truly stands out in the research and technology landscape by committing to a strong gender equality in leadership and decision-making roles.

Project Coordination & Leadership

The Project Coordination (WP9) is in the hands of Prof. Nora Ventosa (CIBER / CSIC-ICMAB, Spain). She is a top-grade researcher with extensive experience in coordinating international and EU-funded projects. She is accompanied by Dr. Emma Ratera (CIBER) in the endeavor of technically coordinating the project and by young Elba Guasch (CSIC-ICMAB) for the administrative and project management tasks.

From Molecule to Medical Product: the women leading the science behind

Jumping to the lead of the different technical WPs, the project is an example of multidisciplinary female expertise.

Prof. Ventosa oversees the work under WP1 where design and optimization of the multifunctional biomaterials are in the focus. WP2 deals with the physicochemical characterization and the tools needed for it, and the definition of the Critical Quality Attributes (CQAs) of the biomaterials under development. This WP is co-lead by also two outstanding women, Dr. Selestina Gorgieva (University of Maribor, Slovenia) and Prof. Dganit Danino (Technion, Israel). WP3 focuses on the efficacy evaluation of the developed biomaterials (including In Vitro, Ex Vivo and In Vivo). Dr. Fiorenza Rancan (Charité - Universitätsmedizin Berlin, Germany) is in the lead of this WP, managing the demonstration of the antimicrobial and wound healing efficacy using various biological models. When it comes to speak about the scale-up of the manufacturing processes, work performed under WP4, Dr. Daniela Becher (MyBiotech, Germany) is the woman in charge, in close collaboration with Dr. Nazende Günday-Türeli (MyBiotech, Germany). Ensuring that the innovative biomaterials under development are biocompatible and safe for human use, Dr. Ivana Vinković Vrček (Institute for Medical Research and Occupational Health, Croatia) leads and coordinates the project activities related to preclinical toxicology and safety profiling of the materials, leading WP5.

Beyond the Lab: Strategy, Market, and Mindset

NABIHEAL believes scientific breakthroughs also need a voice and real-world impact. Therefore, transversal WPs dealing with regulatory aspects & ethics (WP6), Business Development & Exploitation (WP7), as well as Scientific Dissemination, Outreach & Stakeholder Engagement (WP8) are equally important activities within the project.

Also in these WPs, women have a leading role. Dr. Alba Cordoba (Nanomol Technologies, Spain) and Dr. Begoña Castro (Histocell, Spain) spearhead and lead the partners on translating the research results into commercial products and managing the intellectual property behind, within WP7. Johanna K. Scheper (BNN, Austria) leads the NABIHEAL's Dissemination & Outreach WP (WP8). She leads the activities to connect the project discoveries with the public, stakeholders and the scientific community. She is supported by Evgenya Zeevi (BNN, Austria) to provide the visual identity enabling NABIHEAL to be easily identified and recognized by the stakeholders and the wider community.

Finally NABIHEAL not only counts with almost all WPs under women's leadership, but has a robust representation of female leadership integrated throughout every facet of the project e.g., in tasks related to the implementation of the Data Management Plan, led by Dr. Olga Conde (CIBER / University of Cantabria, Spain), Marta Rayo (ASPHALION, Spain) that support on the regulatory activities of the project, and Dr. Patricia Gálvez Martín (Bioiberica, Spain) that leads one of the industrial activities of the project related to the provision of wound-healing molecules.

Ultimately, NABIHEAL is not only advancing wound care research and treatment; it is serving as a blueprint for women in science. Placing top-tier female researchers at the top of most of the milestones, the project proves that inclusive leadership drives true innovation. It dismantles old stereotypes in the technology research sector, showing that scientific excellence thrives when diverse perspectives join. These women are paving the way for medical breakthroughs but equally important: they are inspiring the next generation of female scientists to go for high-level global initiatives.

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Member Updates

Houska Prize 2026: 2nd place for JOANNEUM RESEARCH

The Houska Prize award ceremony took place on 21 April at the Museumsquartier in Vienna. JOANNEUM RESEARCH was awarded second prize, worth €70.000, in the *'Non-university Research'* category. This marks the third consecutive year that a JOANNEUM RESEARCH project has received an award.

With PyzoFlex®, the research team has developed a novel sensor technology that is specifically designed for use on flexible, moving or curved surfaces. The solution thus meets key requirements in fields such as wearables, soft robotics and smart manufacturing.

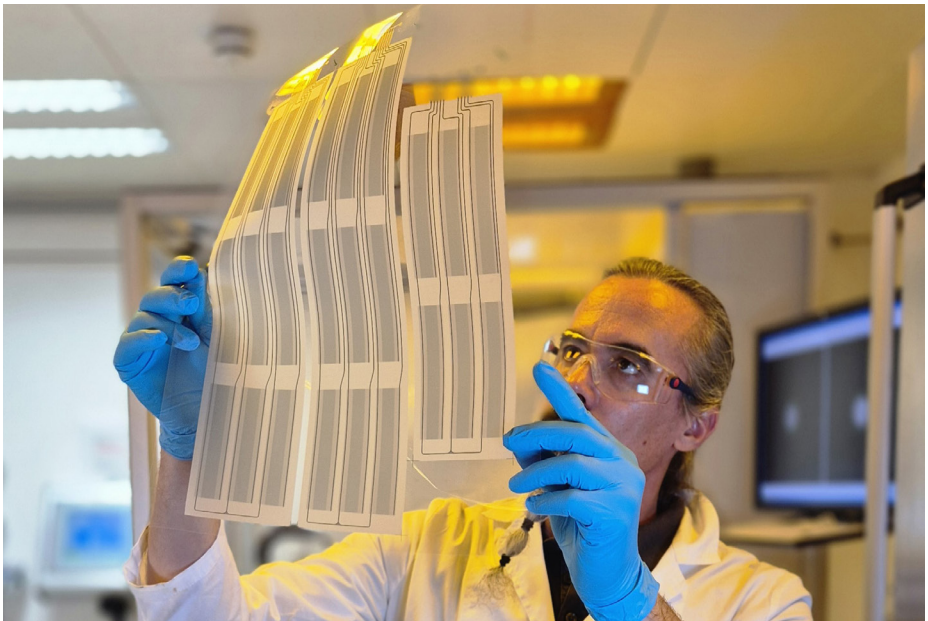
"This award confirms the relevance of our research for industrial applications and societal challenges. With PyzoFlex® technology, we are demonstrating how material-based innovations enable new measurement concepts. Our aim is to further develop the technology in collaboration with industry partners and transfer it to additional fields of application. The focus is on scalable production processes as well as new areas of application in mobility, medical technology and industrial automation," said Andreas Tschepp on behalf of the project management team consisting of Martin Zirkl, Gregor Scheipl, Barbara Stadlober, and project manager Tschepp.

Heinz Mayer, Managing Director of JOANNEUM RESEARCH: "What a success! PyzoFlex® is a prime example of what drives us – research that finds its way into practical application and delivers real benefits. I am delighted for the dedicated team and would like to thank everyone who has made this success possible."

About the PyzoFlex®-Technology

PyzoFlex® is based on a ferroelectric polymer embedded between printed electrodes. The material converts mechanical deformations or temperature changes directly into electrical signals. The sensor layer is just a few micrometers thick, mechanically robust and responds quickly. A key advantage is that it operates without an external power supply: the sensors do not require an external power source to generate signals. At the same time, screen printing allows for cost-effective scaling.

The industry is already demonstrating specific applications: in paper production, PyzoFlex® enables real-time measurements of roll gap forces directly during the production process. This improves process control and resource efficiency.



Contribution to applied research

The Houska Prize is regarded as the most prestigious privately funded award for applied research in Austria. With a total prize money of €760.000, it recognizes projects with clear economic and societal benefits. The award for PyzoFlex® underscores the importance of materials research for the digitalization of physical processes. The technology links real-world measurements directly to digital systems, thereby creating new opportunities for data-driven control and optimization.

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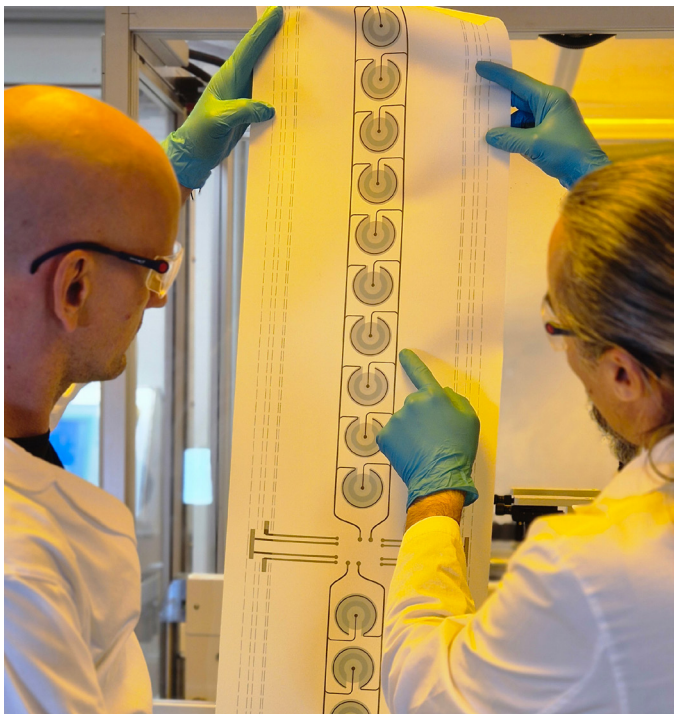

JOANNEUM RESEARCH spin–off "Lagebild.one": €3 million investment boosts Styria's position as an AI hub

DroneCorps GmbH's investment of over three million euros in JOANNEUM RESEARCH's spin–off, Lagebild.one GmbH, sends a clear signal regarding Styria as a technology hub and strengthens Austria's position in the strategic future field of safety–critical AI applications.

Lagebild.one emerged from a research project within the DIGITAL group *Remote Sensing and Geoinformation*, and aims to provide a digital, AI-supported situational overview for emergency services. The platform integrates data from drones, sensors and emergency personnel and processes it in real time. The aim is to consolidate fragmented information and enable informed decisions in complex operational scenarios. A key principle remains the 'human-in-the-loop' approach: the AI provides support, but the final decision-making authority remains with humans.

The joint venture is a flagship project for application-oriented AI and is positioned at the heart of Austrian industrial and innovation policy: the development of trustworthy, transparent AI systems with high practical relevance. For Styria as a business location, this means a further expansion of expertise in the field of applied AI and greater international visibility as a technology region. In addition to technological development, the focus is on creating a marketable product and gradually establishing a presence in the DACH region.

This was confirmed at a meeting between Provincial Councilor Willibald Ehrenhöfer and Stephen Grimm, owner and CEO of DroneCorps GmbH, and JOANNEUM RESEARCH CEO Heinz Mayer. The meeting focused on the next steps towards the market launch of an AI-based platform for safety-critical applications.

Willibald Ehrenhöfer, Provincial Councilor for Economic Affairs and Science: "I am delighted that a technology developed by our research organization, Joanneum Research, has attracted the attention of an international investor, and that this investor is now prepared to set up a company in Austria and bring the technology to market. This is further proof of the excellence of our local research and the attractiveness of our region. Once again, this puts Styria in the international spotlight."

Stephen Grimm, entrepreneur and majority owner of Lagebild.one, explains: "This joint venture demonstrates the potential that arises when research and entrepreneurship are consistently brought together. Our aim is to develop a solution that delivers measurable added value in real-world operational scenarios."

Heinz Mayer, CEO of JOANNEUM RESEARCH, adds: "Lagebild.one is a prime example of successful applied research – the translation of technological development into commercial application. This spin-off is the largest in the history of Joanneum Research. This is achieved when the right partners work together."

Investor Stephen Grimm (left) and Science and Economic Affairs Minister Willibald Ehrenhöfer.
© Land Steiermark.

Raffael Dreiher, an experienced IT manager, has been appointed Managing Director of Lagebild.one.

Stephen Grimm is an American entrepreneur, technology developer and the founder and CEO of DroneCorps GmbH. The company specializes in the development of software and system solutions for autonomous drone operations.

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GRAZ UNIVERSITY OF TECHNOLOGY

Pregnancy in the Research Focus of TU Graz

Research on pregnancy complications or the human placenta is difficult. Researchers at TU Graz want to change this by using mini–organs grown in the laboratory, simulations and models.

Two small, pale, living structures floating leisurely in a bioreactor. The bioreactor functions as a controlled bioincubation system that simulates and precisely regulates the environment of the human body. The small structures are mini-organs – more precisely a mini-placenta and a mini-uterus. Both were cultivated from human cells and have been developing here in the laboratory for a few weeks.

“We want to use these mini-organs to investigate pregnancy complications at various stages in a controlled manner and test drugs safely,” explains Sahar Ghorbanpour, who has headed the HerPlacenta working group at the Institute of Health Care Engineering at TU Graz since January 2025. The removal of placental tissue or the testing of medication during pregnancy is not possible for ethical reasons and can jeopardize the life of both the mother and the child. Therefore, many important questions about pregnancy complications and drug safety remain unanswered, although both are crucial for the health of mother and child. At the same time, pregnancy complications in humans cannot be reliably reproduced in animal models because pregnancies take completely different courses. The mini-organs are intended to provide a remedy and enable safe and controlled research in the laboratory.

Read the whole article here.

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The HerPlacenta working group in the laboratory.
© Oliver Wolf - TU Graz.

The mini-organs grow in a bioreactor.
© Oliver Wolf - TU Graz.

GRAZ UNIVERSITY OF TECHNOLOGY

Green Hydrogen without Forever Chemicals and Iridium

In the EU project SUPREME, an international research team with the participation of TU Graz is developing an electrolyzer to produce green hydrogen more sustainably and efficiently.

Green hydrogen is considered an indispensable component of the global energy transition, but its production still faces massive economic and environmental hurdles. For example, the promising PEM (proton exchange membrane) electrolysis process, which is particularly suitable for producing green hydrogen when the supply of electricity from wind power and photovoltaic systems fluctuates, is still very expensive compared to production using fossil fuels. Sustainability also needs to be scrutinized here. This is because it relies on environmentally hazardous substances such as forever chemicals (PFAS), which the EU wants to ban soon. These disadvantages are to be eliminated in the EU project SUPREME. Over the next three years, an international team led by the University of Southern Denmark with the participation of Graz University of Technology (TU Graz) will be conducting research on a PFAS-free and highly efficient electrolysis technology that also requires far fewer critical raw materials such as iridium and is therefore much more cost-effective.

Important step towards the green transition

"Hydrogen is used as a raw material in very large quantities, and this will continue to increase in the future. These include the production of ammonia, methanol production and the steel industry," says Merit Bodner from the Institute of Chemical Engineering and Environmental Technology at TU Graz. "If we succeed in avoiding the use of harmful substances in the production of green hydrogen and we can also bring it to a similar price level as fossil hydrogen in economic terms, we will have taken an important step towards the green transition. This also makes it more attractive for other applications, such as storing surplus energy from renewables."

The role of TU Graz is of central importance in this project. Merit Bodner's team is evaluating which PFAS-free alternative materials are commercially available and is analyzing how they compare to the current industry standards. Particular attention is paid to whether the more sustainable materials are similarly durable and efficient in continuous industrial operation to serve as a fully-fledged replacement. The use of these alternatives for the synthesis of membranes is being researched by the Turkish Science and Technology Council TÜBITAK, which is developing the next generation of microporous PFAS-free membranes.

Reducing and recycling iridium

The University of Southern Denmark and the British metal and catalyst company Ceimig are conducting research on how the use of the expensive platinum-group metal iridium can be reduced by up to 75%. In addition, this team would like to develop processes with which around 90% of the iridium still required can be recycled. The German research institute Fraunhofer ISE is producing the membrane electrode units, while the Norwegian hydrogen company Element One Energy AS (EoneE) is developing a new type of rotating electrolyzer.

This research was funded by CETPartnership, the Clean Energy Transition Partnership under the 2024 joint call for research proposals, co-funded by the European Commission (GA n° 101069750) and with the funding organisations detailed on cetpartnership.eu/funding-agencies-and-call-modules.

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Merit Bodner from the Institute of Chemical Engineering and Environmental Technology at TU Graz © Lunghammer - TU Graz.

When Droplets and Particles Meet

Carole Planchette is the new professor of fluid mechanics and is here talking about the physics of multiphase flows and why even simple systems such as individual droplets harbor many questions.

TU Graz News: Can you describe your research for us?

Carole: My field of research is fluid mechanics, which is the physics of liquids and gases in motion. This field ranges from classic issues of aerodynamics in wind tunnels, including hydrodynamics, to complex technical flow systems.

In particular, I work on so-called multiphase flow. These are systems in which different phases – such as immiscible liquids, gases or solids – interact with each other. The behavior of such systems is determined by the interactions between the individual phases. If these are finely dispersed – in the form of droplets, bubbles or particles – the interfaces become much more important, as the ratio of surface area to volume is high on these small scales. Specifically, this concerns droplets, bubbles, jets and small particles. Droplets or particle-laden interfaces serve as controllable model systems in which these mechanisms can be investigated with particular precision. At the same time, precisely these effects are relevant for many technical applications, for example in microfluidics, printing functional materials or coating processes.

I try to conduct research on the basics as well as keep an eye on the applied aspect. However, my focus is definitely on the basics. Because I am convinced that you have to fully understand a phenomenon before it can lead to a meaningful application.

Are you currently working on a project in this area?

Carole: I am currently working with my group on several projects that investigate different aspects of multiphase flows.

Carole Planchette is the new professor of fluid mechanics. © Fotogenia - Renate Trummer.

One central project is "REMEDY", an EIC Pathfinder project with international partners. We are trying to produce a so-called bio-ink from microorganisms. We want to print this ink precisely in small droplets on suitable panels. The printed elements will later be attached to façades, where they will form functional biofilms that bind CO_2, for example. As these films are created from living microorganisms, they can close any minor damage through biological growth.

Together with Theresa Rienmüller from the Institute of Biomechanics and an industrial partner, I am also working on a lab-on-a-disk platform. A sample, blood for example, is applied to a rotating microfluidic chip in order to analyze a whole range of parameters from tiny amounts of liquid very quickly.

As part of the Collaborative Research Centre (CRC) on the optimization of electric motors, coordinated at TU Graz by Annette Mütze and carried out jointly with TU Darmstadt, I am leading a sub-project in the field of cooling. Our contribution is currently starting and investigates a novel approach with so-called "compound" droplets, in other words, droplets made of two immiscible liquids. The aim is to combine the good wetting properties of the outer liquid with the efficient vaporization of the inner liquid in order to dissipate heat in a targeted manner.

Read the whole interview here.

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OCSIAL GLOBAL

Graphene Nanotubes Cut CO_2 Emissions in Conductive Materials by up to 26%

- The manufacture of conductive materials and products typically results in high emissions, making them less eco-friendly overall.
- Replacing traditional conductive fillers with graphene nanotubes can reduce CO_2 emissions by up to 26%.
- As industries accelerate decarbonization, graphene nanotubes – combining innovation with industrial scalability – are emerging as a key enabling technology for high-performance, lower-carbon-footprint materials.

Conductive polymers are essential for modern electronics, vehicles, and healthcare and industrial equipment. Emissions from the manufacture of conductive materials can, however, be a third higher compared to the manufacture of nonconductive materials. This is largely due to the high loading levels required for traditional conductive additives, inefficient material usage, higher transportation emissions, and more complex processing. Replacing traditional additives with a dosage of just tenths or even hundredths of a percent of graphene nanotubes allows manufacturers to significantly reduce the carbon footprint of conductive materials by a minimum of 5% and even up to 26%.

The level of emission reduction that's possible depends on the type of conductive additive being replaced, such as MWCNTs or carbon black, as well as on the specific polymer system used. To quantify this impact, OCSiAl, in collaboration with a leading environmental sustainability consultancy, conducted an internal study comparing emissions across a range of applications in industries including automotive, construction, and energy. The estimates were performed using an ISO 14040/14044-compliant Life Cycle Assessment, based on the bill of materials and covering raw materials, transportation, processing, and waste associated with conductive additive manufacture.

