



SUSTAINABLE SYSTEMS

Fields of Expertise TU Graz

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Sustainable Systems

In the 21st round of the initial funding program, a total of seven proposals were submitted in the Sustainable Systems category. The quality of the projects was high and we were able to fund six of them – more than ever before.

Daniel Gethman from the Institute of Architectural Theory, Art History and Cultural Studies is coordinating four institutes to apply for an FWF Special Research Area (SFB) grant, titled “Informed architectural acoustics in communication environments”. Their proposal argues that communication and acoustics of architectural spaces are of crucial importance, today, and that, instead of treating communication and acoustics separately as is typically done, there is an urgent need for a new interdisciplinary approach that combines them.

Katharina Hengel from the Institute of Architecture and Landscape proposed the project with the short title “Cool GreenTec”

to investigate the performative potential of integrated plant systems in building structures. Nature-based solutions are key in addressing the climate crisis and alternatives to mechanical ventilation systems that use the natural properties of plants to control the air quality in buildings are feasible. The project proposes analysing existing examples and then developing a working prototype of a software tool for creating and monitoring such solutions.

Matthias Rebhan from the Institute of Soil Mechanics, Foundation Engineering and Computational Geotechnics heads a team of researchers to apply for an FFG project to study “Wheel and soil interaction parameters”. It turns out that current models used to compute the interaction between vehicle wheels and soil are rather rudimentary and not very good at dealing with dynamic phenomena. The project looks at ways how more complex computational approaches, already common in geo-engineering, could also be applied to vehicle technology.

Michael Kriechbaum from the Institute of Interactive Systems and Data Science proposes an FWF project with the short title HydroFair. He and his research team want to investigate how a sustainable and socially just global supply chain could be established for green hydrogen, which is increasingly seen as a corner stone of a transition towards a low-carbon economy. The challenge is not just technological, but lies in the complex interplay of multi-scalar governance and regional contexts.

Milica Tomic, Head of the Institute of Contemporary Art, proposes an FWF PEEK project that takes an interdisciplinary look at Brijuni, an archipelago off the Istrian coast. The famous islands have seen a multitude of governing powers in their history since Roman times and are a unique testament to the complex interplay between nature and human activity. The project “In stasis. Unravelling traces of potential worlds.” wants to set up an international collaboration to investigate this entangled history, with many research activities, leading to an exhibition about Brijuni’s history.

Oliver Pischler from the Institute of High Voltage Engineering and System Performance proposes an FFG project to pursue the “Development of a system for measuring space charges in HVDC cables”. Europe’s electricity infrastructure is transitioning to high-voltage direct current (HVDC) power lines, which can transport significantly more power over greater distances than high-voltage AC lines. While HVDC cables have already been used for years, there are still technical challenges. Space charges can limit the cables’ durability and lead to expensive repairs, which the proposed system could help prevent.

We wish all applicants the best of luck with their proposals and hope that the resulting projects can one day be presented on these pages, just like the project on page 34. ●