SUSTAINABLE SYSTEMS

Fields of Expertise TU Graz

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Urs Leonhard Hirschberg, Sustainable Systems

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On January 26th, the FoE Sustainable Systems held their annual members' meeting – online again, as the pandemic situation at the time didn't allow an in-person event. Besides providing information about funding opportunities the members' meeting presented projects and researchers that were successful in the 15th and 16th rounds of the initial funding program, thus giving some insight into new research ideas and initiatives within the research field. The proposals from the 15th round were already presented in the last issue of *research*, so the following are the five successful applicants from the 16th round.

Christopher Albert from the Institute of Theoretical Physics presented an FWF START / ERC Starting Grant proposal titled "Physics Enforced Characterization and Optimization of Complex Systems". In collaboration with the Virtual Vehicle Center and the Max-Planck-Institute of Plasma Physics, the project brings together state-of-the-art machine learning approaches with physical simulation to study complex systems with high dimensionality such as acoustic materials or atomic fusion. The combined approach promises to be more effective than current approaches, as it reduces the need for extensive and difficult to produce datasets.

Hermann Edtmayer from the Institute of Thermal Engineering was successful with his project "WEKStore". The proposal aims to develop a low-tech and low-cost temperature storage system. A novel water-ice-gravel latent heat storage system is combined with an innovative regenerator, photovoltaics and a brine-water heat pump. The system setup is characterized by small space requirements, low installation costs and minimal noise emissions.

Robert Schürhuber, head of the Institute of Electrical Power Systems presented his plans for a Christian Doppler (CD) Laboratory for Future Energy Networks, highlighting the many ways in which the current electricity grid needs to change in order to cope with the decentralized regenerative power production of the future. The proposed CD laboratory is designed to investigate these technically and scientifically challenging topics in a comprehensive fashion.

Studying the effects of climate change, or more specifically, the assessment of alpine carbonate production under global climate change by monitoring natural CO_2 sequestration in alpine lakes, is what Dorothee Hippler from the Institute of Applied Geosciences proposes to do in her FWF research project AlpCO_2Quest. The project aims to contribute to a better understanding of the complex interactions between bio-, geo-, hydro- und atmosphere, a prerequisite to taking the right measures in mitigating the effects of climate change.

Rose-Anne Gush from the Institute of Contemporary Art presented a proposal for an arts-based FWF research project, which she is preparing with her colleague Nikolaus Perneczky. Under the title "Restitution, reparation and the moving image: decolonising global film heritage", they propose a critical inquiry into the politics, economy, location, and ethics of global film heritage, focusing on colonial legacies of uneven development and unequal exchange through the conceptual lens of restitution.

We wish all successful applicants the best of luck with their proposals and hope that the resulting projects can one day be presented on these pages.