"This research is part of OCSiAl's sustainability strategy," said Konstantin Notman, CEO of OCSiAl. "We support customers across the value chain through improved production efficiency, renewable energy use, and optimized logistics."

As industries move from sustainability targets to implementation, materials that deliver both performance and measurable emissions reduction will define the next generation of products. Graphene nanotubes are positioned to play a central role in this transition.

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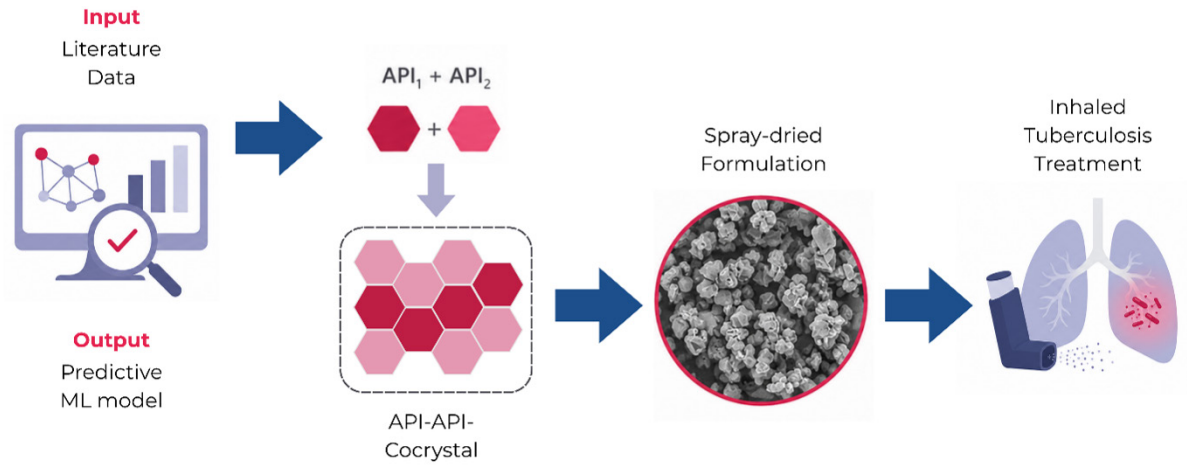
RESEARCH CENTER PHARMACEUTICAL ENGINEERING GMBH

Breathing New Life into Tuberculosis Therapy: Smart Inhaled Drug Combinations

The effective treatment of tuberculosis (TB) requires the long-term administration of multiple antibiotics (AB), typically via oral or parenteral routes. This approach presents challenges such as poor patient compliance, high pill burden, increased risk of side effects, and the emergence of antibiotic resistance.

Advanced formulation strategies are needed to address these issues and make TB therapy more efficient and patient friendly. Inhaled antibiotic therapy for Mycobacterium tuberculosis, in which the active ingredients are delivered directly to the primary site of infection, is a promising option. In addition, co-processed systems, meaning co-amorphous systems (COAMS) or cocrystals, both well-defined single particles, composed of two or more active pharmaceutical ingredients (APIs) or an API with a suitable co-former, offer a novel solution. By combining two APIs into single, well defined particles, API-API co-processed systems can simplify dosing regimens by reducing pill burden, enable optimized release profiles and minimize side effects as well as antibiotic resistance through lower dosages.

A key advantage of COAMS as well as cocrystals is their ability to improve the physicochemical properties of APIs, such as solubility, stability, and bioavailability, without altering their pharmacological activity. This is particularly relevant for inhalation therapies, where delivering poorly soluble antibiotics directly to the lungs can enhance local drug concentrations and therapeutic outcomes. Co-processed systems can also streamline manufacturing, making production more efficient and cost-effective.



Workflow to identify and generate smart co-processed particles for TB treatment via inhalation.

The rational design of co-processed systems depends critically on selecting appropriate co-formers. Traditional experimental screening is time-consuming and resource-intensive, especially when working with expensive APIs. To address this limitation, we developed a machine-learning (ML) model based on molecular descriptors and literature-derived COAMS data to predict API-API COAMS formation[1]. The model achieved an experimentally validated accuracy of over 75%, thereby accelerating the identification of promising candidate systems for further investigation. Promising combination of Abs for TB treatment, Rifampicin (RIF)- Ethambutol (ETH) and RIF-Moxifloxacin (MOX), could be identified via the model. RIF and ETH are standard 1st line drugs in TB treatment and MOX a new drug intended for AB resistant TB cases. Both combinations were developed as COAMS powders for inhalation therapy of TB via spray drying. The resulting particles showed a mean size below 3 µm suitable to reach the airways, spherical shriveled shape and superior aerodynamic and dissolution properties [2,3].

Building on this success, we are now extending the same digital, model-driven approach to identify promising antibiotic–antibiotic cocrystals for TB treatment, which will then be formulated as inhalation powders and evaluated for their pharmaceutical performance.

Sarah Zellnitz-Neugebauer.

Overall, the established digital workflow reduces experimental workload and costs supporting the development of advanced combination therapies for TB. By enabling rational COAMS and cocrystal design, we aim to prevent antibiotic resistance, improve patient adherence, reduce pill burden and side effects, and make manufacturing leaner and more economic.

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20 Years of the Austrian Cluster for Tissue Regeneration – A Collaboration Success Story

Two decades ago, a small group of researchers in Austria set out to tackle a problem that still defines the field today: how to replace lost or damaged tissue without relying on autologous grafts. In 2006, this initiative became formalized as the Austrian Cluster for Tissue Regeneration, founded by Heinz Redl at the Ludwig Boltzmann Institute for Traumatology together with partners from the Medical University of Vienna, the University Dental Clinic Vienna, and the Upper Austrian Red Cross.

What started as a close collaboration between a few groups has developed into a network of 33 research groups across 15 institutions. The underlying principle has remained unchanged: share knowledge, share infrastructure, and develop approaches jointly rather than in isolation.

In practice, this means that methods are co-developed, refined across sites, and applied in different biological and clinical contexts. High-end equipment is accessed across institutional boundaries instead of being duplicated. This model is not just efficient, it enables a level of iteration and validation that would be difficult to achieve within a single laboratory.

The output reflects this. Cluster members have published hundreds of peer-reviewed publications together and have been continuously present in the international community, particularly within the Tissue Engineering and Regenerative Medicine International Society (TERMIS) which was also founded in 2006. Members of the Cluster have actively shaped the international landscape, including leadership roles such as the 2015-2018 TERMIS EU presidency held by Heinz Redl as well as ongoing contributions to committees and scientific programs.

Beyond individual projects, Cluster members have also contributed to consolidating knowledge in the field. Together with international experts, they create the Springer Reference series “Biomedical Engineering – Tissue Engineering and Regeneration”, developed in cooperation with TERMIS. The series is designed as a continuously updated resource covering biological foundations, engineering strategies, and current state-of-the-art approaches across tissues and organ systems.

The annual Cluster Meeting brings together around 200 experts in tissue regeneration from across Austria.

Education has always been closely linked to this research environment. Joint teaching formats across universities have been established, and dedicated programs such as the Master's course "Cell and Tissue Engineering" at FH Technikum Wien reflect the interdisciplinary nature of the field. Students are trained within the same collaborative structures in which research is performed, ensuring early exposure to shared methods and cross-disciplinary thinking.

Scientifically, the central challenge remains. Autologous tissue transfer continues to be the clinical gold standard in many indications, particularly in nerve, tendon, and vascular repair. Despite advances in biomaterials and engineered constructs, replacing native tissue function without additional donor site morbidity remains unresolved. The work within the Cluster addresses this gap through combined approaches in biomaterials, cell-based therapies, and biophysical stimulation, driven by close interaction between biology, engineering, and clinical practice.

At the same time, the Cluster has demonstrated strong translational capacity. To date, 19 companies have emerged from Cluster-associated research, translating developments in biomaterials, biofabrication technologies, and advanced in vitro models into applications.

Each year, the Cluster recognizes outstanding presentations by early-career researchers. In 2026, the awards were presented to Philip Sgarz (TU Wien) and Lena Tatschl (COREMED Joanneum Graz).

Heinz Redl has been coordinating the Cluster for 20 years. He has also helped shape the field internationally, for example through his TERMIS EU presidency (2015–2018) and by bringing the TERMIS World Congress to Vienna in 2012.

The 20-year anniversary, celebrated with 200 participants at TU Wien, highlighted both the continuity and the relevance of this model. Progress in tissue regeneration is incremental and technically demanding. It depends on shared expertise, access to infrastructure, and sustained collaboration.

This has defined the Austrian Cluster for Tissue Regeneration from the beginning – and remains the reason it continues to deliver.

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Austrian Cluster for Tissue Regeneration

BioNanoNet Voices – Stories Behind the Science

Behind every scientific career is a unique story. In this series of interviews, inspiring **women** from the BioNanoNet Association reflect on the milestones that shaped their careers, the **challenges** they have navigated, and the **ideas and ambitions** that continue to inspire their work.

The interviews are guided by a set of open-ended questions, allowing each contributor to respond in a way that best captures their individual experiences and perspective. Some chose to answer every question, while others focused on the themes that resonated most strongly with their own path.

Together, these conversations celebrate the diversity of careers in science and technology while offering thoughtful insights, encouragement, and inspiration, particularly for early-career researchers and young women considering a future in STEM.

In Conversation with Anne C. Conibear

Science Without Borders

Anne C. Conibear is an Assistant Professor of Peptide and Protein Chemistry at TU Wien. She studied at Rhodes University (South Africa) and earned her PhD at the University of Queensland (Australia). Following postdoctoral research at the University of Vienna, she returned to the University of Queensland before joining TU Wien. Her research investigates how posttranslational modifications influence the structure and function of intrinsically disordered protein regions.

What initially drew you to study science, and work in chemical biology?

Anne: I was always curious about how things work, particularly living things. Growing up in Zimbabwe, I was fortunate to have parents, mentors, and teachers who encouraged my scientific curiosity and learning early on. During my undergraduate studies at Rhodes University, I was inspired by several role models and became fascinated by the ability of chemistry to decipher biological systems at the molecular level. An important turning point was the realization of how much we still don't understand, and that scientific research offers the opportunity to push the boundaries of our knowledge, to discover and make new things.

Your scientific journey has taken you across several countries and continents. What have been some of the challenges and benefits of moving internationally?

Anne: Although I didn't originally plan to move around as much, my curiosity fortunately also extends to exploring new places, and getting to know new people, languages and cultures—definitely helpful when moving internationally!

Each transition involved being forced outside my comfort zone, adapting to new cultures, figuring out new systems, and building new friendships. There have been many uncertain, confusing and lonely times, but the experiences have increased my confidence and my appreciation for different cultures and perspectives. It is difficult to imagine what my personal and scientific development would have been like without these experiences. If we hope to push the boundaries of knowledge, I think we should also be willing to challenge the boundaries of our own comfort zones and prejudices.

What is the main focus of your research, and how is it valuable?

Anne: My research focuses on developing chemical biology tools to understand proteins and their posttranslational modifications—small chemical changes that can dramatically alter protein function in health and disease. We use the toolbox of chemistry to make precise protein variants, to study how individual posttranslational modifications and combinations of modifications affect their structures and functions. Beyond the small steps in understanding how individual proteins are regulated, I believe that foundational methodology research also creates tools and knowledge that many fields can build upon, enabling other scientists.

What are some of the most significant challenges or barriers you've encountered in your work, and what strategies did you use to overcome them?

Anne: Research taught me that science rarely goes in a well-behaved straight line. Experiments fail, hypotheses change, collaborators lose interest, instruments break down, and progress often comes from persistence and adaptability. Funding insecurity and the competitive nature of academia are also realities most researchers face but are especially critical at the stage of building independence as an early-career researcher. Being flexible to move and being open to opportunities as they come along have helped. I have learned the importance of resilience, collaboration, and community, as well as having interests and friends outside of science. Mentors, colleagues, and supportive research networks have been essential throughout my career. I also think it is important to have open discussions around uncertainty, failure, and setbacks in academia, especially for younger scientists.

Have you experienced any benefits or challenges as a woman in science, and how have you dealt with them?

Anne: I am fortunate that it was only after my studies, as a postdoc and early-career independent scientist, that I personally encountered some of the prejudices, structural and cultural challenges that still exist for women in STEM, despite progress on many fronts. At the same time, I have also benefited enormously from supportive mentors and colleagues—both women and men — who actively encouraged my development and opened up opportunities. I hope I can do the same for others and make a small contribution to increasing representation and diversity in STEM.

Anne C. Conibear.

How do you mentor or support the next generation of scientists?

Anne: For me, being at the forefront of science is not only about technological advances or high-impact discoveries—it is also about fostering creativity, mentoring others, and building supportive scientific communities that enable innovation. Mentorship and teaching are therefore a great privilege and opportunity to have long-term impact and to equip the next generation. Many of the biggest scientific challenges today require thinking beyond the borders of disciplines, countries and sectors, so I try to create an environment where students feel supported intellectually and personally, and where asking questions is encouraged.

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In Conversation with Kerstin Blank

Kerstin Blank is Head of the Division of Biomolecular & Selforganizing Matter, Institute of Experimental Physics, at the Johannes Kepler University Linz.

What initially drew you toward a career in science, and was there a particular turning point that solidified your decision?

Kerstin: I do not think there was a single defining turning point. My path into science feels more like a continuous journey that started very early. I was always curious about nature and technical things. What mattered most was that my parents gave me the space to explore these interests freely. They never divided the world into "girls do this, boys do that". Looking back, science and technology has simply always been part of my life. There is a photo of me at about three years old, where I hold a hammer in my hand, "helping" my father repair his car. It is a small moment, but one that captures how powerful it can be when children grow up without imposed limits on what they are allowed to be curious about.

What were relevant turning points along your career so far?

Kerstin: At school, chemistry and biology were my favorite subjects, and I had great teachers in both. As a first-generation academic, however, university was not an obvious next step. Instead, I initially trained as a laboratory technician in a university research lab, where I worked alongside PhD students on their projects. This experience helped me realize that I was capable of becoming a scientist myself.

Before starting my PhD, I worked in a start-up developing a diagnostic assay based on molecular binding forces rather than classical thermodynamics and kinetics. One of the founders, Hermann Gaub, who was professor at LMU Munich at the time, encouraged me to pursue a PhD in biophysics. That encouragement helped me see my own potential more clearly and motivated me to consider an academic career.

After my PhD, it became clear to me that I wanted to stay in academia. Early funding for my work on structure-function relationships in proteins allowed me to develop my ideas across different research environments and countries. These experiences taught me as much about how science is done as about the science itself.

Who supported your early career choices the most?

Kerstin: This is partially answered already. But more generally, I had supporters throughout my studies, my diploma thesis, and my PhD, who consistently told me I was a good scientist. The honest truth is that I often struggled to believe them. As a woman and a first-generation academic, I had no role models or points of reference. That absence feeds self-doubt in ways that are hard to explain to someone who did not experience it.

What drove me forward was the desire to find out how far I could get. In practice, that often meant choosing the safer option first and then taking the next step via a detour. Everyone who supported me on the way made a real difference, even when I could not always fully appreciate what they were offering. I do now understand that the self-doubt was never about my abilities, but about the lack of role models.

What is your most impactful scientific achievement, and what is its primary social value?

Kerstin: One of my most impactful scientific achievements probably goes back to my start-up and PhD time, where we developed a diagnostic assay based on what we called molecular force sensors. These are molecularly engineered and calibrated molecules that produce a defined response to mechanical load. What our team initially published as a series of simple proof-of-concept experiments, has since grown into an active research field. Similar strategies are now widely used to measure forces generated by mammalian cells. The field is increasingly merging with chemistry, where so-called mechanophores optically visualize fracture in polymeric materials. The initial work laid the foundation that my research group is now taking further, developing mechanoresponsive protein motifs for smart bioinspired materials. Such materials may find application in tissue engineering and also in sustainable material design where the goal is to replace synthetic polymers with renewable, biodegradable and responsive protein building blocks.

What are some of the most significant challenges or barriers you have encountered in your work, and what strategies did you use to overcome them?

Kerstin: One of the most persistent challenges in my career has been working at the intersection of multiple disciplines. Interdisciplinary research is intellectually rewarding, but career progression in academia often depends on how well you are embedded in a specific community. If your work spans several, you are in some sense a stranger in all of them.

This shows up in concrete ways. Hiring committees sometimes question whether someone with my background can teach all the courses needed. The fact that I studied Biotechnology and now work in Physics results in a feeling of constantly having to prove myself, not once, but repeatedly and in different settings.

At some point I decided to stop fitting into a specific community and started building one. Together with my former colleague Matthew Harrington (now at McGill University), I initiated a conference at the intersection of mechanobiology and mechanochemistry, which has since become a Gordon Research Conference and is now running for the third time in July. That process also brought me to join the new journal RSC Mechanochemistry as an academic editor. This role allows me to further contribute to shaping this expanding field. What once felt like not quite belonging anywhere turned out to be exactly the freedom needed to integrate things that had not been connected before.

How do you mentor or support the next generation of scientists?

Kerstin: My approach to mentoring starts with meeting people where they are. Everyone enters with different backgrounds, confidence levels and points of reference. Good mentoring has to account for that rather than assuming a level playing field. This also includes personality. Academia, like much of the world, tends to reward those who are loud and extroverted. For quieter, more introverted people, who are still finding their way and building confidence, this can be really intimidating. Creating space for different ways of contributing matters.

When it comes to female scientists specifically, I think one of the most underappreciated issues is confidence. Women are often less likely to trust their own assessment, particularly early in their careers. If something does not make sense, they first question themselves. Much of this comes back to a structural problem. The absence of role models means there is no map, and without a map it is easy to mistake uncertainty for inadequacy. I try to be explicit about this with the people I mentor, because simply knowing that others feel the same way can already make a real difference.

> **Science needs you**

What advice would you give to women considering careers in science?

Kerstin: Science needs you. Trust your abilities, even when the path is not yet clear. And if the community you need does not exist yet, consider building it. Do not let the loudest voices define what good science is or what a scientist should look like. It is important to stay connected to people who recognize your potential, especially on the days when you may not fully see it yourself. These relationships often matter more than individual successes or setbacks. At the same time, be selective about whose criticism you take seriously. If you would not go to someone for advice, you do not need to take their judgment too seriously either.

What kind of scientific legacy do you wish for the next generation to inherit?

Kerstin: The legacy I care most about is not a specific scientific result but the way of doing science. I hope the next generation inherits a culture where collaboration is the default, and competition is the exception. I envision ways of working together where different backgrounds, personalities and routes into science are seen as a strength rather than a complication. Good science and a good scientific culture are not in tension. How we show up for the people around us is part of the work.

Kerstin Blank.
©Sabine Starmayr.

What does "being at the forefront of science" mean to you personally?

Kerstin: For me it is about working on questions that do not yet have a clear framework, where nobody has the full picture yet. This is uncomfortable, but also where things get interesting. It often means repurposing tools and methods in ways they were not originally intended for. We just started a project on the enzymatic degradation of plastics waste, using high-end biophysical methods we typically use for completely different questions. These kinds of unexpected connections are what I find most exciting. The curiosity about how far you can get never really goes away.

Outside of your work, what inspires or energizes you?

Kerstin: I spend as much time as possible in nature, whether just outside where I live or travelling to different places. After busy days full of people and constant context switching, it is what recharges me. There is something about being outside that allows me to simply focus on one thing. This is a luxury academic life rarely offers. The curiosity that drives my science and the one that draws me outside are probably the same thing.

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In Conversation with Medina Hamidovic

Medina Hamidovic is a University Assistant at the Institute for Communications Engineering and RF-Systems, Johannes Kepler University Linz.

What initially drew you toward a career in science, and was there a particular turning point that solidified your decision?

Medina: I was born and raised in post-war Bosnia, in a very unstable and difficult environment. One thing my father fostered in me very early was a love for books and knowledge. For me, knowledge represented something factual, stable, and universal—something that remained true regardless of life circumstances. Growing up in such a difficult environment, obtaining knowledge became a clear and reliable path through the uncertainty. This connection to science and its logic never left me, and over time it naturally evolved into my professional path.

What were relevant decisions along your career so far?

