

ERC Starting Grants Awarded to RWTH Researchers

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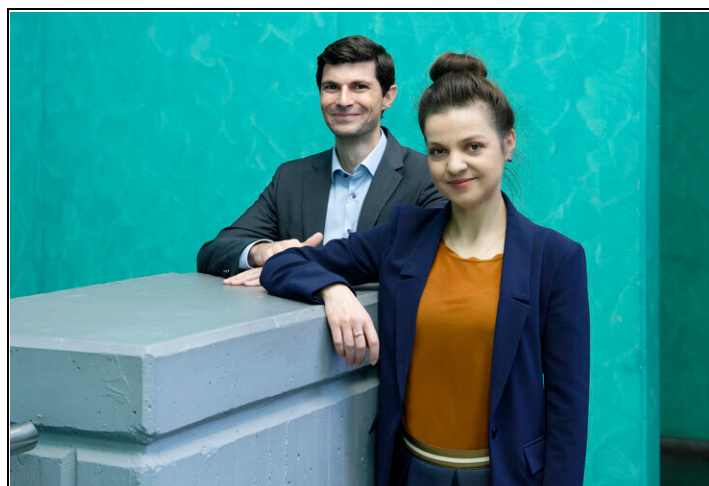


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Dr. Ioana Slabu and Dr. Christian Haase will receive funding. Dr. Ben Page will come to Aachen on a grant.

Physicist Dr. Ioana Slabu and materials scientist Dr. Christian Haase will receive European Research Council (ERC) Starting Grants. This is one of the most prestigious funding programs in Europe. Applicants should have an outstanding research record and must submit their application within seven years of completing their doctorate. In addition, physicist Dr. Ben Page, currently at CERN, will come to Aachen to conduct research thanks to an ERC Starting Grant.

Dr. Christian Haase

Heterogeneities are both a curse and a blessing in metallic materials. In the EU-funded project HeteroGenius4D, Haase and his research group are investigating how chemical and structural heterogeneities arise, interact, and can be used for materials design. An essential part of the project is the application of additive manufacturing processes (colloquially known as 3D printing), which open up new degrees of freedom. In order to identify optimal heterogeneous structures, HeteroGenius4D efficiently combines high-throughput experiments, integrative computational materials engineering (ICME), and machine learning (ML) methods. This should allow the use of locally varying heterogeneities as a fourth dimension in 3D printed materials.

Dr. Christian Haase received his doctorate from RWTH. He is a research associate and competence field leader at the Steel Institute and head of the independent and BMBF-funded NanoMatFutur research group. He is also a member of the "Junges Kolleg" of the North Rhine-Westphalian Academy of Sciences, Humanities and the Arts.

Dr. Ioana Slabu

Individuals working in regenerative medicine, cancer treatment, and cardiovascular treatments have great expectations for biodegradable implants. They release active ingredients on schedule, in the right place, at the right time, and in the right dose. Previous attempts failed because no technology is able to properly account for the influence of the aging of the implants in the body. In her project MAD Control, Dr. Ioana Slabu wants to develop a multifunctional platform for hybrid implants with magnetic nanoparticles in dual function: Sensing effect in magnetic imaging and active drug release by magnetic excitation. For the platform, it combines special manufacturing methods with the comprehensive automated characterization of the implants, novel predictive models for their aging, and targeted model-based control of excitation for the first time. To prove the functionality of the platform, a device is being developed that combines the magnetic particle imaging method with a drug-release excitation capability. MAD Control thus promises new opportunities for the research and development of biodegradable implants and magnetic transport and release systems for active ingredients.

Dr. Ioana Slabu studied physics at RWTH and received her doctorate in 2015. She then held a postdoctoral position at the Physikalisch-Technische Bundesanstalt in Berlin. After returning to RWTH, she founded the Nanomagnetic Engineering in Medicine Research Group at the Institute for Applied Medical Engineering (AME). She completed her habilitation (post-doctoral lecturing qualification) in experimental and applied medical

technology at the Faculty of Medicine in 2020. This year, she became the head of the AME's Biophysical and Education Engineering Department.