HUMAN & BIOTECHNOLOGY

Fields of Expertise TU Graz

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Source: Lunghammer – TU Graz

When this new issue of TU Graz *research* appears, our university will be returning to "normal" life after more than two years of crisis. This is gratifying for all students within our FoE, but also for the teaching staff and especially for our research. Research needs experiments, laboratories and team spirit to obtain results and develop new technologies. These are urgently needed, because the time of crises is not over. On the contrary, the list is long: climate crisis, biodiversity crisis, antibiotic crisis, microplastic crisis … Fortunately, work on solving almost all of these issues is also being done successfully within our FoE.

The first step to successful research is often through small projects, such as those enabled by FoE-specific seed funding. They are easy to apply for, receive a high percentage of funding and often plant the seeds for larger projects. Here is a small example: Ahmed Abdelfattah, originally from Egypt, who has already done research at the Universities of Palermo, Bari and Stockholm as well as at the USDA (United States Department of Agriculture), chose to go to TU Graz to gain further experience within a Marie Curie Fellowship. In order to also integrate students into his research project, he applied for additional experimental costs in "Exploring the apple microbiome". The results of the now completed project are convincing: Daniel Höfle has already submitted his Master's thesis (Master's in Molecular Microbiology) and, based on the results, two new EU projects have been submitted. Imitation is encouraged here!

Furthermore, there is good news: the former Institute of Medical Technology has undergone two innovations: a new director and a new name. Last autumn Martin Uecker took up his post as head of the institute (an article by him is in this issue) and Rudolf Stollberger has retired. He was a very active member of our FoE, and we would like to take the opportunity here to wish him all the very best for the future. With the new appointment, the name of the institute was also changed and it is now called the Institute of Biomedical Imaging.

Bernd Nidetzky, Gernot Müller-Putz & Gabriele Berg wish you a healthy summer semester in presence.

Martin Uecker

Computational Magnetic Resonance Imaging

Magnetic Resonance Imaging (MRI) is a non-invasive medical imaging technology that can produce detailed images from the inside of the human body. It is a computational imaging technique that is based on the physical principles of nuclear magnetic resonance. At the Institute of Biomedical Imaging we develop new MRI techniques and their clinical applications.

Modern Magnetic Resonance Imaging (MRI) scanners are impressive machines. A huge superconducting electromagnet weighing several tons which is cooled down to temperatures just above absolute zero using liquid helium creates a strong magnetic field. When one lies down inside the bore of such a magnet, the nuclei of the hydrogen and other atoms in the body align themselves with this magnetic field.