Medina: One important decision was choosing an interdisciplinary path instead of remaining within a narrow technical field and pure engineering. Later, transitioning from purely technical research toward translational digital health and AI for healthcare strongly shaped my career direction. Becoming a PI and leading interdisciplinary projects further reinforced my interest in combining research, innovation transfer, and societal impact.

What influenced your early career choices the most?

Medina: Becoming a mother strongly influenced my career direction. After having children, I quickly transitioned from being focused purely on scientific research to becoming much more driven by the impact science can have on society. It created a strong sense of responsibility for the world we leave behind for future generations, including my own children. Since then, I have become increasingly focused on responsible and sustainable technologies, thinking more holistically about innovation and its long-term societal impact.

What is your most impactful scientific achievement, and what is its primary social value?

Medina: I am currently working on what I believe will become a breakthrough not only in my own career, but also for Austrian healthcare. The project, called MIND (Medical Intelligence for Next-generation Diagnostics), develops a responsible AI-supported diagnostics platform for at-home detection and triage of infectious diseases – a major challenge in Austrian healthcare. In a world where "AI is everywhere," the real question becomes how to create unique tools and use them responsibly, and this is exactly where I want to focus my research on. MIND is also planned as a deep-tech healthcare start-up from 2028, where I would enter as one of the very few female founders in deep technical innovation—not only in Austria but also globally.

What are some of the most significant challenges or barriers you've encountered in your work, and what strategies did you use to overcome them?

Medina: One major challenge has been working across disciplines that often speak very different "languages"; especially engineering, medicine, and societal sciences. Building trust and shared understanding across these areas requi-

res patience, communication, and openness. Another challenge was balancing career development with motherhood—and this remains a challenge even today. In parallel, the instability of modern academia, with temporary contracts and limited long-term career opportunities, particularly for women in technical sciences, created additional uncertainty.

What I learned throughout this often difficult and chaotic path, was the importance of strategic thinking, exploring multiple paths, building networks, and not being afraid to ask others for help and support.

How do you mentor or support the next generation of scientists? Is there anything specific that shall be considered when talking about female scientists that isn't yet currently considered?

Medina: As I shared through my own personal story, I believe that love for science and knowledge is born very early in life. Children's curiosity can grow into scientific innovation if we support it. This is why, over the past years, I have strongly focused on knowledge transfer and third mission activities that bring science closer to kindergarten children. This is realized through my own program called “Science for Kids”. It is a true passion of mine, and no matter how busy life gets, I always prioritize these activities and hope to inspire children to remain curious and innovative.

Regarding women in science, we need stronger support programs and more intentionally allocated senior career opportunities for women in technical sciences, where women are still clearly underrepresented. One topic that is still underestimated is reintegration after maternity leave. In fast-moving technical fields, being away for even one or two years can have a major impact on career progression. I have experienced this challenge myself twice, and I know how difficult it can be to re-enter highly dynamic technological fields and catch up with the pace of innovation again.

Medina Hamidovic.

What advice would you give to women considering careers in science?

Medina: Be patient, be brave, and do not apologize for your choices. Science can be difficult, competitive, and sometimes unfair, but authenticity and persistence count in the long run.

What kind of scientific legacy do you wish for the next generation to inherit?

Medina: In a world where everything is becoming digitalized and increasingly driven by AI, I believe one of the most important challenges for the future will be preserving human problem-solving skills. Over the next 20 to 30 years, this may become one of the biggest societal challenges humanity faces. I hope the next generation inherits a world where machines assist humans, but humans have not lost their creativity, critical thinking, and ability to solve problems independently. For me, that would be one of the most important scientific legacies we can leave behind.

What does "being at the forefront of science" mean to you personally?

Medina: Being at the forefront of science is, in my opinion, one of the most amazing jobs a person can have. It means looking at the world around you, trying to understand it, and constantly asking: how can we make it better? Living through curiosity, pushing boundaries, and creating something new—for people like me, it hardly gets better than that.

At the same time, being at the forefront of science as a woman comes with additional struggles. Many women standing at this "front line" pay a significant personal price in terms of energy, working hours, stress, and reduced personal and family time. Still, some of us have to stand there to create in the future more space and visibility for the generations of women who come after us.

> **Be patient, be brave, and do not apologize for your choices**

Have you experienced any benefits or challenges as a woman in science, and how have you dealt with them?

Medina: There are still numerous obstacles for women everywhere, including in science. Improvements are minimal in my opinion. In technical sciences in particular, the situation remains challenging. Throughout my career, I have mostly worked in environments where women represented a minority, often around 5–10%.

I am generally treated respectfully by my immediate colleagues, but there were also situations where my skills or expertise were questioned simply because I am a woman. This sometimes appeared indirectly through project evaluations, paper reviews, or dynamics in larger professional settings.

Over time, I learned not to spend energy trying to control how everyone perceives women in technical science. Instead, I focus on what I can control: standing confidently behind my vision, expertise, and work. That is the approach I continue to follow in every situation.

Outside of your work, what inspires or energizes you?

Medina: Cooking is my go-to activity when I feel overloaded from work or simply need an escape. Hiking is another important source of energy and inspiration for me—in fact, the idea for my current project, MIND, was born while walking through Austrian landscapes. And of course, spending time with my children, whether through sports, games, or everyday family moments, completely changes my perspective and brings balance even during the most stressful periods. In many ways, it is ordinary family life that both inspires and fuels me the most.

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In Conversation with Eleni Priglinger

Eleni Priglinger is Assistant Professor and Group Leader for Orthopaedics and Traumatology at the Johannes Kepler University Linz, and has long-standing experience in stem cell research and tissue engineering.

What initially drew you toward a career in science, and was there a particular turning point that solidified your decision?

Eleni: Curiosity has always been an important part of who I am, but so has the willingness to take risks, embrace challenges, and pursue unconventional paths. I have never been particularly comfortable staying within predefined boundaries. Instead, I am drawn to situations where I can learn something new and challenge established ways of thinking. During my studies, I became involved in medical research. What attracted me most was the combination of scientific curiosity and the possibility of translating new knowledge into benefits for patients. Another aspect that drew me to science was the people. For me, a strong research team feels like an extended family, where people support each other through both successes and setbacks. Science provides a unique space to explore ideas, test new approaches, and learn from failure without being driven primarily by commercial interests or having to make immediate decisions that directly affect patients.

What were relevant decisions along your career so far?

Eleni: My career path has been anything but linear. Before entering academia, I completed an apprenticeship and worked in the logistics and transportation sector for several years. Starting university later than many of my peers was therefore one of the most important decisions of my life. Several other important career-defining decisions followed. One characteristic of my career has been a willingness to move between disciplines including neuroscience, stem cell biology, extracellular vesicles, musculoskeletal tissue engineering, and more recently biomaterials and 3D bioprinting. Along the way, I also gained experience outside academia, including co-founding a company, which broadened my perspective on innovation and translation. Looking back, every step contributed a different perspective and reinforced my belief that some of the most exciting innovations emerge at the interface between disciplines.

Who supported your early career choices the most?

Eleni: The support from mentors, colleagues and collaborators who were willing to takes risks to help me challenge established ways of thinking. In particular, the opportunity to undertake a PhD in neuroscience at the Paracelsus Medical University was a critical turning point in shaping the direction of my career towards medically focused research. I have been fortunate enough to be surrounded by supporting and motivated colleagues at the Ludwig Boltzmann Institute for Traumatology (LBI) and now at the Medical Faculty of the Johannes Kepler University (JKU) who constantly support, challenge, and inspire me every day.

What is your most impactful scientific achievement, and what is its primary social value?

Eleni: My most significant achievement has been my ongoing contribution to the development of regenerative therapies that aim to restore tissue function rather than simply replace damaged tissue. A key focus of my research is the use of highly

regenerative cells obtained from a patient's own liposuction material, which can be isolated and reimplanted within a single surgical procedure. Together with bioresorbable functionalized biomaterials, these approaches have the potential to address musculoskeletal diseases and defects that often lead to chronic pain, repeated surgeries, and a significant loss of quality of life. What I find most rewarding is the translational nature of this work. The ultimate goal is not only to understand biological mechanisms but to develop therapies that can improve patient care and become part of clinical practice. An important part of this journey has been bringing together clinicians, biologists, engineers, and material scientists through an interdisciplinary core facility for 3D bioprinting and biomedical characterization. Beyond my scientific work, I am particularly proud of my efforts to support young scientists and women in research, which were recognized with the 2026 FemMED Empowerment Award.

What are some of the most significant challenges or barriers you've encountered in your work, and what strategies did you use to overcome them?

Eleni: Building research teams and research infrastructures from scratch at two different institutions has been one of the most significant challenges and rewards of my career. Starting in a completely new environment meant learning new structures, establishing collaborations, securing funding, recruiting team members, and creating the necessary infrastructure, all at the same time. One lesson I learned early on is that scientific progress rarely follows a straight path. Even carefully planned projects can encounter unexpected setbacks. I have experienced situations where key collaboration partners withdrew shortly before grant deadlines after weeks of preparation, requiring rapid adjustments and alternative strategies. At the time, these moments felt discouraging, but they taught me persistence and the importance of focusing on solutions rather than problems.

Have you experienced any benefits or challenges as a woman in science, and how have you dealt with them?

Eleni: While women are still underrepresented in some scientific fields and leadership positions, I never approached my career with the feeling that I should limit myself because of my gender. I was always driven by curiosity and pursued the topics that genuinely interested me, even if they led me into unfamiliar or highly technical environments. Looking back, there were certainly situations where expertise had to be demonstrated repeatedly before it was fully recognized. At the same time, I have benefited from inspiring female mentors, supportive colleagues, and excellent initiatives that promote women in science. What has influenced me most, however, is observing how many talented female students and early-career researchers underestimate their own abilities. Many wait until they feel completely prepared before applying for opportunities. This observation has shaped how I mentor today.

Eleni Priglinger.

How do you mentor or support the next generation of scientists? Is there anything specific that shall be considered when talking about female scientists that isn't yet currently considered?

Eleni: I have experienced first-hand how much a supportive environment can influence a scientific career, and I try to create the same environment for the next generation. For me, mentoring goes far beyond teaching scientific methods. It is about helping people build confidence, discover their strengths, and realize that they are capable of more than they often believe themselves. I encourage students to take responsibility early, present their work at conferences, participate in summer schools, and build professional networks from the beginning of their careers. I often tell young researchers that even the most established scientists are just people, everyone starts somewhere, and no one has all the answers. Furthermore, I want them to understand that mistakes are part of science and learning opportunities rather than failures. I actively support the personal and professional development of my team by identifying training opportunities, encouraging participation, and facilitating access through institutional funding whenever possible. I also participate in such opportunities myself, as continuous learning remains important at every career stage. For colleagues returning from parental leave, I support a gradual and flexible return to work, allowing both the individual and the family time to adjust and find a workload that works well for their situation.

What advice would you give to women considering careers in science?

Eleni: Believe in your abilities, even when others do not immediately see your potential. Throughout your career, there will always be people who question your ideas, your decisions, or your ambitions. Do not let setbacks, criticism, or the expectations of others determine the direction of your path. If you are passionate about something, pursue it. One piece of advice I rarely hear discussed is the importance of advocating for yourself.

Many women work incredibly hard but are hesitant to negotiate, ask for opportunities, or make their achievements visible. Do not assume that good work will always speak for itself. Learn to communicate your value, ask for what you need, and be confident in doing so. I would also encourage young scientists to actively seek support. Mentoring, coaching, leadership training, and strong professional networks can make an enormous difference. No one builds a successful career alone. Finally, do not let anyone convince you that you have to choose between a scientific career and a fulfilling personal life. There is no single model for success.

What does "being at the forefront of science" mean to you personally?

Eleni: To me, the "forefront of science" is not working with the newest technology or publishing in the highest-impact journals—it is about asking questions that do not yet have answers and being willing to explore areas where the outcome is uncertain; it means establishing collaborations between disciplines to answer complex problems, and it means thinking beyond the laboratory and considering the real-world applications and impact to people's lives. Science offers a unique freedom: unlike clinical medicine, where immediate decisions affect patients, we have the opportunity to test ideas, make mistakes, learn from them, and continuously improve. Innovation would be impossible without this freedom.

What are some of the most significant challenges or barriers you've encountered in your work, and what strategies did you use to overcome them?

Eleni: Building research teams and research infrastructures from scratch at two different institutions has been one of the most significant challenges and rewards of my career. Starting in a completely new environment meant learning new structures, establishing collaborations, securing funding, recruiting team members, and creating the necessary infrastructure, all at the same time. One lesson I learned early on is that scientific progress rarely follows a straight path. Even carefully planned projects can encounter unexpected setbacks. I have experienced situations where key collaboration partners withdrew shortly before grant deadlines after weeks of preparation, requiring rapid adjustments and alternative strategies. At the time, these moments felt discouraging, but they taught me persistence and the importance of focusing on solutions rather than problems.

> **Believe in your abilities, even when others do not immediately see your potential**

Outside of your work, what inspires or energizes you?

Eleni: I am inspired by people, cultures, and new experiences. Having Greek roots, hospitality, community, and bringing people together have always been important values in my life. Additionally, nature has always been a source of inspiration for me. Due to my passion for marine biology, I find myself frequently traveling the seas and oceans, both above and below.

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In Conversation with Serpil Tekoglu

Serpil Tekoglu is University Assistant, Senior Researcher and Project Leader at the Institute of Physical Chemistry and Linz Institute for Organic Solar Cells, Johannes Kepler University Linz.

Across Borders, Across Disciplines

Serpil: From a small farming family in Türkiye to interdisciplinary research laboratories across Europe, my journey in science has been shaped by curiosity, resilience, and the support of inspiring mentors and peers. Today, I work on sustainable bioelectronics for future healthcare technologies while striving to support the next generation of scientists, especially young women who may still question whether they truly belong in STEM.

What initially drew you toward a career in science, and was there a particular turning point that solidified your decision?

Serpil: My initial drive was pure **curiosity**. Since I was young, I was fascinated by understanding how nature works and how scientific discoveries can be transformed into technologies. Then, I enjoyed asking questions, experimenting, and exploring first in nature, then in the lab.

I also come from a very humble background. My parents used to be farmers in a small Anatolian city, Sivrihisar in Türkiye, and my mother never had the opportunity to learn reading and writing. Therefore, education became something very precious my family. In order to give me and my sister better educational opportunities, my parents moved to a larger city despite many challenges and uncertainties. Looking back, it feels remarkable that a journey which started in a small town eventually expanded across several countries including Austria, Germany, and Italy through science and international research.

This experience taught me that curiosity and education can open doors far beyond what we initially imagine for ourselves. As 2025 Nobel Laureate Omar Yaghi pointed out: "**Science is the greatest equalizing force**".

What were relevant turning points and decisions along your career so far?

Serpil: A major turning point came during my Erasmus exchange at Johannes Kepler **University Linz (JKU)**. At that time, I was pursuing my Master's studies in Türkiye and working on the synthesis of dyes for solar cells at Ege University. During my stay at the **Linz Institute for Organic Solar Cells (LIOS)**, I was introduced to the device physics of organic electronics for the first time by Prof. Serdar Sariciftci. I was fascinated by the idea that soft organic materials could be used to create electronic and optoelectronic devices. That experience opened a completely new scientific world for me and motivated me to continue in this interdisciplinary field. Afterwards, I moved to Germany for my PhD at the Light Technology Institute (LTI) at Karlsruhe Institute of Technology, where I focused on the device physics of light-emitting devices. This experience strengthened my passion for combining materials science, electronics, and innovation for future technologies.

One of the most important decisions in my career was being open to interdisciplinary research. I started from organic chemistry, then moved toward physics, electronics, and bioelectronics. At first, this transition felt challenging because it meant

continuously learning new scientific languages and approaches. However, this interdisciplinary path became one of my greatest strengths.

Who and what influenced or supported your early career choices the most?

Serpil: I was fortunate to receive strong support and encouragement from mentors throughout my career. One of the most influential people in my scientific journey has been **Prof. Serdar Sariciftci** during Erasmus period, now he is my habilitation mentor. His visionary approach to organic electronics, openness to interdisciplinary collaboration, and encouragement of young researchers had a significant impact on my development as a scientist. Serdar Sariciftci has become a lifelong mentor for me, not only scientifically but also personally. He is someone with whom you can discuss science, society, and life itself. I often describe him as an ocean; full of depth, knowledge, curiosity, and openness.

I am also grateful to JKU for providing an environment where I had the opportunity to grow as a senior researcher through teaching, project leadership, and interdisciplinary research. Equal opportunities and supportive academic structures are extremely important for enabling young scientists (especially women) to develop confidence, independence, and leadership skills.

What is your most impactful scientific achievement, and what is its primary social value?

Serpil: One of my most impactful scientific achievements has been contributing to the establishment of **biopolymer-based conductive materials for sustainable bioelectronics** at LIOS. My research focuses on using naturally derived materials such as DNA, cellulose, and lignin to develop smart, functional electronic and sensing platforms for future healthcare and environmental applications.

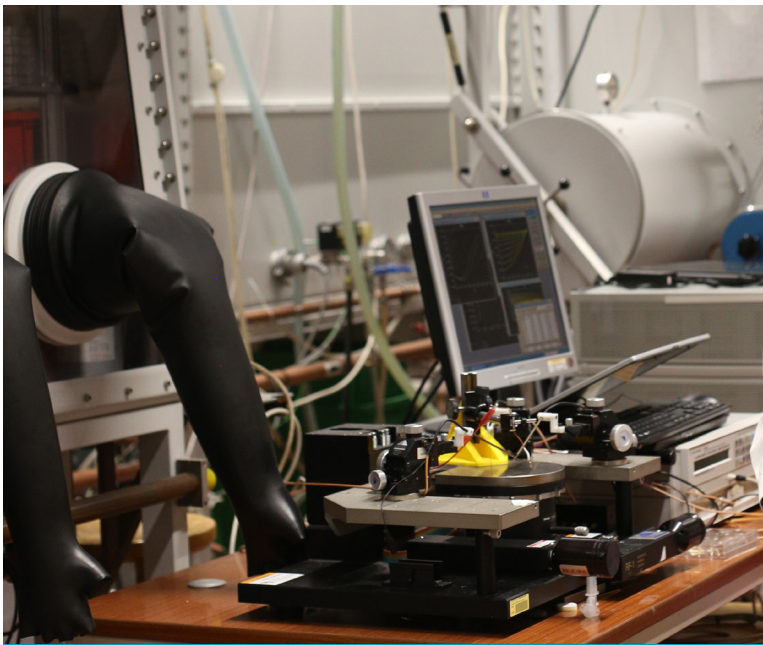
What makes this work especially meaningful to me is its **potential social and environmental impact**. Conventional electronic materials often rely on non-degradable components and resource-intensive manufacturing processes.

In contrast, bio-based conductive materials open new possibilities for sustainable, biodegradable, and biocompatible electronics with reduced environmental impact.

I believe these materials could contribute to next-generation biosensing platforms, wearable health monitoring systems, and **personalized medical devices with reduced environmental impact**. For me, one of the most exciting aspects of bioelectronics is the possibility of combining technological innovation with sustainability and improved quality of life.

This research direction has also led to several recognitions, including the 2025 Women in Materials Science Award from the Royal Society of Chemistry, selection for the 2024 ChemTalents program by Chemistry Europe and Wiley, and awarded the 2023 LIT Young Scientist Project Grant at JKU, supported by the State of Upper Austria and the Austrian Federal Ministry of Education. And collaborations spanning the globe, including **Italy, the Czech Republic, New Zealand, Türkiye, Japan, China**, and hopefully soon **Korea.**

More recently, together with Prof. Yong Yu, our project idea focused on **cancer research** has been selected as one of the innovative projects for Personalized Technical Medicine, promoting translational research at the interface of medicine and technology. Our new LIT project GreenSKITE together with Prof. Markus Scharber and Prof. Serap Guenes at JKU will focus on **environmentally safer solar cells** to power biosensors.



What are some of the most significant challenges or barriers you've encountered in your work, and what strategies did you use to overcome them?

Serpil: One of the biggest challenges in my career has been continuously **moving across disciplines**, from chemistry to physics, and now increasingly toward biology and biomedical applications. Each transition required learning new terminologies, ways of thinking, and scientific approaches. Building common language between disciplines can sometimes be challenging, especially since engineers, material scientists, and medical researchers often have very different priorities and perspectives.

