

The Hybrid Materials Interfaces Group at the Bremen Center for Computational Materials Science of the University of Bremen is offering – under the condition of job release – a position for a

PhD researcher

at the German TV-L 13 (75%) payscale

The appointment will be limited to **three years** and is available immediately.

The successful candidate will perform atomistic and coarse-grained simulations to study the dynamic interactions of silica nanoparticles at surfactant-laden oil/water interfaces in the context of particle-stabilised emulsion systems (Pickering emulsions). Experimental observables such as contact angles, interfacial energies, adsorption energies or electron density profiles will be estimated through all-atom simulations. A dissipative coarse-grain model will be then parametrized and used to predict the interfacial microstructure and rheology of the nanoparticle assemblies.

The simulation work is part of a joined experimental/theoretical project funded by the German Science Foundation (DFG) in cooperation with the Advanced Ceramics group of the University of Bremen (Dr. Michael Maas, Prof. Kurosch Rezwan). The aim of the project is to establish new design rules for the formulation of stable multi-component emulsions systems with precise control of the aggregation state of the adsorbed particles at oil/water interfaces. Such emulsion systems see widespread industrial use in diverse areas such as floatation in oil recovery or water remediation, in nutritional products, cosmetics and pharmaceutical formulations as well as in materials processing of composites and ceramics.

Requirements

Applicants are expected to possess outstanding academic records and a solid background in physics, chemistry, materials science or related disciplines. The knowledge of programming and scripting languages as well as excellent written and spoken English skills are essential. Existing expertise with molecular dynamics simulation methods represents a strong advantage.

Further information

As the University of Bremen intends to increase the proportion of female employees in science, women are particularly encouraged to apply. In case of equal personal aptitudes and qualification priority will be given to handicapped applicants. The University of Bremen expressly invites persons with migration background to apply.

The employment is fixed-term and governed by the Act of Academic Fixed-Term Contract (*Wissenschaftszeitvertragsgesetz – WissZeitVG*). Therefore, candidates may only be considered for appointment if they still have the respective qualification periods available in accordance with § 2 (1) *WissZeitVG*.

Application procedure

The application is open until the **22nd of December 2020** or until the position is filled. Please send your electronic application with the reference **DFG-2021-1015** as **one single pdf** document including (1) a motivation letter, in which you make clear why your study background fits to the advertised position; (2) your curriculum vitae including a list of publications, if available; (3) full transcripts of your academic records.

to

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