Within the Cluster of Excellence ‘Center for Advancing Electronics Dresden’ (cfaed) the newly established Chair of Network Dynamics offers the following position:

**Research Associate / Postdoc “Collective Dynamics of Complex Systems and Networks”**

(Subject to personal qualification employees are remunerated according to salary group up to E 14 TV-L)

**Terms:** starting as soon as possible; fixed-term for 3 years. The period of employment is governed by the Fixed Term Research Contracts Act (Wissenschaftszeitvertragsgesetz - WissZeitVG). Balancing family and career is an important issue. The post is basically suitable for candidates seeking part-time employment. The position offers the chance to obtain further academic qualification (e.g. habilitation thesis).

**Position and Requirements**

The newly established Chair of Network Dynamics of Prof. Dr. Marc Timme advances our conceptual understanding of collective phenomena emerging in network dynamical systems across fields. It bridges fundamental topics from the **Theoretical Physics** of complex systems to questions on the collective function of biological and bio-inspired systems and on self-organized solutions for engineering systems and sustainability. Through mathematical, theoretical and computational multidisciplinary research and development it addresses pressing challenges in a wide range of research areas, including the decentral computing in artificial and **biological circuits**, optimization and design of **flexible and networked mobility** systems, the collective dynamics of **future-compliant power grids**, the creation of conditions underlying **systemic sustainability** and **risk mitigation** and **network inverse problems** of identifying and designing interaction topology underlying a given system’s dynamics and function.

The successful candidate will contribute to world-leading research and teaching on collective phenomena in complex dynamical systems as well as theoretical physics; the work is driven by the aim of reveal fundamental conceptual, mathematical, and **theoretical insights**, is inspired by and aims at feeding back to natural and human-made systems such that it often has applications to future forms of computing, mobility or sustainability. A focus on mobility, computation or sustainability is desired. The candidate will also develop mathematical and computational tools; mine, analyze, structure and consolidate experimental and numerical data; help establishing collaborations within TU Dresden and beyond; actively engage in theoretical physics and cross-disciplinary teaching and outreach, take responsibility for organizational tasks and/or IT and systems administration tasks within the Chair and beyond.

We aim at attracting the best talents from the exact sciences between statistical physics, nonlinear dynamics and applied mathematics. Hence, we expect: an outstanding university degree and doctoral degree in theoretical physics, applied mathematics or related areas; experience in the analysis, design or inference for collective phenomena in complex systems, ideally for network dynamical systems; sound computational knowledge and skills; advanced IT knowledge required for the above tasks; experience in teaching and course organization; very good interpersonal and communication skills, in particular, the ability to effectively work in collaborative research efforts, the ability to write and present concisely; 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 teams in the field; very good command of English - written and oral. Experience in any of the above research topics is a plus but not required.

**What we offer**

You will join a team of enthusiastic scientists who creatively pursue their individual research agenda inspired by the cluster’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 recruiting.cfaed@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 number PD1712 in the subject header to recruiting.cfaed@tu-dresden.de or alternatively by post to: TU Dresden, cfaed, Frau Dr. P. Grünberg, 01062 Dresden, Germany. Please submit your applications by 08.02.2018 (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.

**About cfaed**

cfaed is a cluster of excellence within the German Excellence Initiative. As a central scientific unit of TU Dresden, it 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 14 departments it offers a wide academic range making it one of a very few in Germany.