I remember many discussions with medical doctors during collaborative proposal writing, where we worked to align our expectations and approaches. I overcame these challenges mainly through **curiosity, openness, and continuous learning**. Today, I actually see interdisciplinarity as one of the most exciting and rewarding aspects of my work.

Have you experienced any benefits or challenges as a woman in science, and how have you dealt with them?

Serpil: I believe women in science still often face **invisible "glass barriers"**, especially when advancing into leadership and senior academic positions. Although significant progress has been made, equal representation and opportunities in STEM are still evolving.

There were moments in my career when I felt I had to prove myself more than others or struggled with self-doubt and challenges. During those times, my curiosity and passion for science became my strongest motivation to continue. At the same time, I learned how important it is not to face these experiences alone. Conversations with inspiring female scientists and mentors helped me realize that many women share similar experiences, even if they are not always openly discussed.

During difficult moments, I often thought about **Rosalind Franklin** and her contribution to discovering the DNA structure. Perhaps I feel a special connection because I also work with DNA as a material scientist in bioelectronics research. Her story reminded me that many brilliant women faced barriers and limited recognition, yet their work still changed science profoundly.

Science is a long journey with both ups and downs, but one of the most important lessons I learned is **not to give up**. I do see positive change happening slowly but steadily. I hope that by sharing our stories and supporting one another, we can make the path more inclusive and inspiring for future generations of women in STEM.

How do you mentor or support the next generation of scientists? Is there anything specific that shall be considered when talking about female scientists that isn't yet currently considered?

Serpil: Mentoring young scientists is one of the most meaningful aspects of my academic work. I closely support students in their thesis projects and scientific development. Many members of our team are young women pursuing STEM careers. For me, **mentorship goes far beyond supervising experiments** or publications. It is building trust, supporting students during uncertain moments, and helping them believe in their own potential.

One aspect that I believe is still not sufficiently considered when talking about female scientists is the emotional and psychological dimension of their scientific journey. Many young women grow up with societal expectations or stereotypes that quietly influence their confidence long before entering academia. I especially notice this among some international students coming from regions where gender imbalance is still more pronounced, where even highly talented young women may struggle with feeling '**not good enough**'.

Interestingly, there is sometimes **a bittersweet reality** in mentoring young female scientists: while we try to support and empower younger generations, we ourselves may still be facing glass barriers and inequalities. In this sense, we are all continuously learning, growing, and evolving together. I believe this shared experience creates empathy, solidarity, and stronger connections between women in science.

In this context, I also support the UNESCO-backed ***The Science Girl (Bilim Kızı)*** initiative, founded Müjgan Çetin, which encourages young women to pursue education and careers in science and emerging technologies. Being featured in the *Bilim Kızı Calendar 2025* among 12 women scientists was especially meaningful to me, as visibility and representation are powerful tools for inspiring future generations of girls in STEM.

What advice would you give to women considering careers in science?

Serpil: My advice would be: **do not be afraid of failure**, uncertainty, or difficult phases along the journey. Science naturally comes with many ups and downs, and research is often a process of learning through experiments that do not work immediately. As Nobel Laureate David MacMillan once said, "*We are amazing at dealing with failure*".

Another quote that inspires me is from Samuel Beckett: "*Ever tried. Ever failed. No matter. Try again. Fail again. Fail better*". I think this mindset is important not only in science, but also in life.

For young women especially, I would say: **trust your curiosity and your abilities**. Do not let insecurities or stereotypes define your potential. Science needs diverse perspectives, creativity, empathy, and resilience. Those qualities that many women strongly bring into research and innovation.

Most importantly, do not hesitate to seek mentors, ask questions, and support one another. **Building networks** and learning from others can make a huge difference. Your ideas, your voice, and your contributions matter.

> **Do not be afraid of failure**

What kind of scientific legacy do you wish for the next generation to inherit?

Serpil: I hope the next generation will inherit a scientific culture that is more interdisciplinary, collaborative, sustainable, and inclusive. Many of the major global challenges we face today in healthcare, energy, climate, and sustainability, are too complex to be solved within the boundaries of a single discipline. I would like future scientists to feel comfortable **crossing traditional borders**, and to see collaboration as a strength rather than a limitation.

From a research perspective, I also hope we move toward more sustainable technologies and materials. In my own work, I try to contribute to this vision through smart, bio-based, and biodegradable electronic materials for future sensing and biomedical applications. I believe scientific innovation should not only create advanced technologies, but also consider environmental responsibility and societal benefit.

At the same time, I strongly hope future academic systems will offer more trust, stability, and **long-term opportunities for young scientists**. Too often, early-career researchers are forced to focus on survival rather than creativity due to short-term contracts. I believe young researchers should be given more opportunities, more responsibility, and more permanent positions earlier in their careers. **Science needs time, freedom, and stability to flourish**.

What does "being at the forefront of science" mean to you personally?

Serpil: For me, being at the forefront of science is not only about personal success or scientific achievements, but also about **having a voice and a choice**. It is the possibility to contribute to decision-making, support younger scientists, and help create more equal and inclusive academic environments.

I strongly believe that every woman's success can inspire another woman or girl to believe in her own potential. One of the most beautiful things I experience today is seeing female scientists support, encourage, and celebrate one another. I feel very fortunate to have inspiring female colleagues who are excellent role models. I hope we can continue building this supportive culture for future generations.

One person who holds a special place in my heart: my colleague and friend **Prof. Thuc-Quyen Nguyen** from University of California, Santa Barbara. Her resilience, life story, and positive mindset became one of my motivations not to give up. For me, science is also about receiving mentorship and passing that support forward to younger generations.

At another level, knowing that our work in sustainable bioelectronics and biosensing could one day **contribute to improving human health** and quality of life is one of my greatest motivations.

Serpil Tekoglu.

What are your final thoughts?

Serpil: And **last but not least** as the classic scientific conference cliché, I would like young scientists, especially women in STEM, to know that they are not alone in this journey. Academic life often involves uncertainty, continuous proposal writing, and balancing teaching, mentoring, and research while searching for long-term stability.

In many ways, this **uncertainty reflects the nature of science itself**. We invest time, creativity, and energy into ideas without fully knowing whether they will succeed or fail. I once heard a Nobel Laureate humorously say at the Lindau Nobel Laureate Meetings: ***"The way to receive a Nobel Prize is to live long enough"***. Behind the humor lies an important truth: science requires patience, resilience, and faith in the long-term value of discovery.

Feelings of uncertainty, exhaustion, or self-doubt are often part of the scientific journey. Yet, just like in science itself, we continue moving forward because the possibility of discovery **remains stronger than uncertainty**.

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The Women of CHASE: Leading from the Front

At CHASE, our female colleagues are at the forefront of science and innovation because of their skills, dedication, and hard work. Their achievements lead to significant contributions in their respective fields, pushing the boundaries of research in Process Digitalization, Process Intensification, and Circular Process Streams. And, quite frankly, they are a pleasure to work with.

To introduce a few of them, we have highlighted those who were recently honored with awards for their achievements:

Karin Wieland received the “Best (Young) Author Award” at the latest Herbstkolloquium Prozessanalytik 2025 in Frankfurt, Germany.

Karin Kloiber picked up the “Best Paper Award” at the ICAT 2026 on AI for the control of material extrusion additive manufacturing in Maribor, Slovenia.

While we would love to highlight everyone, we simply don't have enough space to mention them all – so here we go!

In Conversation with Karin Kloiber

Dr. Karin Kloiber, BSc is Area Manager for Process Digitalization, Chemical Systems, and Key Researcher for Digitalization at Competence Center CHASE. She heads the Advanced Data Analytics team, with a focus on data-driven methods, simulation expertise, and international scientific collaboration.

Her main research focuses on the use of advanced machine learning and Artificial Intelligence for process monitoring and control, physics-informed machine learning for complex chemical systems, and data-driven surrogate models for physical simulations.

She received her PhD in Chemistry and a BSc in Physics from the University of Innsbruck, has around 15 years of academic experience, and has been awarded several fellowships. She is the author of more than 25 peer-reviewed scientific publications

What initially drew you toward a career in science, and was there a particular turning point that solidified your decision?

Karin K.: To be honest: disinterest in basically all other things. Science was so much more playful than other subjects, and one was allowed to write equations with Greek letters. And while this was clear to me from the age of, let's say, 16 or so, the details were far from that, and my path towards where I am now was a long and winding road.

What were relevant turning points or decisions along your career so far?

Karin K.: First decision point: After school I went to study medicine, thinking I would learn so much about science (biology, chemistry, physics…) – it turned out that that was not quite true, and (second decision point) after spending a couple of nightshifts in hospitals I realized that this was not for me – what I wanted was to draw biochemical pathways, not work with sick people. I went into chemistry (there was no biochemistry program at my university) and stuck with it (third decision point). One of the most important turning points was the decision for NMR spectroscopy as topic for my diploma thesis and my PhD – this was a lot more theoretical / physical than the rest of the options at my university. This does not seem like a decision point, but for me and back then, to "dare" go into a theoretical subject took some mental effort. I am still glad I was welcomed with open hands – and it shaped my academic career over 15 years and carried me from Innsbruck to Toronto, then to Vienna and back to Innsbruck (fourth, fifth, and sixth decision point).

That I dropped out was entirely for private reasons and with the support of one trait of my personality that drives me: to learn something new every day (part of every job application I have ever written and the truest thing I can say about myself). I went to do a BSc in physics, had a brief bout of self-employment, got interested in data science, pursued that on my own account and took on a project management job in the field of biomedical AI in Germany.

Now I am back in Linz, touching on chemistry, data science, simulation topics, happy to be hands-on, supervise, and be creative in an extremely multi-faceted environment.

Who and what influenced or supported your early career choices the most?

Karin K.: My PhD supervisor, I believe. Probably my most important colleague ever. And (involuntarily), my kids – without them I would probably have been more steady in my career and would have explored a lot less!

What are some of the most significant challenges or barriers you've encountered in your work, and what strategies did you use to overcome them?

Karin K.: It's when you learn a lot of new things all the time, you need to be quite tenacious. Not give up easily, but on the other hand give it a break at the right time. This challenge is an inner challenge and it took me decades to overcome – it has to do with stopping to constantly doubt and daring to make decisions in the absence of complete information.

Have you experienced any benefits or challenges as a woman in science, and how have you dealt with them?

Karin K.: Benefits: there was a bunch of grants only for women. If you have kids, everyone helps and understands (kids are still a hurdle). I think as a woman in science you basically get your way paved to some extent (at least until senior postdoc). Hurdles (but that is bordering on the trivial): Yes, but the hurdles are psychological mainly. In order to say "I can do this" requires a lot more trying and testing for me than for a "typical man" (sorry...). I tend to underestimate myself (and that is what other women tell me).

Karin Kloiber.

How do you mentor or support the next generation of scientists? Is there anything specific that shall be considered when talking about female scientists that isn't yet currently considered?

Karin K.: I don't. What I would say is: dare to make decisions earlier than I!

What advice would you give to women considering careers in science?

Karin K.: Follow your heart and if your heart shouts "science!", don't let it make you disregard non-academic career opportunities (yes, money also matters). Impact can be made in academic, corporate, and hybrid settings. Respect can be gained in settings where you work with the right people (again: follow your heart).

Follow your heart

What kind of scientific legacy do you wish for the next generation to inherit?

Karin K.: These days as a scientist you are one of many. Of millions. As a scientist, you need above all (A) to see past the jungle of inflationary original literature – the quality of which has been decreasing for a while. Sometimes finding good scientific papers is like looking for the needle in a haystack (in particular in data science). Staying critical is paramount, in particular about your own work.

The reason behind this is the pressure to publish, which leads to all the known problems with bad publication quality, faking of results, no access to negative results, and multiplication of efforts. On the upside, there is a strong push in the open science community to improve this situation – to get beyond the H-index, towards a more honest reporting of scientific results. I would like to see science developing more towards those principles, it would mean working less against each other – and more together towards a common goal. This is not only about ethics, this is about practical implications on scientific progress.

Outside of your work, what inspires or energizes you?

Karin K.: Sports and reading entirely different stuff than science.

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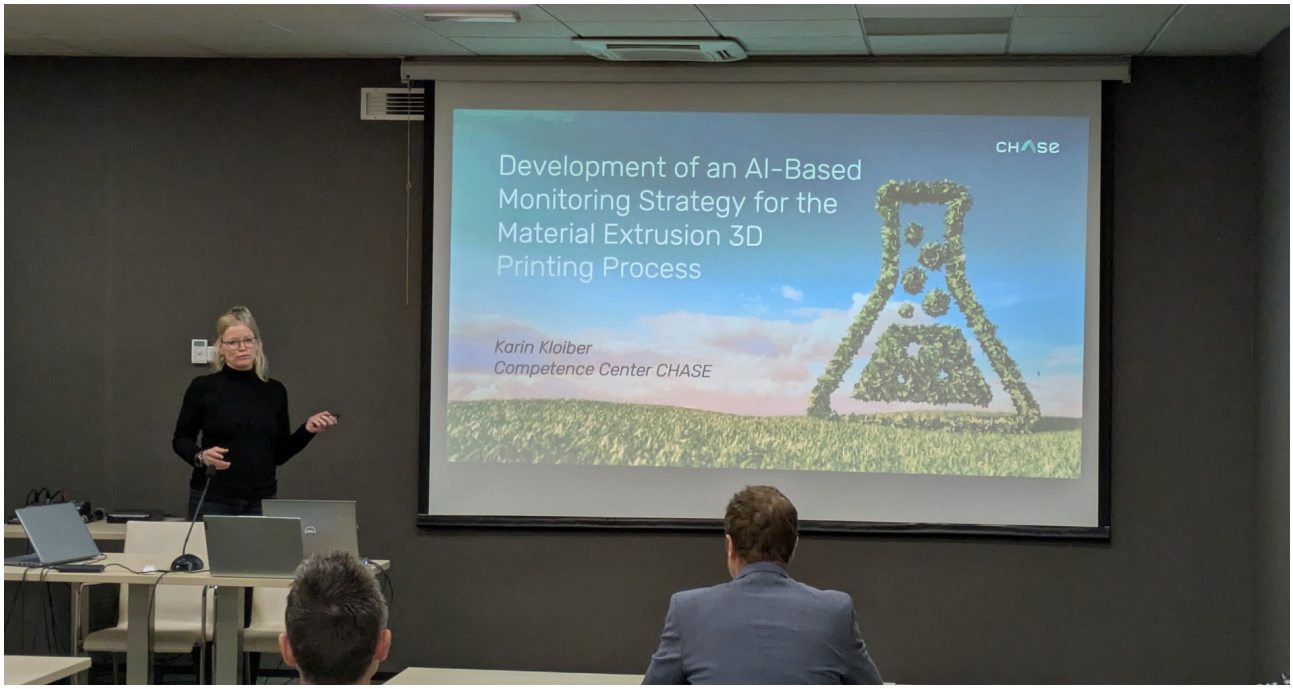

In Conversation with Karin Wieland

Dr. Karin Wieland is the Area Manager for Process Intensification at the CHASE Competence Center. She also leads the Process Analytical Technology (PAT) team.

She has more than ten years of experience in the application, adaptation, evaluation, and interpretation of vibrational spectroscopy—ranging from nanoscale analysis to process analytical technology on an industrial scale.

Who and what influenced or supported your early career choices the most?

Karin W.: Growing up, my parents gave me something truly valuable: the freedom to follow that curiosity wherever it led. One day, my cousin gave me the kind of advice that sounds simple but would be my guiding principle whenever I encountered tough decisions: 'Do what feels right to you today. Don't get too caught up in the future – none of us really knows what tomorrow holds.' Those words gave me the freedom to stop second-guessing myself – to simply follow what excited me, without worrying about where it would take me in five or ten years.

How do you mentor or support the next generation of scientists? Is there anything specific that shall be considered when talking about female scientists that isn't yet currently considered?

Karin W.: For example, last year, I was invited to share my career path at the "Women in Photonics" event in Jena (Women in Photonics 2025 – Biophotonics4Future) which offers a unique chance for excellent female scientists at the beginning of their career to connect, present their research and learn from experts in photonics holding leading positions at research institutions and companies. It was truly inspiring to connect with so many women active in STEM and to learn about their journeys and perspectives. What was even more inspiring was to run into one of the attendees months later – she told me that my talk had been the push she needed to make a career decision that defined where she is today.

In addition to co-supervising PhD and Master students at CHASE, I am currently mentoring 4 PhD students (female and male) at TU Munich which is something that I genuinely enjoy. The fresh perspective that the younger generation brings to science gently shifts the way we think, the questions we ask, and the way we approach the challenges in front of us.

Last but not least, I was able to help shape FemChem – the first women's network at TU Wien – from its very founding within the Faculty of Technical Chemistry (FemChem | TU Wien). As one of the first members, I joined FemChem because I wanted to support and contribute – but the community gave me far more than I ever anticipated. It brought together women across the faculty with whom I never really had connected before, united by a shared purpose: rather than complaining about the challenges we faced, FemChem was about lifting each other up, actively building a more equal working environment, and identifying where change needs to happen. On that note, FemChem is celebrating its 10-year anniversary this year.

What advice would you give to women considering careers in science?

Karin W.: There are two main pieces of advice that I want to give women considering careers in science:

1. Don't compare yourself to anyone. Everyone has a different journey. You follow your path which is the only one you need to focus on. People will always have an opinion about everything you do. The faster you learn not to care about that, the more you can enjoy the journey.

2. Whenever you cannot seem to decide which way to go, ask yourself the question: "Would I regret not choosing this path?" If the answer is yes, go for it. It is ok to fail – better try and fail than don't try at all.

Outside of your work, what inspires or energizes you?

Karin W.: Outside of work, nature and music are what truly restore me. Both have this ability to slow me down and reconnect me with something bigger than my daily work. I think it's important as a scientist to nurture those sides of yourself, because that's often where your best ideas find their way in.

Karin Wieland.

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In Conversation with Sarah Zellnitz–Neugebauer

Dr. Sarah Zellnitz-Neugebauer is senior scientist at Area II "Advanced Formulations" at the Research Center Pharmaceutical Engineering (RCPE) in Graz (AT), where she is leading the Inhalation group and coordinating the different activities in this field.

What initially drew you toward a career in science, and was there a particular turning point that solidified your decision?

Sarah: I have always been fascinated by the possibility of translating scientific discoveries into tangible benefits for patients. From early on, I was drawn to pharmacy—the knowledge of medications and their mechanisms, and the power they hold to relieve symptoms and treat disease. During my academic training, I became particularly interested in drug delivery and the challenge of improving treatment outcomes for chronic and infectious diseases.

My motivation was further strengthened by my personal background: my father lives with a chronic infectious disease, which has made me very aware of the limitations of existing therapies and the importance of better treatment strategies. A key turning point was realizing how formulation and delivery strategies can significantly impact the effectiveness of therapies, especially in diseases such as tuberculosis, where long-term administration of multiple antibiotics often leads to poor patient adherence, side effects, and the development of antibiotic resistance. The opportunity to contribute to innovative drug delivery approaches that address these challenges ultimately solidified my decision to pursue a career in pharmaceutical research and development.

What were relevant turning points or decisions along your career so far?

Sarah: Several key decisions have shaped my career so far. After completing my pharmacy studies and the subsequent working year in a public pharmacy ("Aspirantenjahr"), I realized that simply working within the existing framework of medications and therapies was not enough for me. I wanted to contribute more actively to innovation and was convinced that there was greater potential in advancing how medicines are developed and delivered.

Driven by my fascination with translating scientific discoveries into tangible benefits for patients, I decided to pursue a PhD in Pharmaceutical Engineering at the Technical University. This step allowed me to deepen my understanding of formulation science and drug delivery technologies and marked a clear turning point from primarily applying existing knowledge to actively generating new solutions for improving patient care.

Who and what influenced or supported your early career choices the most?

Sarah: My family provided continuous encouragement and support throughout my education and early career, even though, coming from a family of teachers with little background in science. Equally important was the opportunity to work in a research institute early on, where I was exposed to an inspiring scientific environment, excellent mentors, and a highly supportive PhD supervisor, whose guidance as a female role model was particularly influential in shaping my development as an independent scientist. In addition, competitive funding programs and collaborative research initiatives, such as the DFG Priority Programme and the Hertha Firnberg Programme, played a crucial role in enabling key research projects and career milestones. These experiences and support networks significantly influenced my professional development and helped me establish an independent research profile.

