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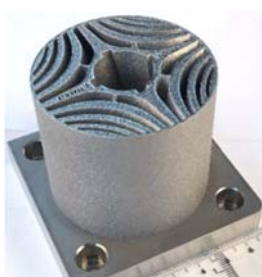


SAARLAND
UNIVERSITY

Open PhD or Post-Doc positions Additive Manufacturing of Amorphous Metals for Soft Magnetics (AM2SoftMag)

Description

The Chair of Metallic Materials of Saarland University (Prof. Ralf Busch) is looking for candidates for a PhD position or a junior post-doc position within the broad field of "**Additive manufacturing of metals for sustainable transport**".



The project is focused on the development of new metallic materials for additive manufacturing (3D printing) using selective laser melting (SLM) technology. In particular, Fe-based soft magnetic amorphous metals for electric motor components will be investigated. An example is the e-engine rotor in the picture on the left (for more information see open access article: <https://doi.org/10.1016/j.matdes.2022.110483>).

The main activities will revolve around alloy development, casting technologies and microstructure characterization at several length scales, and thermal-mechanical property testing. Experience can be gained on all levels of materials' design for 3D printing. It is expected that this work will give rise to several publications in peer-reviewed international journals and it will give the candidate the opportunity to present his/her/their work at major international conferences.

The doctoral/Postdoctoral work is funded by the European Innovation Council (EIC) through a prestigious Horizon Europe Pathfinder-Open grant, which will involve short term stays in consortium research institutions in Italy (at INRIM), and/or in Spain (at IMDEA). Close interaction with industrial partners in Sweden (Exmet AB) and Germany (Heraeus Amloy technology) is expected, and thus the ability to work in a team and passion for innovation are essential.

The candidates will acquire hands-on experience with state-of-the-art materials processing and characterization methods. The student will gain expertise in several fields of high employability (e.g. additive manufacturing, advanced metallic materials for sustainable transport) and experience in both fundamental and applied research in materials and metallurgy, opening perspectives in both academia and industry.

Additionally, the researcher will join regular training activities on transferable skills organised by the Chair in project management, leadership, funding search, grant writing, intellectual property and science communication to specialised and non-specialised audiences.

About Saarland University and the Chair of Metallic Materials



Saarland University is a modern mid-sized public university in Southwest Germany near to France, Luxemburg and Belgium with a strong research focus offering a broad range of studies and degrees. Today, 16,900 students are enrolled, circa 20% of whom are international students. Saarland University's institutional identity is defined by three main areas of research and teaching: "Computer Sciences", "NanoBioMed Sciences", and "European Studies and Internationality". The

campus of USAAR is also home for other major research institutions, such as Max Planck, Helmholtz, Leibniz and Fraunhofer institutes. Saarland University is very active in national and international research collaborations. The chair of Metallic Materials (LMW) is led by Prof. Ralf Busch engages typically 2 full time researchers, 3 technicians, 5 Ph.D. students and a dozen undergraduate students. **The chair devotes most efforts in metallic glass science, and it is active in technology transfer activities with German and other European industries aiming the commercialization of metallic glasses.** In 2019, the spin-off 'Amorphous Metallic Solutions' (AMS) was launched within the chair (www.ams-metal.de).

Requirements

The candidates should be highly motivated to do research and to join a dynamic consortium aiming to make a contribution towards the EU Green Deal. They should have a degree (MSc or equivalent) **in Materials Science and Engineering, Metallurgy, Mechanical Engineering, Physics, Chemistry** or a related discipline, with excellent academic credentials. Candidates with prior knowledge or experience in processing and characterization of metallic materials are strongly encouraged to apply. Full proficiency in English, oral and written, is mandatory. Knowledge of German is not required (complimentary classes offered every Semester).

Deadline for submission of applications

Interested candidates should submit by **April 30, 2022**, their Curriculum Vitae (in English), a brief cover letter addressing their motivation and scientific interests, as well as their academic certificate, including grades and dates, issued by the corresponding academic institution. Please forward your application materials to Prof. Dr. Ralf Busch (r.busch@mx.uni-saarland.de) before April 30th.

Conditions

- Full-time contract including social security coverage.
- Enrollment at Saarland University. Start date: Spring 2022 or later.