Center for Advancing Electronics Dresden

For the ERC Grant project “Development of Functional Conjugated Two-Dimensional Metal-Organic Frameworks” FC2DMOF the Chair of Molecular Functional Materials offers the following positions:

1 Research Associate / PhD student
2 Research Associates / Postdocs

(subject to personal qualification employees are remunerated according to salary group E 13 TV-L)

**Research area:** Synthesis of conjugated two-dimensional metal-organic frameworks and functions in (opto-)electronics and magnetics

**Investigators:** Dr. Renhao Dong

**research path:** Organic/Polymer Path

**Terms:** 50% of the fulltime weekly hours for PhD students, starting **February 1, 2020** for three years with the possibility of extension. The position aims at obtaining further academic qualification (e.g. PhD).

100% of the fulltime weekly hours for Postdocs, starting **February 1, 2020** for two years. The positions aim at obtaining further academic qualification.

The period of employment is governed by the Fixed-Term Research Contracts Act (Wissenschaftszeitvertragsgesetz – WissZeitVG).

**Position and Requirements**

Metal-organic frameworks (MOFs) have been highlighted for the functions in catalysis, gas storage and separation. In the past, MOFs were regarded as insulators due to the large separation of metal centers by multi-atom, insulating organic ligands, etc. Recent advances disclose that the designs of conjugated 2D MOFs (C2DMOFs) have led to improved intrinsic conductivity. However, the related research remains immature due to lack of high-quality thin film/nanosheet samples, very limited structural types and elusive transport mechanism. To address the above challenges, the European Research Council (ERC) has approved the research project "Development of Functional Conjugated Two-Dimensional Metal-Organic Frameworks (FC2DMOF)" with a prestigious and highly competitive Starting Grant of 1.5 million EUR for 5 years.

Dr. Dong's team (including 1 PI, 8 PhD students and 3 Postdocs now) is currently focused on the synthesis of organic 2D materials which emerge as outstanding candidates for a great number of electronic/magnetic/sensing/energy applications (Website of Dr. Renhao Dong: https://tu-dresden.de/mn/chemie/mc/mc2/die-professur/gruppenleiter/dr-renhao-dong). Within this European Project, the goal of this “FC2DMOF” research is to synthesize conjugated 2D MOFs bearing electronic/magnetic functions.

The successful candidates will be responsible for: design and synthesis of conjugated molecules and 2D MOFs; production and functionalisation of large-area, single-layer and few-layer 2D MOF films by interfacial chemistry and CVD synthesis; development and preparation of 2D MOF nanosheet dispersions and inks by solution synthesis and liquid phase exfoliation; formulation of 2D MOFs and other 2D materials (like h-BN, graphene, TMDCs) into van der Waals heterostructures.
with added functionality; application research in the field of field effect transistors, Hall effect devices, photodetectors, magnetics and energy storage/conversion; organisational tasks within the ERC project.

We aim at attracting the best talent in the respective research fields and expect the following: an outstanding university degree (and – if applicable - a doctoral degree for Postdocs) in organic chemistry, coordination chemistry, polymer chemistry or similar; previous experience in organic/polymer/MOF synthesis and electronics/magnetics/energy technologies; very good interpersonal and communication skills; in particular, the ability to effectively work in collaborative research efforts; an independent, target- and solution-driven work attitude; inter- and multidisciplinary thinking; strong motivation and interest to join one of the most ambitious interdisciplinary research clusters; fluency in English - written and oral.

What we offer
You will join a team of enthusiastic scientists who pursue creatively their individual research agenda inspired by the research center's innovative approach and support. Your research will be fostered by the cfaed philosophy to promote young researchers, which includes: access to state of the art research of leading academic institutes; promotion of gender equality and family-friendly work environment.

Informal enquiries can be submitted to Dr. Renhao Dong, Tel +49 (351) 463 40364; Email: renhao.dong@tu-dresden.de.

Applications from women are particularly welcome. The same applies to people with disabilities.

Application Procedure
Your application (in English only) should include: motivation letter, CV, copy of degree certificate and proof of English language skills.

Complete applications should be submitted preferably via the TU Dresden SecureMail Portal https://securemail.tu-dresden.de by sending it as a single pdf document quoting the reference 1911_FC2DMOF in the subject header to renhao.dong@tu-dresden.de or by post to: TU Dresden, cfaed, Dr. Renhao Dong, Helmholtzstr. 10, 01069 Dresden. The closing date for applications is 13.12.2019 (stamped arrival date of the university central mail service applies). Please submit copies only, as your application will not be returned to you. Expenses incurred in attending interviews cannot be reimbursed.

Reference to data protection: Your data protection rights, the purpose for which your data will be processed, as well as further information about data protection is available to you on the website: https://tu-dresden.de/karriere/datenschutzhinweis

About cfaed

Cfaed is a central academic unit of TU Dresden and brings together 300 researchers from the university and 10 other research institutes in the areas of Electrical and Computer Engineering, Computer Science, Materials Science, Physics, Chemistry, Biology, and Mathematics. Cfaed addresses the advancement of electronic information processing systems through exploring new technologies which overcome the limits of today's predominant CMOS technology. www.cfaed.tu-dresden.de

TU Dresden

The TU Dresden is among the top universities in Germany and Europe and one of the eleven German universities that were identified as an 'elite university' in June 2012. As a modern full-status university with 18 faculties it offers a wide academic range making it one of a very few in Germany.