I would encourage women to pursue science with confidence and curiosity

What is your most impactful scientific achievement, and what is its primary social value?

Sarah: One of my most impactful scientific achievements has been building my independent research profile in inhalation-based drug delivery for infectious lung diseases, particularly tuberculosis. A key milestone was definitely the FWF Hertha Firnberg grant, which enabled excellent research in pulmonary antibiotic delivery and the development of novel strategies to improve treatment efficacy. Another important step was the Galenus Technology Prize which I was granted for my work on "Surface-modified drug carriers for inhalation therapy - Co-processing and formation of crystalline coatings" and my leading role in the Galenus Workshop on *Recent Developments in Particle Engineering*, which strengthened my scientific exchange, leadership skills, and interdisciplinary network and most of all: expanding the impact of my research.

The primary social value of my work lies in improving treatment outcomes for tuberculosis by addressing challenges such as long treatment duration, poor adherence, and antibiotic resistance through more effective and patient-friendly drug delivery systems.

What are some of the most significant challenges or barriers you've encountered in your work, and what strategies did you use to overcome them?

Sarah: A major challenge in pharmaceutical research is translating promising laboratory findings, especially innovative and new particle engineering techniques into clinically relevant solutions. Developing inhalation therapies requires the integration of expertise from multiple disciplines, including formulation science, material science, particle engineering, aerosol technology, microbiology, and clinical research. Navigating this complexity often involves technical setbacks and long development timelines. I have addressed these challenges by fostering interdisciplinary collaborations, maintaining a strong focus on the clinical relevance of my research, and viewing setbacks as opportunities to refine scientific questions and experimental approaches. What helped most was persistence and a lot of teamwork.

Sarah Zellnitz-Neugebauer.

Have you experienced any benefits or challenges as a woman in science, and how have you dealt with them?

Sarah: Throughout my career, I have been fortunate to receive support from excellent mentors, colleagues, and funding programs that actively promote the advancement of women in science. My own path, from pharmacy studies and my "Aspirantenjahr" to pursuing a PhD in Pharmaceutical Engineering was strongly encouraged by mentors and, in particular, by my female PhD supervisor, who served as an important role model and demonstrated that a successful scientific career and personal commitments can be combined.

At the same time, women in academia can still face challenges, including underrepresentation in leadership positions and the need to balance career progression with personal and family responsibilities. I believe that strong professional networks, mentorship, and institutional support are crucial in addressing these challenges. For me, seeking collaborative environments and taking advantage of dedicated career-development programs have been valuable strategies for navigating these hurdles and building a successful scientific career.

How do you mentor or support the next generation of scientists? Is there anything specific that shall be considered when talking about female scientists that isn't yet currently considered?

Sarah: I try to support early-career researchers by fostering an open, collaborative, and encouraging research environment where questions are welcome and independent thinking is actively promoted. I also have extensive experience in mentoring PhD students, Master's students, and early-stage researchers, and I aim to pass on the kind of guidance I received by being accessible, giving constructive feedback, and creating a space where they feel safe to explore their ideas and make mistakes. In doing so, I support them not only in their scientific development but also in building confidence, critical thinking skills, and a clear sense of career direction.

When discussing female scientists, it is still important to more consistently recognize structural barriers such as visibility gaps, unequal access to opportunities among other challenges. These aspects should be addressed more proactively through institutional support, transparent career pathways, and stronger mentorship structures.

What advice would you give to women considering careers in science?

Sarah: I would encourage women to pursue science with confidence and curiosity, and to seek out supportive environments and mentors early on. Building strong professional networks and not hesitating to take opportunities – even when they feel challenging – can be crucial for long-term career development.

What kind of scientific legacy do you wish for the next generation to inherit?

Sarah: I would hope for a scientific legacy characterized by interdisciplinary collaboration, inclusivity, and a strong focus on translational research that directly benefits patients. In my field, this means continuing to advance innovative drug delivery approaches that improve treatment outcomes while also fostering a research culture that enables the next generation of scientists to thrive.

What does "being at the forefront of science" mean to you personally?

Sarah: To me, being at the forefront of science means working on research questions that are both highly innovative and clinically relevant, and contributing to solutions that can make a real difference for patients. It also means continuously learning, challenging established concepts, and engaging in interdisciplinary collaboration to push the boundaries of what is currently possible in drug delivery and pharmaceutical sciences.

Outside of your work, what inspires or energizes you?

Sarah: Outside of work, I enjoy spending time with my kids and family, which brings me a lot of joy. I also love being outdoors – cycling, hiking, and ski touring are where I can fully switch off, recharge, and come back with fresh energy.

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In Conversation with Maria Kalogeropoulou

Dr. Maria Kalogeropoulou is a Postdoctoral Researcher at the Polymer Chemistry and Biomaterials Group, Ghent University.

What initially drew you toward a career in science, and was there a particular turning point that solidified your decision?

Maria: I was drawn to science from an early age, as I grew up in a household where research and academic life were part of everyday conversations. As a result, pursuing a scientific career felt more like a natural progression and less like a completely unexpected trajectory. However, my own path took shape through evolving interests. I was initially fascinated by electrical and computer engineering, before gradually moving into biomedical and tissue engineering, where I found a stronger connection to applications in biology. A defining moment came during the more difficult periods in my studies either due to personal circumstances or to an intense academic workload: despite the challenges, I consistently found that being in the lab, designing experiments, and engaging with scientific questions gave me a genuine feeling of fulfilment and excitement. That realization ultimately confirmed that this was not just a path I had followed, but one I truly wanted to pursue.

What were relevant turning points or decisions along your career so far?

Maria: One of the first pivotal decisions in my career was transitioning from electrical engineering to biomedical engineering. This shift led me to move from Greece to the Netherlands for my master's studies, where I significantly broadened my scientific perspective. It was during this time that I discovered my interest in tissue engineering, which ultimately led me to pursue a PhD in the field. During my PhD research, I explored innovative geometries and physical stimuli to instruct the fate of stem cells, guiding their differentiation towards skeletal muscle, bone or cartilages, solely using physical forces. The combination of engineering systems with living tissues of my doctorate projects created the stepping stone that led me to the more recent turning decision in my career: relocating to Ghent to focus my research on living robots.

Who and what influenced or supported your early career choices the most?

Maria: My family has always been consistently supportive of my ambitions, often believing in me more than I believed in myself. However, the person who has been most instrumental throughout my journey has been my life partner, whose encouragement and support have been my constant source of power through every step of my career.

What is your most impactful scientific achievement, and what is its primary social value?

Maria: I believe that one of the most impactful results from my doctorate research has been the effect of architected materials on the regeneration of skeletal muscle. We observed that exposing myoblasts to different types of mechanical loading that was closely dependent on the geometry of the support they were seeded on, had a very distinct effect on the formation of functional skeletal muscle tissue. This result seemed to follow a very clear trend and was closely correlated to specific geometric parameters, revealing that muscle cells have an internal machinery that allows them to distinguish between different loading modes. The social value from such a result is the new roads it opens for skeletal muscle regeneration. For instance, treatment of large muscle defects such as in volumetric muscle loss, could be enhanced and even accelerated by introducing hierarchical materials with inner geometries favouring muscle growth. Moreover, these materials could be tailored to each patient to accommodate the local mechanics of their body.

What are some of the most significant challenges or barriers you've encountered in your work, and what strategies did you use to overcome them?

Maria: A recurring challenge in my work has been navigating periods of uncertainty, both in terms of experimental outcomes and in communicating the relevance of fundamental research. In interdisciplinary fields, the impact of a study is not always immediately evident, which can make it difficult to convey its importance to a broader audience.

Over time, I learned to view this not as a limitation, but as an opportunity. It pushed me to think more critically about the purpose of my work and to actively develop my ability to communicate it beyond my immediate field. This process has strengthened my confidence as a researcher and allowed me to engage more meaningfully with a wider scientific community.

&

Maria Kalogeropoulou.

Believe in your place in science

Have you experienced any benefits or challenges as a woman in science, and how have you dealt with them?

Maria: When I started my studies in electrical engineering early in my career, I was part of a field that remains predominantly male, and I did encounter situations where I had to work harder to establish my credibility. These experiences made me more aware of the subtle barriers that can exist in academic environments.

Rather than trying to adapt by blending in, I chose to focus on building confidence in my work and in my voice. Over time, this helped me navigate these challenges more effectively and assert my place within the field. At the same time, I have also benefited from supportive mentors and colleagues who value inclusivity, which has been equally important in shaping my experience. So, in a way, facing discrimination helped me identify what I would prioritize in selecting a mentor and a group for my research and ultimately led me to reflect more consciously on the kind of mentor I aspire to become.

How do you mentor or support the next generation of scientists? Is there anything specific that shall be considered when talking about female scientists that isn't yet currently considered?

Maria: In mentoring the next generation, I aim to foster both scientific curiosity and a sense of autonomy. I encourage young researchers to take ownership of their ideas while also creating a supportive space where they feel comfortable expressing uncertainty and asking questions. Equally important to me is actively challenging some of the less healthy norms in academia, such as overwork and hierarchical pressures.

For female scientists in particular, I believe the conversation still focuses too much on individual adaptation rather than systemic change. Issues such as mobility expectations and career instability are often presented as neutral, but in practice they can create disproportionate barriers and opportunities favouring male researchers. Recognizing and addressing these structural aspects is key to making science more inclusive.

What advice would you give to women considering careers in science?

Maria: Believe in your place in science and do not feel the need to justify it. Your perspective, your ideas, and your way of thinking are valuable. Challenges may arise, but they do not define your potential.

Seek out environments that support you (yes, they do exist), trust your judgment, and do not be afraid to take up space. Science benefits from diversity, and your presence contributes to that progress.

What kind of scientific legacy do you wish for the next generation to inherit?

Maria: I hope the next generation inherits a scientific culture that is more comfortable with uncertainty and more open to questioning its own assumptions. Some of the most interesting progress happens at the boundaries between disciplines, between ideas, and sometimes even between failure and success. A failed experiment can still generate valuable knowledge for the scientific community. However, the current culture of high-volume publishing tends to prioritize positive and polished results, leaving little room for this kind of insight. I believe this model is ultimately unsustainable, as it places emphasis on quantity rather than true scientific understanding. Moving forward, I would like to see a shift toward an environment where exploration, including negative and unexpected outcomes, is valued as much as success, because this is often where the most meaningful progress begins.

I would also like to see a culture that encourages people to remain curious and intellectually courageous, rather than overly cautious or constrained by expectations. Science advances not only through precision, but also through creativity, and preserving that balance is essential. Ultimately, I think a valuable legacy would be one where scientists feel empowered to think and talk freely, collaborate across boundaries, and engage with open questions without fear.

What does "being at the forefront of science" mean to you personally?

Maria: To me, being at the forefront of science is a privilege. It is an opportunity to continuously explore the unknown, challenge established ideas and engage in a process that constantly stimulates both creativity and critical thinking. At the same time, it comes with a great sense of responsibility as the results of my experiments could be used as a guide or even inspiration for other scientists, so it is important to critically validate every step of the procedure.

Outside of your work, what inspires or energizes you?

Maria: Outside of my work, I find energy and balance through activities that allow me to disconnect and reset. Physical exercise helps me stay grounded, while hiking in the mountains gives me a sense of perspective and calm. I also enjoy gaming, which, in a different way, engages my problem-solving mindset and creativity. Together, these activities help me recharge and return to my work with a clearer and more focused mind.

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In Conversation with Nele Pien

Dr. Nele Pien is a Postdoctoral Researcher at the Polymer Chemistry and Biomaterials Group, Ghent University.

What initially drew you toward a career in science, and was there a particular turning point that solidified your decision?

Nele: I have always been driven by curiosity, but my interest in science became more concrete when I discovered how chemistry and materials science could be used to address biomedical challenges. During my studies, I became fascinated by the idea that we can design biomaterials and, through relatively small chemical changes, influence how cells behave, how tissues regenerate, or how future therapies could be developed.

A key turning point was my PhD, which was a joint project between Ghent University and Université Laval (supervised by Prof. Diego Mantovani). Working across two institutions and scientific environments made me realize how much I enjoyed interdisciplinary research. My PhD focused on polymeric biomaterials, various extrusion-based 3D printing techniques, their application in regenerative medicine, and it showed me that I wanted to build a career at the interface of polymer chemistry, biofabrication, and tissue engineering.

Another important step was my Research Foundation Flanders (FWO) junior postdoctoral fellowship (supervised by Prof. Catharina De Schauwer), during which I further developed my research expertise on gelatin-based hydrogels and light-based 3D printing technologies, including digital light processing and volumetric additive manufacturing. This period also allowed me to gain extensive experience with mesenchymal stromal cells, studying how biomaterial properties and processing conditions can influence cell behavior and differentiation. This increasingly shaped my scientific vision around the question of what happens “when light meets cells”: how light-based technologies can be used not only to fabricate materials, but to create environments that truly interact with living biology.

What were relevant turning points/decisions along your career so far?

Nele: Several decisions have strongly shaped my career. One of the most important was choosing a joint PhD trajectory between Belgium and Canada. This experience pushed me outside of my comfort zone, scientifically and personally, and taught me how valuable international collaboration can be. After deciding to take this path, I applied for a Vanier Canada Graduate Scholarship, which supported my PhD research in Canada for three years. The scholarship was based not only on scientific excellence, but also on leadership, including my experience in high-level rugby. Receiving this fellowship was a major turning point, as it gave me the freedom and confidence to fully embrace the international PhD experience.

A second turning point was moving from more classical biomaterial fabrication toward light-based 3D printing and volumetric additive manufacturing. This opened a new research direction for me, where material chemistry, light-based

processing, and cell biology all come together. It also helped me define the scientific niche I am most passionate about: developing materials that are not only printable, but also biologically meaningful.

Another important step was deciding to remain active in both fundamental and translational research. I enjoy understanding materials in detail, from their chemical structure to their mechanical properties, but I also want this knowledge to contribute to regenerative medicine and improved biomedical models.

Finally, being awarded an FWO senior postdoctoral fellowship (supervised by Prof. Heidi Declercq, Prof. Sandra Van Vlierberghe and Prof. Kevin Braeckmans) is a major milestone. It gives me the opportunity to further develop my independent research vision and to expand my work toward more complex tissue engineering applications.

Who and what influenced or supported your early career choices the most?

Nele: I have been extremely fortunate to be supported by exceptional mentors, both scientifically and personally. Prof. Sandra Van Vlierberghe (Polymer Chemistry and Biomaterials group, Ghent University) has played a central role in my development as a researcher. She is an incredible person and mentor: she always sees new opportunities, opens doors, and helps in every possible way, whether career-wise, research-wise, or on a personal level. Her scientific drive, creativity, and generosity have had a major impact on how I see research and mentorship.

During my PhD, Prof. Diego Mantovani at Université Laval also had a very important influence on me. He believed in me and in the joint PhD project from the beginning, even when it felt ambitious or uncertain. He was willing to "jump on the train" of: maybe it is crazy, maybe we can only dream, but let's try. That belief made a huge difference. My time in Québec became one of the most formative periods of my life. Professionally, I grew enormously, but I also made friends for life and played some of the best rugby I had ever played.

Looking back, I feel very lucky to have had mentors who supported me not only as a scientist, but also as a person. They helped me build confidence, take risks, and believe that ambitious ideas are worth pursuing.

Beyond formal mentors, I have also been influenced by colleagues, students, collaborators, and the wider tissue engineering and biomaterials community. Scientific discussions at conferences, joint projects, and mentoring younger researchers have all shaped how I think about research.

My background in rugby has also influenced my career more than I initially expected. Competing at international level taught me resilience, discipline, teamwork, and the ability to keep going under pressure. These qualities are very relevant in research, where progress often comes after many iterations, failures, and restarts.

Nele Pien.

What is your most impactful scientific achievement, and what is its primary social value?

Nele: One of my most impactful scientific achievements is contributing to the development of gelatin-based hydrogel platforms for light-based 3D printing, including volumetric additive manufacturing. These materials are designed to be processed rapidly and gently into 3D structures that can support living cells. This is important because future regenerative medicine approaches require materials that are not only technically printable, but also biologically relevant.

A particularly meaningful aspect of this work is showing that the way we process a biomaterial can influence its properties and even affect stem cell behavior. This highlights that biofabrication is not just about creating a shape; it is about designing the full material-process-biology relationship.

The societal value lies in the long-term potential of these technologies. Better biomaterials and biofabrication methods can contribute to more realistic tissue models, improved regenerative therapies, and reduced reliance on animal testing. While clinical translation is a long process, developing more reliable and biologically instructive material platforms is an important step toward safer and more effective biomedical innovations.

What are some of the most significant challenges or barriers you've encountered in your work, and what strategies did you use to overcome them?

Nele: One of the main challenges in my field is the complexity of interdisciplinary research. Developing a biomaterial for tissue engineering requires chemistry, material characterization, engineering, cell biology, and often clinical insight. Each discipline has its own language, priorities, and methods. I have learned that good communication and mutual respect are essential. Taking the time to understand what collaborators need, and explaining what is technically possible from the material side, often determines whether a project succeeds.

Another challenge is that biomaterial development can be unpredictable. A formulation may look promising chemically, but fail during printing, or print well but not support the desired cell response. I try to approach this through systematic characterization and by linking molecular structure to material properties and biological outcomes. Understanding why something does not work is often as valuable as obtaining a positive result.

A broader challenge is balancing scientific ambition with realistic timelines and resources. This is especially true for postdoctoral researchers, who are often expected to publish, apply for funding, supervise students, build collaborations, and develop independence at the same time. I have learned to prioritize, to build strong teams, and to accept that not everything can be done at once.

Have you experienced any benefits or challenges as a woman in science, and how have you dealt with them?

Nele: I have been lucky to work in environments where I felt strongly supported, including by inspiring female role models such as Prof. Sandra Van Vlierberghe, but also by male mentors and colleagues, such as Prof. Diego Mantovani, who supported me in every way he could. Because of this, I have personally not often felt the drawbacks of being a woman in science in a very direct way. I realize that this may also mean that I was fortunate with the people and environments around me.

At the same time, I am aware that many women in science still experience additional pressure to prove themselves, to be visible without being perceived as too assertive, and to balance career progression with personal expectations. These challenges are not always explicit, but they can influence confidence, opportunities, and career decisions.

For me, the most important response is to help create the kind of environment that I was lucky to experience myself: one in which people are supported, encouraged, and taken seriously regardless of gender. Representation matters, but so does everyday support from mentors, colleagues, and collaborators. I also believe it is important to normalize different career paths and leadership styles. There is not one correct way to be a successful scientist. Creating space for different personalities, backgrounds, and life choices is essential if we want science to benefit from the full range of talent available.

How do you mentor or support the next generation of scientists? Is there anything specific that shall be considered when talking about female scientists that isn't yet currently considered?

Nele: Mentoring is one of the parts of academia that I find most rewarding. I have supervised and co-supervised master's students, visiting students, and PhD researchers, and I try to support them not only technically, but also in developing scientific independence. For me, good mentoring means helping students understand why they are doing an experiment, how to interpret unexpected results, and how to communicate their work clearly.

I also find it important to help young researchers develop the soft skills that are often undervalued but are essential in science and in life: planning, communication, time management, teamwork, resilience, and learning how to present their ideas with confidence. These skills can strongly influence how people experience research, how they deal with setbacks, and how they grow into independent scientists.

I try to create an environment where questions are welcome. Early-career researchers often think they should already know everything, but science advances through asking the right questions and being open about uncertainty. Encouraging this mindset is especially important for building confidence.

When talking about female scientists, I think we should be careful not to frame success only through resilience or exceptional achievement. Women should not have to be extraordinary to belong in science. We should also talk about structures: access to mentorship, visibility, funding, work-life balance, parental leave, unconscious bias, and inclusive leadership. Supporting women in science is not only about encouraging women to adapt; it is also about making the scientific system more equitable.

What advice would you give to women considering careers in science?

