MAX PLANCK INSTITUTE
OF MICROSTRUCTURE PHYSICS

1 PhD Position & 4 Postdoc Positions (m/f/d)

The Max Planck Institute of Microstructure Physics, Halle (Saale), Germany, Department *Synthetic Materials and Functional Devices (SMFD)*, Director Prof. Xinliang Feng, is currently looking for 1 motivated PhD student as well as 4 motivated Postdoctoral Scientists to join our ERC SyG 2DPolyMembrane project.
Within our department, we are dedicated to exploring synthetic methodologies and design principles for novel polymers, with a focus on interfacial chemistry, reactions, and the supramolecular chemistry of π-conjugated systems. Our research encompasses the bottom-up synthesis of carbon nanostructures and graphene nanoribbons, as well as the development of organic 2D crystals, including 2D polymers, supramolecular polymers, carbon-rich conjugated 2D frameworks, and the electrochemical exfoliation of graphene and other 2D materials. These exotic polymers, carbon-based materials, 2D materials, and their vdW heterostructures are intricately coupled to electrons, ions, spins, and phonons, offering unprecedented opportunities to uncover novel chemical and physical phenomena for the electronic and quantum communities. Additionally, we are committed to addressing global challenges by leveraging these cutting-edge materials to develop sustainable energy storage and conversion technologies.

Your tasks

The planned task for the PhD position is:

The design and synthesis of 2D polymer heterostructure membranes and their applications in sustainable energy conversion/storage devices.

Each Postdoc position should work within one of the following topics:

- Design and synthesize 2D polymer heterostructure membranes with a short ion diffusion pathway at the nm/sub-nm scale and a finely controlled structure with atomic/molecular precision
- Fundamental study of proton and ion transport in 2D polymer heterostructure membranes
- 2D polymer heterostructure membranes for sustainable energy conversion devices
- 2D polymer heterostructure membranes as electrode coating in aqueous multivalent metal batteries

Your profile

- For Ph.D. students, a Master's or equivalent academic degree in Chemistry, Materials Science, Engineering or related fields
- For postdoc candidates a Ph.D. in Chemistry, Materials Science, Engineering or related fields is required
- Possess strong programming skills for data analysis and experimental control
- Communicate effectively and thrive in a collaborative research environment
- Good command of written and spoken English, the working language of the MPI-MSP

We offer

- An exciting and challenging position in an international and attractive working environment and the opportunity to interact with a wide network of international collaborators
- Access to leading research groups in the emergent field of quantum materials and devices and to cutting-edge research facilities and resources at the MPI-MSP
- Flexible working hours and substantial remuneration amounting to 65% (Ph.D.) / 100% (postdoc) EG13 TVoeD-Bund
- An initial contract duration of 36 months for PhD students and 12 months for the postdocs
- The starting date is April, 1st 2025

The Max Planck Institute of Microstructure Physics gives priority to applications from severely disabled candidates with equivalent qualifications. Furthermore, we strive to increase the proportion of female employees and therefore specifically encourage women to apply.

Please send your application including:

- • A cover letter
- • Your CV, including a publication list
- • Contact details of two scientists who can provide references

until **February 28th, 2025** to the following email address: 2dpolymembrane@mpi-halle.mpg.de