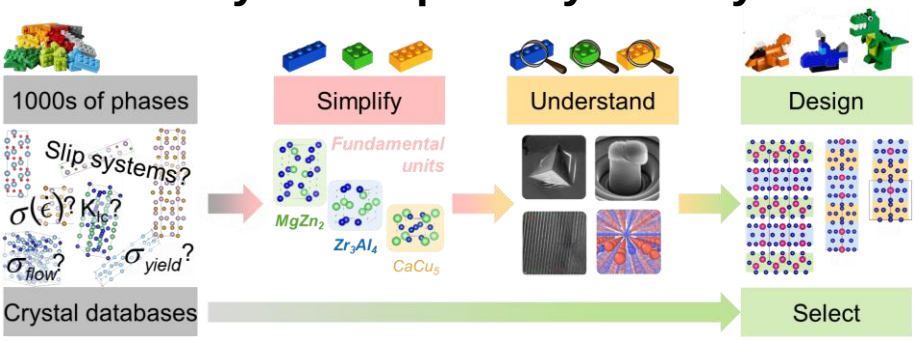
Institut für Metallkunde und Materialphysik | RWTH AACHEN UNIVERSITY

European Research Council

Post-Doctoral Researcher in Computational Materials

Plasticity in complex crystals by DFT



About us:

Research at the Institute of Metallurgy and Materials Physics at RWTH Aachen University focuses on fundamental and applied materials physics. Materials are characterised, modelled and improved in interdisciplinary collaborations at national and international level and using state-of-the-art equipment.

We are looking for:

An enthusiastic candidate who

- holds (or will soon hold) a doctoral degree in Materials Science, Materials Engineering or Physics
- is interested in working on fundamental questions of plastic deformation to ultimately support discovery of new materials for extreme conditions
- is keen to apply and has previous experience in density functional theory
- has a very good command of English (and preferably but not necessarily also German) and enjoys working in a team

Your responsibilities and the project:

The vast majority of engineering materials are based on metallic alloys centred around single elements, e.g. Fe, Al, Mg, Ti or Ni. As even the most sophisticated of these are reaching their performance limits, we need to develop completely new classes of materials. With >100,000 binary and ternary systems, intermetallics are a promising candidate; but how can those combining strength and ductility be found?

These research positions will constitute a team effort at IMM as part of the ERC Starting Grant ‘FunBlocks’ to explore plastic deformation in hard crystals. This will involve mechanical analysis of complex intermetallic crystals from one binary and one ternary system to systematically quantify and compare the properties of their small building blocks and their combinations in large unit cells. This may be done by calculations of generalized stacking fault energies and other critical configurations in close collaboration with on-going atomistic simulations at IMM.

Ultimately, the aim is to provide understanding of essential intermetallic building blocks and enable a data- and knowledge-driven search for new structural materials.

We offer:

The position is offered on a temporary contract for a fixed term of initially 12 months (full-time, extendable to a maximum of 36 months depending on starting date) starting **as soon as possible**. The salary is based on the German public service salary scale (TV-L E13). RWTH Aachen University is certified as a "Family-Friendly University". We particularly welcome and encourage applications from women, disabled persons and ethnic minority groups, recognizing that they are underrepresented across RWTH Aachen University. The principles of fair and open competition apply and appointments will be made on merit.

Your contact person:

Prof. Dr. Sandra Korte-Kerzel (korte-kerzel@imm.rwth-aachen.de).
Applications (cover letter, CV and any supplementary information) should be submitted **as soon as possible.**