

▶ PhD student for ‘Ultra-stable metal nanoparticles’

The INM – Leibniz Institute for New Materials in Saarbrücken, Germany, is an internationally leading center for materials research. We focus on surface and interface phenomena and their exploitation in the development of innovative materials and structures. INM is a scientific partner to national and international research institutions and a provider of research and development for companies throughout the world. INM has about 250 employees and is an institute of the Leibniz Association.

Metal particles with nonpolar organic shells are useful building blocks for printed electronics, responsive materials, and in catalysis. Their colloidal stability is not fully understood, but important for the performance of materials based on such particles. The Structure Formation Group at INM has investigated different stabilisation mechanisms for nonpolar metal nanoparticles and studied the molecular interplay between ligand shell and solvent molecules. Molecular simulations were developed in tight collaboration with the Soft Matter Theory and Computation Laboratory of Prof. Widmer-Cooper at the University of Sydney in Australia.

A project funded by the “Deutsche Forschungsgemeinschaft (DFG)” focuses on metal colloids with very thin organic shells that do not block electronic conduction and mass transport. Fundamental mechanisms of stabilization will be investigated in order to provide maximal stability at minimal ligand length. We are seeking a motivated researcher who wants to join the Structure Formation Group, prepare nonpolar metal nanoparticles, and analyse their structure and composition using a range of methods that include SAXS, DLS, TGA, and NMR. Interpretation of the experimental results will require close cooperation with our partners at the University of Sydney. We expect all group members to take active interest in other, related projects within the Structure Formation Group.

We are considering chemists, chemical engineers, physicists, material scientists and applicants with university degrees from related disciplines. Experience in nanoparticle synthesis and characterization is advantageous. We offer a PhD position at INM to work on this project. The successful candidate will synthesis metal nanoparticles, characterize them, communicate and collaborate with cooperation partners, and present results on scientific conferences. Good written and spoken English are required due to the international nature of this project.

Do not hesitate to apply if this project is the right challenge for you! You will collaborate with a young, interdisciplinary team that attacks the problem of colloidal materials from new angles and uses state-of-the-art synthetic and analytical techniques every day. Your work will bring you in contact with scientists from other fields of research. The ability to communicate clearly and efficiently is of utmost importance.

INM is an equal-opportunity employer with a certified family-friendly policy. We promote the professional opportunities of women and strongly encourage them to apply. Severely disabled applicants with equal qualification and aptitude will be given preferential consideration.

Contact

Please send your application via e-mail to the attention of Prof. Tobias Kraus including a detailed CV and at least two references along with a motivation letter before 15 January 2022. The attachment should be a single pdf-file less than 10 MB:

E-mail: tobias.kraus@leibniz-inm.de.

Reference: “PhD student position: Stable Inks”



CONTACT

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