



## ADVANCED MATERIALS SCIENCE

Fields of Expertise TU Graz

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Source: Lunghammer – TU Graz

**O**nly a few months back, we organized the **Advanced Materials Sciences Poster Day** in order to foster networking within the **Field of Expertise**. At this event, Marcus Ossiander, from the Institute of Experimental Physics, presented his new ERC Starting Grant, EUVORAM – Extreme-Ultraviolet Meta-Optics for Attosecond Microscopy. Afterwards, Eva-Maria Steyskal, from the Institute of Material Physics, presented the second part of the lead project: Porous Materials

@ Work for Sustainability. These two presentations were followed by a poster session, including more than 50 posters from students and postdocs from our Field of Expertise. The event lasted for more than two hours and a lively scientific exchange took place. We are also happy to have restarted our meetings at member institutes after they were discontinued during the Covid-19 pandemic. The last *FoE AMS-update* event of this type took place on May 8th at the Institute of Chemistry and Technology of Materials and included a presentation of the institute and visit of the laboratories.

In the 17th call of the initial funding programme of TU Graz, we could finance three interesting project ideas in chemistry and geoscience. The awardees were Jurij Koruza with a proposal on “Piezoelectric Hardening by External Stimuli”, Franziska Stamm with

the proposal “Climate change and thawing in alpine to glacial environments traced by hydroxyaluminosilicate (HAS) deposits” and Suman Mallik who proposed to work on “An expeditious approach towards highly efficient organic light-emitting diodes using organic radical emitters”. We wish them good luck for the proposal submissions, and we look forward to more submissions at the next call.

New items of infrastructure have been acquired in the Field of Expertise. These include a system for micro computed tomography, a 3D digital optical microscope, a high-resolution time-of-flight mass spectrometer and a thermal gravimeter combined with gas chromatography-mass spectrometry. More equipment will be acquired with the last matching grant that was awarded to our Field of Expertise by the Rectorate. ●

**Cyrill Grengg, Florian Mittermayr**

## From Mineral Waste to Building Materials: CD Lab GECCO<sub>2</sub>

The aim of this research initiative is to establish a cutting-edge interdisciplinary laboratory at the interface between waste and building materials, and the environmental, geo, and civil engineering sciences, with the aim of developing a novel generation of waste-based building materials following the concept of CO<sub>2</sub>-neutral circular economy.

### MINERAL WASTES – UNDERESTIMATED RESOURCES

The development of utilization strategies for wastes and industrial by-products is one of the central questions of our time in order to avoid increasing scarcity of finite resources and to reduce the environmen-

tal impact on society. Mineral wastes represent the largest waste stream in Austria with an overall production of 54m t/a, corresponding to 76% of the entire waste production. Almost 60% of mineral wastes are landfilled and 96% of all landfilled waste



Source: Lunghammer – TU Graz

(32mt/a) is mineral waste. Besides excavation materials, mineral wastes comprise metallurgic slags, mineral wool wastes, construction and demolition wastes, incineration residues, waste glasses and others. >