Nele: I would encourage them to pursue science if they are curious, motivated, and willing to keep learning. A career in science can be challenging, but it is also incredibly rewarding. You get to ask new questions, develop ideas, work with people from different backgrounds, and contribute to knowledge that may eventually improve society.

I would also advise them to build a network early. Mentors, peers, collaborators, and friends in science can make a huge difference. Do not hesitate to ask questions, apply for opportunities, or contact people whose work inspires you. Many opportunities start with a conversation.

Finally, I would tell them not to wait until they feel completely ready. Confidence often grows after taking the step, not before. It is normal to have doubts, but doubts do not mean you do not belong. Science needs different voices, different perspectives, and different ways of thinking.

Do not hesitate to ask questions

What kind of scientific legacy do you wish for the next generation to inherit?

Nele: I hope the next generation inherits a scientific culture that is rigorous, collaborative, open, and inclusive. Scientifically, I would like to contribute to a better understanding of how biomaterial design, processing, and biological function are connected. In regenerative medicine, we need materials and technologies that are not only innovative, but also reproducible, well-characterized, and meaningful for real biomedical challenges.

More broadly, I hope the next generation inherits a research environment where collaboration is valued as much as competition, and where young scientists are supported as people, not only as producers of results. Science progresses through creativity and persistence, but also through trust, mentorship, and shared knowledge.

If I can contribute to that, through my research, mentoring, and community involvement, that would be a meaningful legacy.

What does "being at the forefront of science" mean to you personally?

Nele: To me, being at the forefront of science means more than working on the newest technology. It means asking relevant questions, combining knowledge in new ways, and being willing to challenge assumptions in your field.

In my own work, this means moving beyond the idea that 3D printing is only a fabrication tool. I see biofabrication as a way to study and design the interaction between materials, cells, and processing conditions. Being at the forefront means understanding that innovation is not just about complexity or speed, but about creating technologies that are biologically relevant, reproducible, and useful.

It also means taking responsibility. New scientific developments should be communicated clearly, shared openly where possible, and developed with an awareness of their potential societal impact.

Outside of your work, what inspires or energizes you?

Nele: Outside of research, rugby has been a major source of energy and inspiration in my life. I have been involved in high-level rugby for many years, including with the Belgian national sevens team, and I am now also increasingly involved in coaching. Rugby has taught me a lot about leadership, resilience, teamwork, and dealing with pressure.

What I love about sport is that it gives immediate feedback. You train, you compete, you fail, you adapt, and you try again. That mindset is very similar to research, although the timelines in science are usually much longer.

I am also energized by people: students, teammates, colleagues, and collaborators. Seeing others grow, gain confidence, and achieve something they worked hard for is very motivating to me. Whether in the lab or on the rugby field, I enjoy being part of a team that works toward something bigger than the individual.

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In Conversation with Laura Andže

Dr. Laura Andže is Leading Researcher and Vice-Chair of the Scientific Council at the Latvian State Institute of Wood Chemistry.

What initially drew you toward a career in science, and was there a particular turning point that solidified your decision?

Laura: As a child, I was both very creative and very competitive. I loved mathematics and could completely disappear into solving problems for hours. Interestingly, chemistry was not initially my strongest subject – in my small rural school, it was taught rather poorly. My father sent me to private lessons, where one remarkable teacher managed to explain the foundations of chemistry in just a few sessions and a handful of handwritten pages. I still remember concepts from those notes today.

At the same time, my real dream was actually theatre. I wanted to become an actress. But life took a different direction – I was not accepted into acting school. Encouraged by my older brother, who works in finance and economics, I chose chemistry instead, imagining a future developing bioactive compounds and "earning serious money".

Ironically, I quickly realized that classical organic chemistry laboratories were not for me at all – literally. I felt physically unwell working in those environments. So, I started looking for something greener, more sustainable, and somehow more connected to real materials and life. That search eventually brought me to the Latvian State Institute of Wood Chemistry. I joined the Cellulose laboratory.

What were relevant turning points/decisions along your career so far?

Laura: As a Master's student, I first went to Grenoble through a COST Action, which exposed me early to an international scientific environment. Later, during my PhD, I returned to the Pagora engineering school through Erasmus, at a financially difficult time for our institute. Another major turning point came when I temporarily left academia and joined the State Education Development Agency, where I managed a large national postdoctoral funding program. Initially, this decision was also influenced by the instability of research funding at the time. Although leaving academia initially felt like stepping away from science, that experience later taught me a great deal about leadership, funding systems, project management, and how scientific careers function beyond the laboratory.

Soon after, I spent almost three years on maternity leave with my two children. Even then, I remained connected to science and used that time to write an H2020 MSCA-RISE project with Spanish partners, which later led to collaborations with companies and research institutions across Europe and South America.

And then came perhaps the most unexpected moment of all. After I returned to science following maternity leave, two microsurgeons approached my husband and essentially said, "Let's make wooden implants." We looked at each other and answered: "Alright."

That was the beginning of OsteoWood.

OsteoWood focuses on developing engineered, densified wood as a new type of load-bearing implant material for fracture fixation. Today, most orthopedic implants are based on metals such as titanium, which are mechanically much stiffer than bone. As a result, implants can take over physiological load, contributing to stress shielding and bone weakening. OsteoWood approaches this problem from a completely different direction – by developing a material with bone-matched mechanics based on engineered biological structures rather than metals.

For the first three years, the project survived almost entirely through internal institute support because many external experts considered the idea too risky or unrealistic. Only recently did we receive dedicated funding with a commercialization-oriented direction.

This year, OsteoWood also entered the startup world through Deep Tech Atelier 2026, where we reached the finals and received a special recognition prize from EuroQuity by Bpifrance. For me, that moment symbolized something important – unconventional ideas sometimes simply need time, persistence, and evidence before people start taking them seriously.

Who or what influenced and supported your early career choices the most?

Laura: Many people influenced me very early, often in completely different ways.

My theatre teacher in primary school taught me how to think outside the box and not be afraid of imagination or unconventional ideas. My music school teachers taught discipline and the understanding that difficult things are usually achieved through small daily steps.

My parents also had a strong influence on me. Both are drainage engineers, and at different times, both were heads of our local municipality. I grew up in an environment where work, responsibility, initiative, and problem-solving were simply part of everyday life.

Looking back, I think the most important thing they all gave me was the feeling that almost anything is possible if you are willing to work for it long and seriously enough.

Later, scientific mentors became extremely important as well, especially Professor Arnis Treimanis, who taught me not only chemistry but also how to navigate the scientific life.

I have also been strongly influenced by interdisciplinary collaborations and by my family environment today. My husband and I work in different laboratories – he as an engineer and I as a chemist – but many ideas emerge somewhere between those perspectives. Science in our family has never really been separated from everyday life.

Have you experienced any benefits or challenges as a woman in science, and how have you dealt with them?

Laura: I think science can still be a demanding environment for women, especially in areas connected to engineering, materials, and technology, where leadership is often still perceived in a rather traditional way. At the same time, I have been fortunate to meet very supportive mentors and collaborators throughout my career – people who cared much more about curiosity, ideas, and persistence than about gender.

For me, one of the biggest challenges has not been being a woman in science itself, but rather learning to balance ambition with the realities of life outside the laboratory. In fact, becoming a mother made me more efficient, more focused, and probably also more courageous in choosing meaningful problems to work on.

Do not wait until you feel completely ready

Laura Andže.

How do you mentor or support the next generation of scientists? Is there anything specific that shall be considered when talking about female scientists that isn't yet currently considered?

Laura: I try to create an environment where young researchers feel allowed to be curious, interdisciplinary, and sometimes even slightly unreasonable with their ideas. Many truly interesting projects initially sound risky or strange, and I think early-career scientists need support not only technically, but also psychologically.

I also think we still underestimate how differently scientific careers can evolve, particularly for women. Careers are often presented as linear, uninterrupted trajectories, while in reality, many researchers move through periods of instability, caregiving, administrative work, self-doubt, or changing priorities. I would like science to be more open to non-linear careers without automatically interpreting them as weaknesses or a lack of ambition.

What advice would you give to women considering careers in science?

Laura: Do not wait until you feel completely ready. Many women are trained to first become "good enough" before taking opportunities, applying for grants, leading teams, or presenting bold ideas. In science, that moment of complete readiness rarely comes.

Also, do not feel pressured to fit into a single stereotype of what a scientist should look like. You can be ambitious, creative, emotional, analytical, a mother, entrepreneurial, exhausted, excited – sometimes all within the same day.

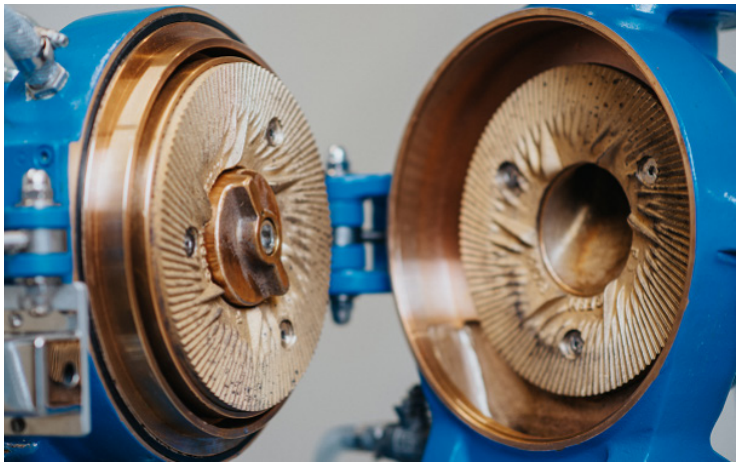
And finally: choose problems that genuinely fascinate you. Science is difficult enough that curiosity is probably the only sustainable long-term motivation.

Outside of your work, what inspires or energizes you?

Laura: Honestly, I would not even fully separate "outside of work" from science itself. What energizes me most is probably the unknown – the moment when completely different ideas suddenly connect.

Very often, while working on one project, something suddenly "clicks", and I realize that the solution might actually belong somewhere entirely different. Many ideas in my work emerge exactly like that – unexpectedly, somewhere between disciplines, materials, or conversations.

I am also deeply inspired by people. Especially people who ask unusual or uncomfortable questions, and very often those are not even experts from my own field. Some of the most interesting scientific ideas begin when someone from outside your discipline forces you to explain or rethink something differently.



At the same time, my family life keeps everything very real and grounded. Our home conversations can easily move between steam explosion, implant mechanics, fungal composites, startup ideas, music school, dancing, horseback riding, or Minecraft projects–often within the same evening.

And although I never became an actress, science still offers surprisingly many stages–conferences, startup pitches, radio and television interviews, filming, public talks, even social media. In some way, science also contains creativity, intuition, imagination, and storytelling–just expressed differently.

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Project Activities & Updates

Materials Day 26 - ACstyria © ACStyria.

SuESS Safe– and sustainability–by–design approaches for energy storage systems in a green and circular economy

The SuESS research project advanced the implementation of the safe– and sustainable–by–design (SSbD) concept for stationary Energy Storage Systems (ESS), focusing on lithium–ion battery systems above 80 kWh and redox–flow batteries, including vanadium– and organic–based technologies. The project established a scientific basis for comparing ESS technologies by integrating environmental, social, and technical assessment approaches across the entire life cycle.

A key achievement of SuESS was the development of a tailored SSbD framework specifically adapted to the complexity and high-performance requirements of ESS technologies. By combining life cycle assessment (LCA), social LCA, toxicological testing, and life cycle management, the project created a comprehensive methodology for evaluating safety, sustainability, and circularity from material selection to End-of-Life (EoL) management.

The project generated highly comparable life cycle inventory data, enabling the identification of environmental and social hotspots along the ESS value chain. Relevant findings included the environmental impacts associated with electrolyte production in organic redox-flow batteries and social risk hotspots linked to pulp production. Toxicological testing of battery materials further strengthened the safety dimension of the framework.

In addition, the life cycle management approach provided insights into key technological drivers such as cell power and system efficiency, supporting improved operation and circular management strategies for stationary battery systems. The application of SSbD principles to the development of organic redox-flow battery active compounds demonstrated how sustainability and safety considerations can be integrated into advanced ESS design without compromising technical performance.

Overall, SuESS provides an important methodological contribution toward the development of safer, more sustainable, and circular energy storage technologies, supported by multiple scientific publications and ongoing dissemination activities.

Group picture of the project partners during one of the General Assemblies of SuESS.

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Recap of ATIMA Activities (March – May 2026)

ATIMA: Driving Innovation in Austria in the field of Advanced/Innovative Materials for a Sustainable Future.

Within the last months (March – May 2026), ATIMA and its partners have continued their activities for raising awareness on the project and its goals, engaging with different stakeholder groups, and strengthening the identity of Austria's advanced/innovative materials (AdMa) community.

Highlights of activities in the last three months include:

Enforce Tac
(23-24.02.2026, Nürnberg, Germany) – V-trion

Enforce Tac is a leading international trade fair for security and defense technologies, focusing on law enforcement and military applications. During the event, relevant market trends and technological developments were assessed, and discussions were held with industry stakeholders and potential partners. The activity aimed to identify innovation opportunities, strengthen networking, and gain insights into application fields relevant to smart textiles, such as protective clothing and integrated sensor systems. This activity contributes to ATIMA objectives by fostering international networking, supporting knowledge transfer, and identifying new collaboration and innovation opportunities in advanced materials and smart textiles. Read more details here.

Gaining synergies with bilateral collaboration between Sweden and Austria
(02–03.03.2026, Göteborg, Sweden) – BNN

At the beginning of March, the coordinator of the Austrian Advanced Materials Community ATIMA was invited to attend a workshop in Sweden, at which the national collaboration in the field of Advanced Materials was the focus. Based on the experiences gained in Austria, Andreas Falk presented both ATIMA and InnoMatSyn (with a focus on the European AdMa ecosystem), showed lessons learned during the establishment of the national collaboration and advocated for **future collaboration between the Swedish and the Austrian community**.

The invitation-only event brought together AdMa experts from all over Sweden, complemented by ATIMA as example of a national community, as well as InnoMatSyn and IAM-I association as the European collaborative level. Read more details here.

Johan Ek Weis (Chalmers Industriteknik), Boel Wadman (RISE), Katinka Ernstsson (RISE), Andreas Falk (BNN). © Jonas Löfvendahl, Chalmers Industriteknik.

Anwenderforum SMART TEXTILES
(04–05.03.2026, Zeulenroda, Germany) – V-trion

The participation in the Smart Textiles User Forum supported ATIMA's objectives by strengthening international networking, knowledge exchange, and technology transfer in the field of smart textiles. Representatives of the Smart Textiles Platform Austria presented Austrian competencies and engaged with international experts, research institutions, and potential partners. The event provided insights into technological trends, innovation needs, and collaboration opportunities, while enhancing the visibility of Austrian expertise in advanced materials. Read more details here.

ANTHOS'26
(09–11.03.2026, Vienna, Austria) – BNN

For the second time, and following the successful 2024 edition, Vienna hosted the ANTHOS'26 conference, bringing together leading stakeholders from the European safe and sustainable advanced (nano-)materials and technologies community. The event provided a platform to discuss future challenges and opportunities, focusing on the transition from identified needs to practical solutions.

As the conference took place on home ground, the Austrian Advanced Materials Community ATIMA was strongly represented and actively contributed to the event's success, including through stakeholder engagement and networking activities. A comprehensive recap of ANTHOS'26 is available in the BNN QUARTERLY 01/2026, pages 8–19.

ANTHOS'26
Advanced (Nano) Materials and Technologies: From Needs to Solutions

JEC World Paris Messe – A2LT Expert Corner
(10–12.03.2026, Paris, France) – BIZ-UP

A2LT participated in JEC World Paris from March 10–12, 2026 with an Expert Corner. JEC World, recognized as a leading global platform for composite materials, highlights the growing strategic importance of advanced materials across industries. In this context, A2LT's presence emphasized the critical role of innovation in advanced materials for enabling lightweight, high-performance, and sustainable solutions, directly aligning with ATIMA's objectives to strengthen expertise and collaboration in this field. Read more details here.

EC-Meeting
(20.03.2026, Brussels, Belgium) – BNN

The European Commission convened a meeting to strengthen collaboration on safe and sustainable advanced materials and technologies. BNN presented its roles in the NSC Community, SusChem SCC, InnoMatSyn, and its links to ATIMA. Around 60 participants identified, prioritized action items, and nominated implementors. The initiative enhances coordination across regional, national, and European levels, as well as between projects and stakeholders. A follow-up meeting is planned before the summer break. Through ATIMA at the national level and InnoMatSyn at the European level, BNN remains committed to creating synergies through coordinated collaboration and contributing to a stronger, more connected advanced materials community across Europe. Read more details here.

26th nanoNET Meeting
(23.03.2026, Leoben, Austria) – nanoNET

The 26th nanoNET-Austria Meeting, hosted by the Montanuniversität Leoben, showcased the latest developments in nanotechnology research and innovation. Experts from academia, industry, and government presented advances in nano-optics, gas sensing, nanoimprint lithography, and power semiconductors. The meeting also provided updates on nanoNET activities and concluded with guided laboratory tours at the Materials Center Leoben. Supported by the FFG-funded ATIMA project, the meeting reached a wider nano community beyond the network's membership. Read more details here.

Arbeitsgruppe Aus- und Weiterbildung + Netzwerktreffen
(24.03.2026, Graz, Austria) – AM-Austria

The AM-Austria working group on education and training met in March at Graz University of Technology to discuss initial and continuing education in advanced manufacturing. Topics included design, manufacturing, industrial strategy, additive manufacturing, and sustainability, with consensus on the need for better coordination of training activities. ATIMA was presented on site with a roll-up and referenced in discussions, particularly regarding material properties within the project. Special thanks to Prof. Franz Haas, Graz University of Technology, for hosting the meeting. Read more details here.

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Materials Day 2026
(25.03.2026, Spielberg, Austria) – BIZ-UP

Materials Day 2026 in Spielberg brought together stakeholders from industry, research, and technology development to discuss lightweight design, material innovation, and circular economy approaches for future mobility. A particular focus was placed on advanced and innovative materials and their role in sustainable mobility solutions. ATIMA contributed to the expert panel discussion through Andreas Falk (BNN) and Alexander Pogany, providing perspectives on innovative materials and their industrial application. Read more details here.

AM-Stammtisch
(08.04.2026, Vienna, Austria) – AM-Austria

The AM-Austria "AM get-together" (AM-Stammtisch) took place on 8 April 2026 in Vienna, focusing on defence and security. Presentations by representatives of the Austrian Federal Ministry of Defence and the Austrian Federal Economic Chamber provided institutional perspectives, alongside a contribution on a mobile robotic welding cell project from TU Vienna. The exchange between industry and public institutions highlighted cross-sector collaboration. ATIMA's role was reflected in its contribution to strengthening and expanding the network and community growth. Read more details here.

3D Printing Forum
(09.04.2026, Vienna, Austria) – AM-Austria

The AM community and users gathered once again at the 3D Printing Forum, one of the most important industry events for additive manufacturing in Austria. AM-Austria was once again a partner this year and was able to promote the ATIMA project through discussions and direct dialogue. Read more details here.

IAM4Sweden & OpenTech Talk
(13.04.2026, Lund, Sweden) – BNN

The OpenTech Talks event explored, how the Swedish region Skåne's microelectronics ecosystem developed and what it will take to strengthen its role in Europe's semiconductor future. The seminar brought together perspectives from industry, startups, and regional development actors, including Ericsson (on four decades of radio hardware research in Lund), BeammWave / AlixLabs („on building semiconductor startups in Skåne), and the Region Skåne (on strengthening Europe's semiconductor ecosystem through regional collaboration). The strong link to circular Advanced Materials made this meeting specifically interesting for the colleagues of ATIMA and InnoMatSyn-project. Furthermore, the event brought together European regional delegations, companies and researchers for networking and matchmaking across the mcroelectronics value-chain.

Read more details here and in the BNN News section in this QUARTERLY.

