The Center for Advancing Electronics Dresden (cfaed) offers a fixed-term position as Research Associate / PhD student (subject to personal qualification employees are remunerated according to salary group E 13 TV-L)

**Research area:** Organic Electronics: materials, processing, and devices

**Project Title:** “Organic nanometer-scale morphology control”

**cfaed Investigators:** Prof. Stefan Mannsfeld

**Terms:** 65% of the fulltime weekly hours, the position is a 3 years appointment (with the option to be extended) and starts 01.01.2020. The period of employment is governed by the Fixed Term Research Contracts Act (Wissenschaftszeitvertragsgesetz – WissZeitVG). The position offers the chance to obtain further academic qualification (e.g. PhD).

**Position and Requirements**

This PhD project is part of a broader research effort to affect the electronic properties of organic semiconductor devices by controlling and tuning the morphology of the involved material(s). It is well known that the precise arrangement and packing of molecules significantly influences the electronic properties of thin films coated from this material. One of the planned topics of this PhD is to influence the molecular packing by co-crystallizing two specially designed molecules one of which is a semiconductor molecule to force a close packing of the semiconducting molecules in the resulting films. Another topic is related to electronically active junctions of multiple material layers. Although highly attractive for high throughput inexpensive device fabrication, solution-coating of organic electronics is typically limited to single layer coatings and while orthogonal solvent use might enable second layer deposition, multi-layer devices have so far been difficult to obtain from solution. In this project, we will investigate modern, alternative ways to fabricate multilayer architectures from solution and fabricate working electrically active devices.

The successful candidate will:

- work in a team of several other PhD candidates and postdocs;
- fabricate organic single- and multilayer devices by thermal evaporation of materials in vacuum and by solution coating processes of small molecules and polymers;
- explore different fabrication conditions and processing parameters in order to optimise the device layout for electrical functionality;
- characterise the resulting devices both morphologically and electrically, the latter including I-V, C-V, C-f, and optical measurements;
- participate in synchrotron-based X-ray scattering experiments.

We aim at attracting the best talent in the respective research fields and look for:

- an outstanding university degree (master or equivalent) in chemistry, physics, electronics, materials science or related field of physical sciences;
- previous experience in fabrication of organic or inorganic thin film electronic devices;
- ideally also prior experience with thin film deposition from vacuum or from solution;
- good knowledge in device physics/semiconductor physics is desirable;
• 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 central academic unit;
• 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 cluster's innovative approach and support. Your PhD 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;
• international doctoral program;
• promotion of gender equality and family-friendly work environment.
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, transcript of grades (i.e. the official list of coursework including your grades) and proof of English language skills. Complete applications should be submitted preferably via the TU Dresden Secure-Mail Portal https://securemail.tu-dresden.de by sending it as a single pdf-document quoting the reference number PhD1911_OrgNanoMorph in the subject header to recruiting.cfaed@tu-dresden.de or by mail to TU Dresden, cfaed, z. Hdn. Anne Schulze, Helmholtzstr. 10, 01069 Dresden. The closing date for applications is 04.12.2019 (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 at Technische Universität 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. For more information please see www.cfaed.tu-dresden.de

cfaed has initiated to create seven new Professorships at TU Dresden to further strengthen cfaed's research areas. These strategic positions are being filled with distinguished scientists to enhance the Cluster's research output and increase its international reputation. The Chair for Organic Devices is one of these positions and will contribute to the Organic/Polymer Path.

About 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.