



ADVANCED MATERIALS SCIENCE

Fields of Expertise TU Graz

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Recent geopolitical shifts in Europe and the U.S. are shaping materials development, driven by energy security, defense, and technological advancement.

The prolonged wars in Europe have disrupted supply chains and fueled resource nationalism, as nations secure critical minerals and reassess energy policies. With the start of a new presidential term, the U.S. is refocusing on oil and gas for energy independence, while Europe is working to reduce dependence on foreign energy and invest in renewables such as hydrogen. At the same time, rising defense budgets in Europe highlight the need for advanced materials in infrastructure. These challenges underscore the critical role of materials science in energy efficiency, defense, and advanced materials manufacturing for a sustainable future. TU Graz is helping to address these challenges through advanced materials science and engineering research.

The members of FoE Advanced Materials Science have achieved several outstanding successes. Paolo Falcaro was successfully awarded an ERC Proof of Concept grant. The FRESCO project, funded to the amount of €150,000 over 18 months, aims to improve food safety and reduce waste. It builds on the POPCRYSTAL project's microporous crystalline composite, which detects toxic compounds formed when protein-rich foods such as fish, meat and cheese spoil. This innovation highlights the role of advanced materials in sustainability and health. We would also like to welcome Aleksandar Kondinski,

the new FoE AMS assistant professor at the Institute of Physical and Theoretical Chemistry, who will be working on assembly modeling for the development of new materials. His current research in materials science will be instrumental in the groundbreaking development of complex materials of the future.

Moreover, the 22nd call for initial funding has attracted the attention of FoE AMS members. Seven high quality proposals dealing with challenging topics were funded. The awardees and projects were:

Nina Strasser

Institute of Solid-State Physics

Bernhard Gadermaier

Institute for Chemistry and Technology of Materials

Rupert Kargl

Institute of Chemistry and Technology of Biobased Systems

Mithun Pal

Institute of Experimental Physics

Aleksandar Kondinski

Institute of Physical and Theoretical Chemistry

Ralf Meyer

Institute of Experimental Physics

Amirhossein Jabbari

Institute of Materials Science, Joining and Forming

We are also looking forward to the results of these projects and wish all project leaders success in the preparation of their follow-up project proposals.

The Advanced Materials Science Poster Day 2025, held on 4th February, was a resounding success. The event opened with three insightful talks by Alexander Kondinski, Cecilia Poletti, and Oliver Hofmann, setting the stage for a dynamic exchange



Karin Zojer, Gregor Trimmel and Sergio Amancio

Source: Lunghammer – TU Graz

Advanced Materials Science



of ideas. A record 70 posters showcased cutting-edge research across various fields within the FoE AMS, sparking engaging discussions. The vibrant scientific exchange, complemented by refreshments, highlighted the FoE AMS members' commitment to show their recent results. Thank you to all participants for contributing to this inspiring event! Please save the date for the next Advanced Materials Poster Day 2026 taking place again on the 4th February 2026. The FoE AMS steering committee wishes you a successful year of research and breakthroughs!