FAME-Ecosys Event
(14.04.2026, Lund, Sweden) – BNN

The FAME-Ecosys Event on 14th April 2026 in Lund, Sweden, was the 2nd of this series. It was a collaboration of IAM-I association, IAM4Sweden, InnoMatSyn-project and SIO Grafen, gathering people from all over Europe and being a deep dive into the Scandinavian and European ecosystem for advanced materials. The FAME-Events are focusing on "how to accelerate AdMa to the market". To prepare the further collaboration between Sweden and Austria, ATIMA was present (represented by Andreas Falk, BNN) at the event, presented besides the Austrian community also the European ecosystem via InnoMatSyn-project, and moderated the session "Regional, national and European ecosystems–how to work seamlessly together".

The Recap of the event is available on InnoMatSyn webpage. More details also here, as well as in the corresponding article in this section.

Fachhochschulforum 2026
(15–16.04.2026, Graz, Austria) – BNN

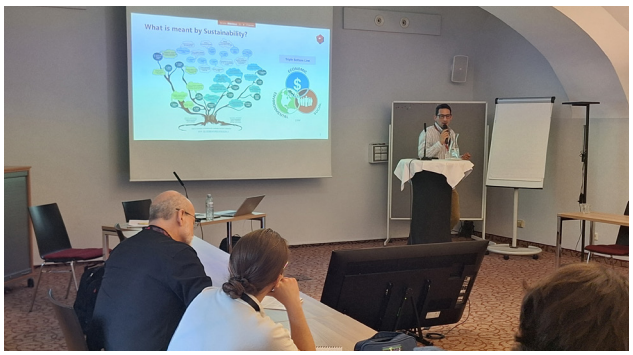
Two days packed with applied sciences made in the middle of April Graz as the hotspot in Austria. During the 19th Research Forum of Austrian Universities of Applied Sciences (FFH 2026), the CAMPUS 02 organized this year's edition, including also their 30th anniversary and excellent discussions. The presence of Federal Minister of Women, Science and Research, Eva-Maria Holzleitner, acknowledged the importance of this event. ATIMA was present (represented by Andreas Falk, BNN) to bring into the discussions the importance of safe and sustainable advanced materials, specifically in the field of applied sciences. More details about this event in the FFH article contributed by Gabriel Heel / CAMPUS 02, also in this QUARTERLY, and on the ATIMA website.

Techtextil
(22–23.04.2026, Frankfurt, Germany) – V-trion

Techtextil 2026 is the leading international trade fair for technical textiles and nonwovens, bringing together global stakeholders from industry and research. The event was used to assess current trends, innovations, and technological developments, particularly in smart textiles, advanced materials, and sustainable solutions. Discussions with industry and research partners enabled the identification of collaboration opportunities and relevant application fields, including protective, medical, and wearable textiles. The activity supports ATIMA objectives by strengthening international networking, facilitating knowledge transfer, and identifying new innovation and collaboration opportunities in advanced materials and smart textiles. Read more details here.

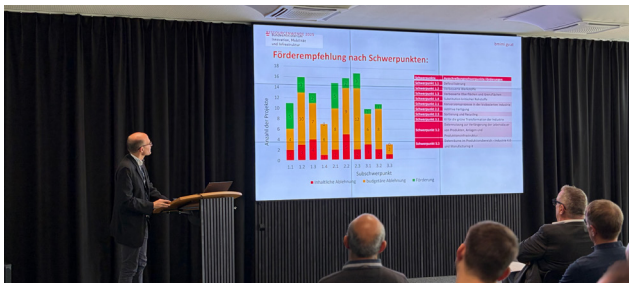
STS Conference 2026
(04–05.05.2026, Graz, Austria) – BNN

During the STS Conference 2026, ATIMA, the Austrian AdMa Community, engaged in the session discussions, highlighting its role in fostering a European and international ecosystem for Safe and Sustainable by Design advanced materials. To that extent, Andreas Falk (BNN), integrated the efforts put into connecting stakeholders, supporting collaboration, and advancing responsible innovation aligned with ethical foresight and SSRbD goals globally (INISS-nano) and locally. More details about this event in the recap about the STS Conference 2026 in the BNN News section in this QUARTERLY, and also on the project website.



BTechPro! Conference 2026
(06–08.05.2026, Sigulda, Latvia) – BNN

International collaboration is one of the core assets of BNN. This time, the connection with the Baltic region was the focus, more specifically, the Advanced Materials relevant groups in Latvia. Beginning of May, the InnoMatSyn and ATIMA coordinator, Andreas Falk (BNN), was invited to the 80th Anniversary celebration of the Latvian State Institute of Wood Chemistry, as well as their international conference **BTechPro!** Both, the panel discussion during the Anniversary event and also the presentations along the conference showed the huge potential for collaboration between Latvia and Austria. Next steps are already foreseen and collaborative actions started. Read more details here, and in section BNN News in this QUARTERLY.



Ressourcenwende 2026
(11.05.2026, Lustenau, Austria) – V-trion

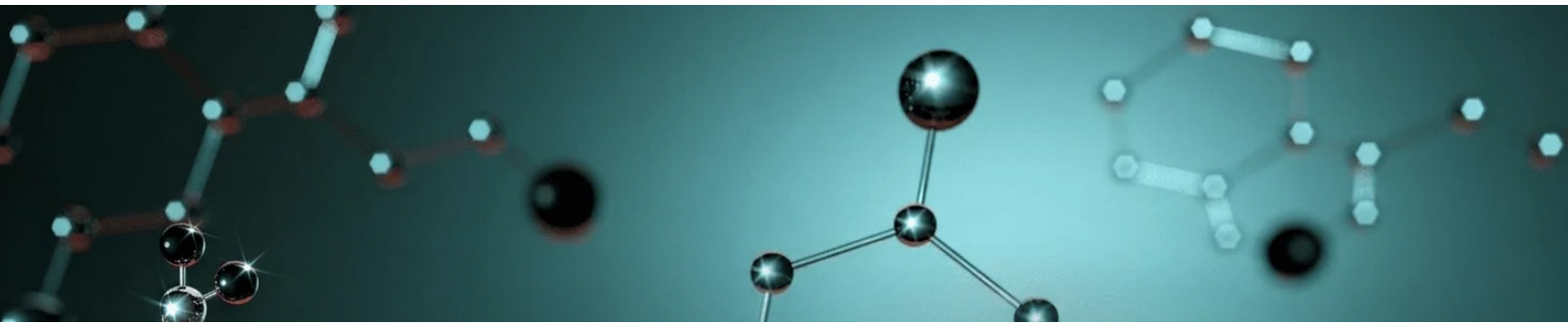
The Smart Textiles Platform Austria, in cooperation with ATIMA, organized the Spring Event 2026 on the Austrian funding call “Ressourcenwende 2026”. The event brought together stakeholders from research, industry, and public organizations to discuss resource efficiency, circular economy approaches, sustainable materials, and innovation opportunities. Expert presentations covered topics such as circular construction, resource-oriented planning, circular textile systems, digital product passports, and transformation processes in the plastics sector. The event also provided a platform for networking, knowledge exchange, and the development of new project ideas and collaborations. The event supported ATIMA objectives by strengthening cooperation between research and industry, promoting knowledge transfer, and identifying new innovation and collaboration opportunities in advanced materials, circular economy solutions, and smart textiles. Read more details here.

Carinthia Innovates 2026
(20.05.2026, Klagenfurt, Austria) – BNN

Under the motto “Conversation sparks Cooperation, Cooperation drives Co-Creation”, the BABEG organized the flagship event “Carinthia Innovates” on 20th of May 2026 in Klagenfurt, Austria. The event showcased Carinthia’s strategic approaches to business and innovation, while providing valuable networking opportunities. ATIMA’s presence (Andreas Falk, BNN) was mainly to engage with regional groups (i.e., Province of Carinthia, BABEG, KWF) to discuss the future of circular Advanced Materials and how this may be addressed in the next strategies of the region. Also the European ecosystem (via InnoMatSyn) has been identified as a key direction for Carinthia. Read more details here.

FAME Symposium
(20-21.05.2026, Lappeenranta, Finnland) – AM-Austria

Johannes Gartner, Delft University of Technology and president of AM-Austria, talked about the future of additive manufacturing in Europe and how politics is increasingly shaping production. In his talk, he discussed why AM is becoming increasingly political: from strengthening resilient value chains and sustainability goals to supporting defense, security, and reshoring manufacturing capacity. The main goal for ATIMA was to further strengthen the community in the Nordic countries. Read more details here.



Focus topic 2026 „Advanced Materials“ – Kick-off / SFG

(27.05.2026, Graz, Austria) – BNN

In Styria, the year 2026 runs under a strategic focus topic: “Advanced Materials”. It came to life after some specific interactions last year, when ATIMA and InnoMatSyn (both represented by Andreas Falk, BNN) engaged directly with the province of Styria, specifically in meetings with the regional minister for science and economy Willibald Ehrenhöfer. Furthermore, ATIMA supported the economic strategy in Austria (published end of 2025), contributing the topic of Advanced Materials as a key technological field for the Industrial strategy 2035. In the meantime, ATIMA is preparing the Austrian Roadmap on AdMa. Along all these efforts, it is excellent that the SFG now kicked off on 27th May 2026 the provincial focus field AdMa, gathering approximately 50 key stakeholders to support the collaboration locally. With the direct involvement of ATIMA (Austrian level) and InnoMatSyn (European level), we intend to ensure smooth alignment between the regional, national, and European AdMa ecosystems. One key collaboration item for this ambition will be the jointly implemented FAME-Ecosys Event on 17th November 2026 in Graz. Read more about it here.

Role of BNN in ATIMA:

Coordination, Roadmap development, AdMa-community building, international representation, Communication & Dissemination.

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Recap of the 2nd NSC workshop on "SSbD scenarios" on 5 December 2025

Following up from the 1st NSC workshop on "SSbD scenarios for advanced and incremental innovations" (23 June 2025), the NSC Working Group on *Safe and Sustainable by Design (SSbD)*, *Innovation & Regulation* organised a virtual 2nd NSC workshop on SSbD Scenarios on 5th December 2025. Similarly as the first workshop, this second one was prepared as a collaborative effort among several EU-funded projects: DESIDERATA, PLANETS, SSbD4CheM, and SUNRISE.

The **1st NSC scenarios workshop** laid the basis by the description of a scenario by aspects of novelty, exposure, severity, (environmental) sustainability, (economic) scope and immediacy. Case studies enabled a refinement of the scenario description (Wohlleben et al. 2025). The concept of a scenario was integrated by JRC into the revised SSbD Framework, where it serves as a bridge between the SSbD scoping and a tailored safety and sustainability assessment (reproduced in lower figure). It was described as "a specific and real set of conditions (scoping analysis elements) that define the context in which the SSbD assessment is carried out." (Garmendia Aguirre et al. 2025).

This **2nd NSC scenarios workshop** explored **how to describe an SSbD scenario**, the **tailoring rules** related, as well as how to select **which tailored approach fits best** a specific innovation case. Examples of real-world cases were provided by innovators from the projects DESIDERATA, PLANETS, SSbD4CheM, and SUNRISE.

2nd NSC workshop on SSbD scenarios

5 December 2025
13:00-16:00h CET, online

In breakout sessions moderated teams went through the respective cases to define the SSbD maturity, pull and push, expected commercial value, probability of success (technical and commercial) and ultimately the return on investment that additional SSbD would expect. Obtained results were compared to six proposedly archetypal SSbD scenarios. This business-focussed algorithm enables defining a tailored SSbD in a more straightforward manner. Such an approach, based on specifications collected during scoping, could argue for more or less extensive SSbD assessment to be implemented for different innovation cases, providing arguments for innovators in their discussion with management.

2nd NSC workshop on SSbD scenarios

Danail Hristozov (GreenDecision, and chair of the NSC WG on SSbD) opened the workshop and welcomed the more than 50 international participants from academia (54%), large industry (17%), SME (9%), consultants (7%), regulators (2%) and EU institutions (9%).

Wendel Wohlleben (BAuA, formerly BASF, and co-chair of the NSC WG on SSbD) presented how to tailor the SSbD implementation by using the scenarios. He explained how the most relevant aspects describing the scenario were selected after the 1st workshop, and how the newly developed spreadsheet "SSbD-ified ECV calculator" estimates the impact of implementing SSbD into an innovation project plan. The standardised business metric of the "Expected Commercial Value (ECV)" was used as the basis for the tool, which had been made available to all workshop participants, and feedback was gathered during the break-out groups.

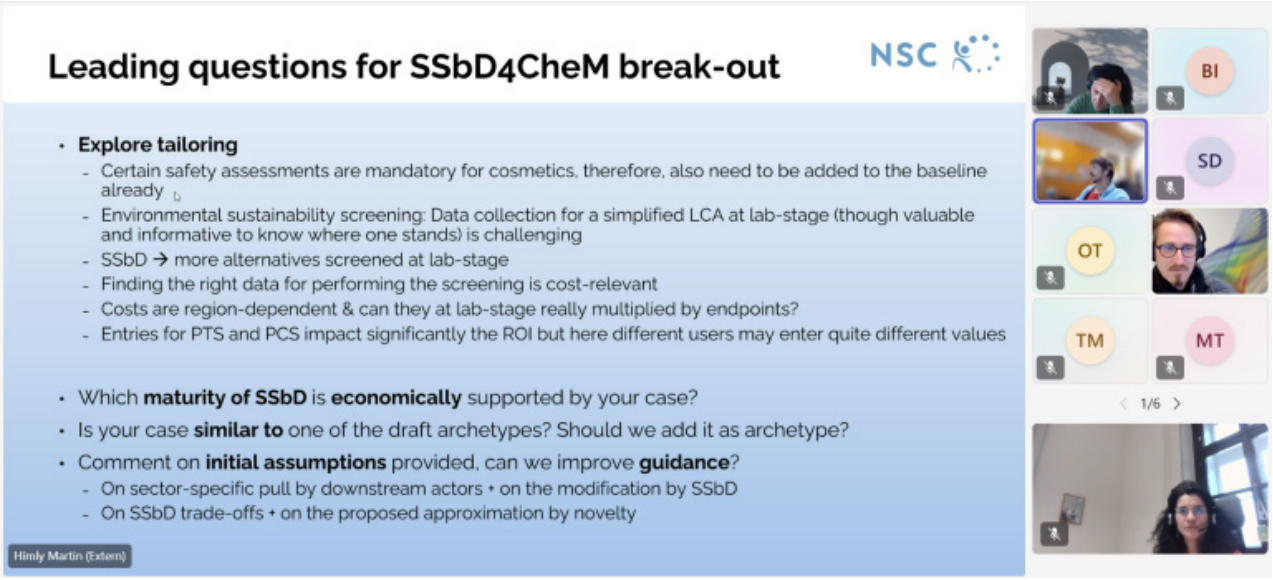
Workshop participants split up into the break-out groups, where the tailoring and other aspects in the different innovation case were explored and discussed:

- DESIDERATA case study: Olga Thoda, from MONOLITHOS, on geopolymers originating from mining waste as replacement of Aluminum in construction, moderated by Lya Hernandez, RIVM.
- PLANETS case study: Tobias Moss, from Budenheim, on flame retardants in construction, moderated by Carla Caldeira, SYENSQO.
- SSbD4CheM case study: Ondej Panak, from the Slovenian National Institute of Chemistry, on cosmetics (assisted by Assaf Assis, David Barak, and Dror Cohen, from AHAVA Dead Sea Laboratories, moderated by Martin Himly, PLUS.
- SUNRISE case study: María José López Tendero, from Laurentia Technologies, on post-harvest fruit treatment based on safer microencapsulated oil, moderated by Danail Hristozov, GreenDecision.

Martin Himly (PLUS and chair of the NSC WG on ETC) moderated the joint reporting session of the different breakouts, where the discussions in each of the groups were briefly summarised and discussed in the plenary.

Irantzu Garmendia Aguirre from the European Commission's Joint Research Centre (JRC) contributed key insights to the workshop, sharing the JRC's perspectives on the current adaptations within the SSbD framework. Her intervention addressed the core SSbD principles, the scoping analysis, and the development of SSbD scenarios, highlighting their relevance for advancing safe and sustainable innovation.

The workshop ended with a final round of feedback and plenary discussion, moderated by Lya Hernández (RIVM), where workshop participants dived into vivid discussions, which will be picked up in the 3rd NSC scenarios workshop anticipated for later in 2026.



Two main activities are planned as follow-ups of this 2nd workshop: A **third workshop** (planned for 2026) to discuss the process from archetypal scenarios to tiered SSbD assessment, and a **joint peer-reviewed NSC publication** about the tailored SSbD approaches followed by the different case studies presented in the workshop.

Workshop materials:

- **Workshop materials** are publicly available in Zenodo, under DOI: 10.5281/zenodo.19554509.
- The **recording** of the workshop is available in the NSC YouTube channel.

References:

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- Wohlleben, W., C. Caldeira, M. Himly, L. G. Soeteman-Hernández, D. Hristozov and B. Serrano Alfaro (2025). Materials of the NSC workshop on "SSbD scenarios for advanced and incremental innovations" on 23 June 2025. Zenodo. DOI: 10.5281/zenodo.15756156.
- European Commission SSbD Framework.

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Meet the People Behind SSbD4CheM!

SSbD4CheM is an EU-funded Horizon Europe project working to introduce **screening and testing methods for safe and sustainable material development** in three relevant demonstrators: the **textile, automotive and cosmetics industries**. The project aims to meet the EU's strategic objectives for digital, enabling, and emerging technologies, sectors, and value chains by developing a comprehensive **Safe and Sustainable by Design (SSbD) framework** that uses new science-based approaches to **identify and address potential hazards and risks**, and innovative technologies to support the design of **safer and more sustainable products and processes**.

Get to know two more of their Work Package leaders by reading these interviews!

Yvonne Kohl is a senior scientist at the Bioprocessing & Bioanalytics department of the Fraunhofer Institute for Biomedical Engineering IBMT (Germany). Within SSbD4CheM, she is leading the work package dealing with **models for human health and environmental safety assessment**.

Tell us a bit about yourself. What is your area of expertise?

My professional expertise is in toxicology, with a strong focus on in vitro safety assessment. Over the past years, my research focused on establishing human-relevant in vitro models, often referred to as New Approach Methods (NAMs), with the goal of enabling their regulatory use. As a Senior Scientist and Scientific Specialist for Toxicology at the Fraunhofer IBMT my main areas of work include human toxicology, hazard assessment of chemicals and nanomaterials, innovative preclinical in vitro models, biohybrid systems, biological barriers and organ-on-chip systems.

How does your specific work package "Innovative models for human health and environmental safety assessment" contribute to the project?

WP4 is really the engine of the project when it comes to innovative safety testing. Our role is to develop and deliver the core model systems and data that are needed for a modern, reliable safety assessment of nanomaterials and chemicals. Concretely, we develop and refine advanced in vitro, ex vivo and zebrafish embryo models that reflect key human and environmental exposure routes, such as skin, lung, gut and the aquatic environment. We then optimise these methods into robust, efficient screening tools that are fully aligned with the 3R principles—replacement, reduction and refinement of animal testing. At the same time, we are building a comprehensive data library on hazardous properties to address critical knowledge gaps. To ensure that our methods are truly fit for purpose, we run inter-laboratory comparisons and pre-validation studies up to TRL 6, demonstrating reproducibility, applicability and robustness and moving the methods closer to practical application in regulation and industry. Through all of this, WP4 provides the practical tools and evidence base that enable safer-by-design decision-making and support the regulatory acceptance of alternative test methods.

- Yvonne Kohl

SENIOR SCIENTIST AT FRAUNHOFER INSTITUTE FOR BIOMEDICAL ENGINEERING (IBMT)

"We're building integrated, human-relevant model systems that mimic key exposure routes like skin, lung and gut, rather than isolated test methods. By combining advanced in vitro approaches with real-life scenarios and validating them across laboratories, we close the gap to application—reducing animal testing and enabling practical, safe-by-design solutions for industry and regulators."

What is the most exciting thing about the activities in your work package?

What excites me most about our work package is that we're not just developing isolated test methods, but building an integrated, human-relevant model system. This allows us to realistically mimic key exposure routes – such as skin, lung, and gut- and to capture low-dose, chronic effects of nanomaterials and chemicals. By combining advanced in vitro and alternative models with real-life exposure scenarios, and then validating them through inter-laboratory comparisons, we're really closing the gap between exploratory research and regulatory or industrial application. This gives our work a very tangible impact: it can directly contribute to reducing animal testing in line with the 3R principles, support safe-by-design innovation, and provide practical tools that industry and regulators can actually implement in their decision-making.

From your point of view, who can benefit the most from the project?

From my perspective, several groups benefit significantly, but industry and regulators are at the core. Chemical and material manufacturers, including SMEs, can design "future-proof" products by integrating safety and sustainability from the start, avoiding costly redesigns and regulatory hurdles. Formulators, downstream users and brand owners gain a structured way to choose safer ingredients, document decisions and de risk their supply chains. Regulators and policymakers benefit from a harmonised SSbD framework and shared language, while investors, researchers and, ultimately, society and the environment gain from safer, more sustainable innovations and products.

Tassos Papadiamantis is a senior scientist at the Entelos Institute (Cyprus). Within SSbD4CheM, he is leading the work package dealing with the **computer aided (re)design approach**.

Tell us a bit about yourself. What is your area of expertise?

My expertise is at the interface of nanomaterials safety, data and AI governance and management, and responsible predictive modelling. On the data side, I work on making nanosafety, materials, and chemicals data FAIR. On the modelling side, I develop responsible AI and machine-learning approaches to predict how materials behave, e.g., read-across models for ζ-potential and stability. I also work on developing ethical AI assessment frameworks applicable in materials and chemicals research. I bring this work into the regulatory space, mainly through projects with the European Union Observatory for Nanomaterials and EFSA, and publicly and commercially funded projects, supporting REACH and CLP compliance. This is also what I bring into SSbD4CheM and WP2, data-driven modelling, responsible AI, and FAIR data practices feeding directly into safe and sustainable design.

How does your specific work package "Computer aided (re)design approach" contribute to the project?

WP2 provides the computer-aided (re)design layer of SSbD4CheM. Our role is to bring computational tools into the SSbD framework so that material selection and re-design decisions can be made early, before going to the lab. We combine physics-based methods and data-driven workflows that predict properties, behaviour, fate and transport of candidate materials. From these results we also identify the data gaps that need experimental work, which then guides what is actually measured in the project. On top of that, we develop a data-driven LCA estimation framework, so even for materials that do not yet have full inventory data we can give an estimation on their environmental impact. In practice, WP2 is the layer that turns SSbD from a principle into something computable and iterative.

What is the most exciting thing about the activities in your work package?

For me the most interesting part is the loop we are building between models and experiments. The data-driven workflows we set up are not delivered once and frozen. They can be refined with new experimental data and the refined models can then feed the next design cycle. Combined with the LCA estimation step, this lets us look at safety, performance and lifecycle impact of a material that may not exist yet in the lab, which is something quite hard to do today. And we get to test this on three very different case studies, i.e., renewable composites for automotive, PFAS-free coatings for textiles, and cellulose nanofibers replacing plastic microbeads in cosmetics.

- Tassos Papadiamantis

SENIOR SCIENTIST AT ENTELOS INSTITUTE

“In SSbD4CheM, we bring computational tools into safe and sustainable design, enabling early, data-driven decisions before materials reach the lab. By combining AI, predictive modelling and lifecycle estimation, we create an iterative loop between models and experiments, helping industry and regulators assess safety, performance and environmental impact even for materials that do not yet exist.”

From your point of view, who can benefit the most from the project?

The most direct beneficiaries are the chemical and material producers and the downstream industries in automotive, textile and cosmetics. These are the stakeholders that carry the cost and the risk when a material turns out, later in development, to be unsafe, non-compliant, or with a poor environmental profile. With the WP2 tools they can take SSbD decisions earlier, with fewer experiments and with a clearer picture of the full lifecycle. Beyond industry, regulators and standardisation bodies also benefit, because the methods are validated following OECD principles and reported in formats they can directly use (for example QMRF for the predictive models). And in the end consumers benefit too, since products reaching the market will have been screened for safety and sustainability before scale-up, not after.

Role of BNN in SSbD4CheM:

Communication & Dissemination, Stakeholder Engagement, Graphic Design and Training.

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InnoMatSyn's 1st Event: De–fragmenting Europe's Materials Landscape: Insights into Funding, Mapping, and Technological Security

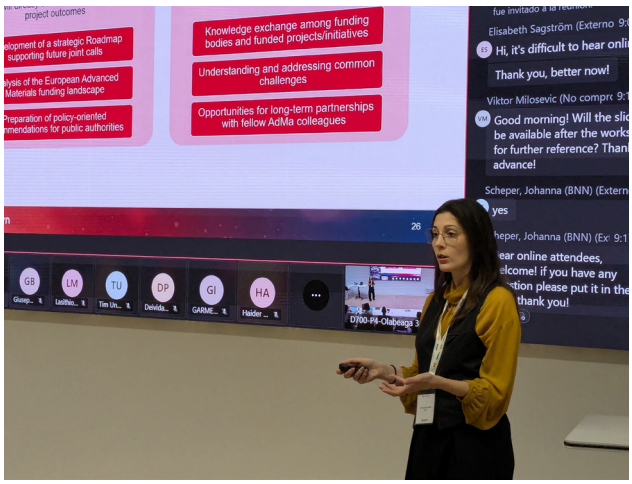
The 1st InnoMatSyn Event took place in Bilbao, Spain, on 12th February 2026, at the facilities of our InnoMatSyn project partner, TECNALIA.

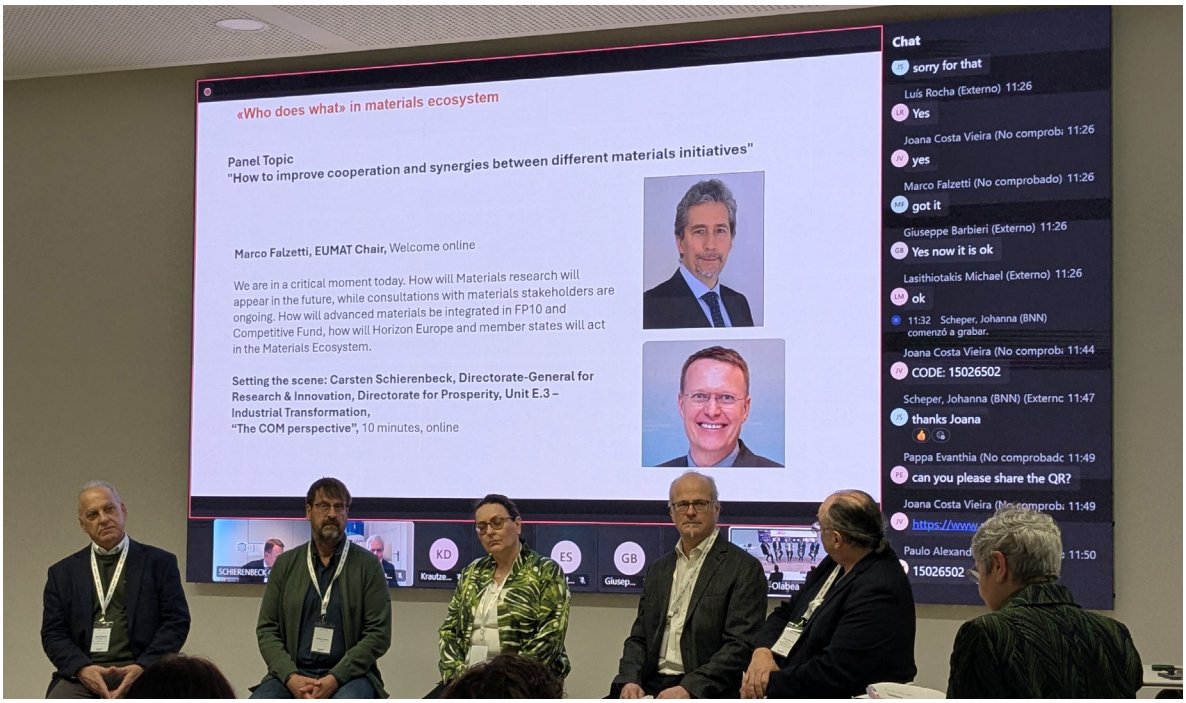
The event served as a platform to present preliminary results of the InnoMatSyn EU-funded project. The event attracted **164 registrants** from a diverse range of stakeholder groups of the Advanced Materials ecosystem, with the largest representation from academia and research, followed by funding bodies and public authorities, industry, and various associations and clusters active in the field. The core of the event was structured around three specialized workshops focusing on funding perspectives, the Advanced Materials ecosystem and stakeholder mapping, and technology leakage risks challenges and InnoMatSyn's first findings about these topics.

The first workshop focused on **Funding Perspectives for Advanced Materials** and addressed the fragmentation of the European R&I landscape and the lack of cross-country alignment. Participants identified the Energy sector as the most relevant sector for current and future funding, followed by mobility, health, and digital security.

Key challenges identified included:

- **TRL Funding Gaps:** While prototyping and validation (TRL 4-6) are well-supported, there is a significant lack of funding for scale-up and commercialization (TRL 9) and basic research (TRL 0-3).
- **Administrative Barriers:** Heavy bureaucracy, low success rates, and inconsistent national rules make participation in joint calls burdensome, particularly for SMEs.
- **Disconnection and discrepancy:** Funding calls are often more aligned with political goals than with rapid industry trends.





To address these challenges, implementation of mixed financing schemes (grants, loans, and private capital), harmonization of funding rules across regions, and creation of a single administrative system for joint calls were some of the potential solutions, suggested by the participants.

The event followed with a second workshop focused on **Mapping the EU Materials Ecosystem and its stakeholders**, starting with the presentation of the results of the "Who does What in the EU Materials Ecosystem" survey (distributed to 128 materials initiatives, from which 68 provided feedback). The survey validated that while 66% of initiatives have a European reach, they often lack synergies between them due to poor mutual visibility and inadequate cooperation instruments.

Strategic findings and recommendations validated by the audience included:

- **Focus Areas:** Current initiatives concentrate on the beginning of the value chain (design/development) rather than the end-use phase, and there is a notably low level of societal engagement.
- **The Need for Shared Tools:** Participants strongly advocated for a shared map of initiatives and competencies, joint EU-level roadmaps, and shared strategic foresight exercises to prevent duplication of efforts.
- **Infrastructure Access:** Better information and support for access costs are needed to enhance the use of existing EU R&D infrastructures.

To complement the presentation of the survey results, the session continued with a panel session around the topic “How to improve cooperation and synergies between different stakeholders”. The session began with a key note done by Carsten Schierenbeck (European Commission Head of Unit of Industrial Transformation) setting the scene, and counted with panelists representing the EC, IAM-I, M-ERA.NET, FLAG-ERA, and EIT Raw Materials.

Among others, the panel concluded that materials R&D must redefine its role within the core priorities of competitiveness and technological sovereignty for the upcoming FP10 program.

The event finalized with the last workshop focused on **Technological Sovereignty and Leakage Risks**. This session introduced the audience to a novel methodology for assessing "criticality" in research projects, primarily defined by their potential for dual-use (defense and civilian) applications. During the presentation of the work performed within InnoMatSyn, interactive feedback was gathered also from the audience.

Key outcomes based on the audience’s feedback, included:

- **Identification Method:** InnoMatSyn pilots a two-step approach using automated text analysis of project abstracts to flag potential risks, followed by a necessary manual expert review.
- **Awareness vs. Preparedness:** While participants recognize that leakage risks are a growing concern due to the changing geopolitical landscape, practical preparedness remains low, and many have not received formal training on preventing technology leakage.
- **Risk Vectors:** The highest vulnerabilities were identified in (i) cyber-attacks, (ii) unfair reuse of research knowledge, and (iii) international collaborations with high researcher mobility.
- **Strategic Priorities:** Strengthening monitoring systems, improving cybersecurity training, and enhancing the protection of research infrastructures were identified as top priorities to be addressed in the next 5-10 years.

Thus, to conclude this brief summary, the 1st InnoMatSyn Event highlighted that while Europe possesses strong technological foundations in Advanced Materials, the ecosystem is hindered by fragmentation and silos. The consensus across all workshops was the urgent need for a unified European strategy that aligns national and EU funding, provides a clear "Who does What" map for stakeholders, and establishes robust frameworks to protect European innovation from technological leakage.

For more detailed information we invite the reader to have a look at the complete recap report of this event, published on the InnoMatSyn website, as well as to become active as a stakeholder of the project by registering as such on our website. We welcome you and are interested and welcome your input and thoughts as well as participation in our events and activities!

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Data, AI and Collaboration at the Core of NABIHEAL

As part of our ongoing exploration of the scientific, technical, and regulatory foundations behind the Nabiheal project, we are pleased to present one of four expert interviews, made possible through the valued collaboration of the University of Maribor (UM).

In this edition, we speak with Olga Maria Conde from CIBER-UC, part of the University of Cantabria in Santander. Olga leads the development of the project's Data Management Plan and contributes to the design of advanced Artificial Intelligence models that support evidence-based innovation across the consortium.

She provides valuable insights into the importance of effective data management in a large-scale European research project involving 14 partners across seven countries. From ensuring that experimental and clinical data are managed ethically, securely, and in compliance with European Commission requirements to enabling efficient collaboration and long-term scientific impact, Olga highlights the key principles that underpin a robust data strategy. Above all, she emphasizes that integrating sound data management practices from the earliest stages of the project is essential for fostering transparency, avoiding operational bottlenecks, and maximizing the value of collaborative research.

Watch the full interview here.

Role of BNN in NABIHEAL:

SSbD concept & guidelines, Dissemination, Communication & Stakeholder Involvement.

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Outlook

BNN EVENTS & EVENTS SUPPORTED BY BNN

WSE 2026 conference

14–16 September 2026 | Riga, Latvia

The **22nd Annual Meeting of the Northern European Network for Wood Science and Engineering (WSE 2026)** will be held from 14–16 September 2026 in Riga, Latvia. It will be organized by the Latvian State Institute of Wood Chemistry and co-organized by the Riga Technical University.

In conjunction with the WSE 2026 conference, a training school for students and early career researchers will be available one day prior to the conference on the on 14 September 2026, in Riga. It will be organized together with the Latvian State Forest Research Institute "Silava".

WSE 2026
14th – 16th September 2026 – Riga, Latvia

Conferences organized by the WSE network are annual with the aim of promoting the professional development of early career researchers and establishing contacts between research groups working on wood science and engineering.

To express interest in supporting the WSE 2026 conference or for any other questions, please contact the organizers by e-mail wse2026@kki.lv.

More information here.

Nano 2026 Innovation
Rome, 14-18 September
Conference & Exhibition

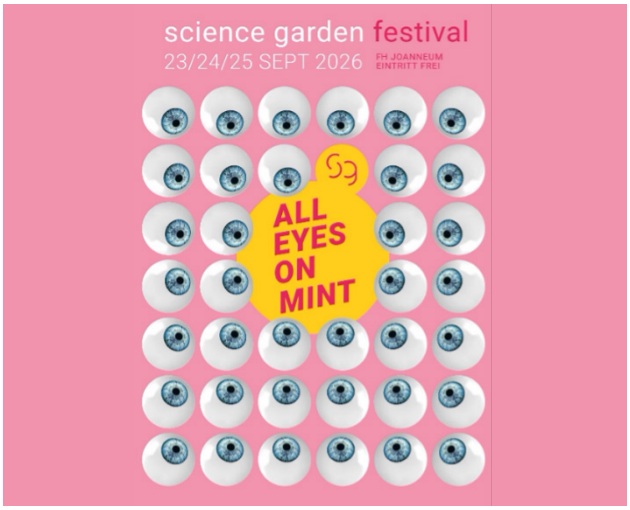
NanoInnovation 2026

14–18 September 2026 | Rome, Italy

Join one of Europe's leading events in nanotechnology and innovation, taking place from 14–18 September 2026 in Rome, Italy.

NanoInnovation brings together researchers, industry leaders, and innovators to explore the latest advancements in nanoscience and its applications across sectors such as energy, healthcare, materials, and sustainability. As part of NanoInnovation 2026, the satellite event **YoungInnovation 2026** offers dedicated activities for young researchers. Participation in YoungInnovation 2026 is possible through the submission of a poster abstract.

More information here.



Science Garden Festival 2026

23–25 September 2026 | Graz, Austria

Under the motto "ALL EYES ON MINT", the Science Garden Festival 2026 turns its attention to mathematics, computer science, natural sciences and technology, and puts them at the heart of Styrian life for three days – 5.000 m² of science and technology, 100 hands-on stations, research, experimentation and wonder!

23/24/25 September: For school classes

25 September:

- 14:00-20:00h – Public & Family Day
- 19:00-21:30h – Science Slam by Bernhard Weingartner
- 21:00h – Aftershow party

More information here.

Millenium Innovation Days & ATIMA AdMa-Day

14–15 October 2026 | Lustenau, Austria

SAVE THE DATE

More information coming soon.

SSbD26

9–11 November 2026 | Stockholm, Sweden

Following the success of the SSbD24 in Monte Verità and SSbD25 in Zurich, this third edition continues to bring together a growing and engaged SSbD community of researchers, industry and policymakers. The SSbD26 Conference is organized by the IRISS International SSbD Community.

Poster abstracts might be accepted even after the deadline!

More information here.

European Summit of Industrial Biotechnology (esib)

12–13 November 2026 | Graz, Austria

The European Summit of Industrial Biotechnology (esib), organized by acib GmbH, is a well-established networking platform event for the community of industrial biotechnology. esib 2026 is held together with the International Conference on Metabolic and Protein Engineering for Biosynthesis (MaPEB) and unites the leading representatives of industry, academia and politics in Graz, Austria from 10-13 November 2026. In addition to an exciting program focusing on "Circular Bioeconomy" and "AI and Biopharmaceutical Production", this year's event will once again feature numerous satellite events (workshops by bisy GmbH, a site visit to ZETA) and networking opportunities, such as the matchmaking event organized by EEN.

Early Bird fee is valid until **31 July 2026**!

Abstract submission is open until **31 July 2026**!

More information here.

BioNanoNet Annual Forum 2026 | FAME–Ecosys–Austria & ATIMA Event

17 November 2026 | *Graz, Austria*

Join us in Graz this November for an event dedicated to innovation, collaboration, and forward-looking research at the interface of biotechnology, nanotechnology, and advanced materials. The BioNanoNet Annual Forum 2026 will be held in conjunction with the FAME-Ecosys-Austria & ATIMA event.

Join us in a **b2matchmaking session** focused on upcoming funding calls (February and September 2027), designed to support collaboration and project development, and the **FAME-Ecosys-Austria & ATIMA event**, bringing deeper insights into emerging trends, ecosystem development, and strategic opportunities in the field.

Both events will bring together experts, industry pioneers, researchers, and stakeholders to exchange ideas and foster new partnerships and collaborations.

More information here.

Joint SSbD27 & ANTHOS'27 conference

8–10 November **2027** | *Grenoble, France*

SAVE THE DATE

More information coming soon.

ANTHOS'27
Advanced (Nano) Materials and Technologies: From Needs to Solutions

SSbD27

Finally

We hope you enjoyed reading our BNN QUARTERLY! Please do not hesitate to contact us if you have any suggestions or feedback!!

Our next BNN QUARTERLY will be published in **September 2026** and will focus on the topic **"Resilient Realities: Adaptive Learning and Innovation in the Advanced Materials Ecosystem"**.

BioNanoNet members are welcome to send their contributions regarding this focus topic and articles about their broader scientific research by **4th of September 2026**! Send us your contributions to contributions to info@bnn.at. Articles on other topics can be published any time on the BNN website.

Contact
info@bnn.at

Projects' Acknowledgements

Following projects have contributed to this QUARTERLY

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The FFG is the central national funding organisation and strengthens Austria's innovative power. This project is funded by the FFG, project n° FO999919580 (**ATIMA**).

The FFG is the central national funding organisation and strengthens Austria's innovative power. This project (Call: Nano EHS Transnational SAF€RA joint call 2022) is funded by SAF€RA, the FFG (project n° 46961894 (**SuESS**)), and OSALAN.

FWF Hertha Firnberg Grant No HFT1105.

Part of the BNN team at the ANTHOS'26 conference – From left to the right: Katharina Lang-Hogrefe, Andreas Falk, Beatriz Alfaro Serrano, and Johanna K.Scheper.

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SUSTAINABILITY LEADS THE WAY.

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