The ***Research Training Group*** (RTG) **2767** „Supracolloidal Structures: From Materials to Optical and Electronic Devices“ of TU Dresden, funded by Deutsche Forschungsgemeinschaft (DFG), offers 12 positions as

Research Associate / PhD Student (m/f/x)
(subject to personal qualifications, employees are remunerated according to salary group E 13 TV-L)

starting **1 April 2022**. The positions comprise 65…100% of the full-time weekly hours as specified below and are initially limited for 3 years, with the option of extension. The period of employment is governed by the Fixed Term Research Contracts Act (Wissenschaftszeitvertragsgesetz-WissZeitVG). The positions aim at obtaining further academic qualifications (e.g. doctoral degree).

About the RTG

The RTG 2767 aims to train a new generation of experts who will design materials made of supracolloidal structures from the drawing board to application in components. Nanoparticles are used in many optical and electronic components nowadays. Supracolloidal structures are complex superstructures composed of different nanoparticles, similar to how atoms are linked to molecules. This results in innovative, exceptionally promising optical and electronic properties that go far beyond those of the individual building blocks. To date, these structure-property relationships of the assembled particles are not adequately understood. The technological visions of these new materials include novel solar cells, field amplification for highly sensitive spectroscopy, biosensing applications where complex detection processes are made simpler, and even on-site sample examination using smartphones. In order to realize the technical complexity in the training, numerous institutions are connected within the RTG's 2767 tight network, including various groups at the TU Dresden, the Universität Leipzig, the TU Dresden Research Cluster cfaed and the Dresden Center for Nanoanalysis as well as the Leibniz Institute for Polymer Research Dresden, the Helmholtz-Center Dresden-Rossendorf and the Kurt Schwabe Institute for Measurement and Sensor Technology Meinsberg e.V.

Position #1	**RTG2767-A1**
Investigators:	Prof. Dr. Ralf Seidel/ Prof. Dr. Yana Vaynzof
Terms:	65% of the full-time weekly hours
Location:	Technische Universität Dresden /Universität Leipzig
Tasks:	**DNA-mediated self-assembly of semiconducting nanomaterials**
Requirements:	Excellent Master of Science or diploma in physics or chemistry (or related subjects). Interest in biochemistry/biology and interdisciplinary research.

Position #2	**RTG2767-A2**
Investigators:	Prof. Dr. Alexander Eychmüller
Terms:	65% of the full-time weekly hours
Location:	Technische Universität Dresden
Tasks:	**Semiconductor nanoparticles for novel transistor structures**
Requirements:	Excellent Master of Science or diploma in chemistry, physics or electrical engineering.

Position #3	**RTG2767-A3**
Investigators:	Prof. Dr. Andreas Fery
Terms:	65% of the full-time weekly hours
Location:	Leibniz Institute for Polymer Research Dresden e.V.
Tasks:	**Understanding charge transport in hybrid colloidal nanowires**

Requirements: Excellent Master of Science or diploma in chemistry or physics with focus on physical chemistry of interfaces and particulate/colloidal systems.

Position #4 **RTG2767-A4**
Investigators: Prof. Dr. Brigitte Voit
Terms: 65% of the full-time weekly hours
Location: Leibniz Institute for Polymer Research Dresden e.V.
Tasks: **Defined conjugated polymer nanostructures through self-assembly**
Requirements: Excellent Master of Science or diploma in Chemistry or Material Science
Experience in organic and/or polymer synthesis for functional organic materials, and respective physico-chemical characterization; interest in interdisciplinary cooperation with physics and electrical engineering

Position #5 **RTG2767-A5**
Investigators: Prof. Dr. Stefan Diez
Terms: 65% of the full-time weekly hours
Location: Technische Universität Dresden
Tasks: **Nanoelectronics with functionalized microtubules**
Requirements: Excellent Master degree or diploma in (bio)physics, (bio)chemistry or (bio) engineering. Experience in handling hybrid bio-nano-systems desirable but not mandatory

Position #6 **RTG2767-A6**
Investigators: Dr. Bernd Rellinghaus / Prof. Dr. Andreas Fery
Terms: 75% of the full-time weekly hours
Location: Technische Universität Dresden
Tasks: **In situ and in operando characterization of functional self-assembled nanostructures**
Requirements: Excellent Master of Science or diploma in physics, materials science, or chemistry.
Experience in (i) the processing of nanostructured or nanoparticulate materials or (ii) transmission electron microscopy.

Position #7 **RTG2767-A7**
Investigators: Prof. Dr. Yana Vaynzof
Terms: 75% of the full-time weekly hours
Location: Technische Universität Dresden
Tasks: **Perovskite / PbX (X=S, Se) core-shell quantum dots for photovoltaic and light-emitting diodes**
Requirements: Excellent Master of Science or diploma in natural sciences or engineering with focus on colloidal systems.
Experience in the synthesis of colloidal materials and their characterisation.

Position #8 **RTG2767-B1**
Investigators: Dr. Larysa Baraban
Terms: 75% of the full-time weekly hours
Location: Helmholtz-Zentrum Dresden-Rossendorf
Tasks: **Nanoparticles based amplification of field effect transistor based nanobiosensors**

Requirements: Excellent Master of Science or in physics, chemical or electrical engineering with focus on microelectronics and biomedical engineering.
Experience in the processing of thin films, nano- microstructuring, etc.

Position #9 **RTG2767-B2**
Investigators: Dr. Artur Erbe
Terms: 75% of the full-time weekly hours
Location: Helmholtz-Zentrum Dresden-Rossendorf
Tasks: **Electronic circuits by self-organization based on DNA origami molds**
Requirements: Excellent Master of Science or diploma in physics or electrical engineering with focus on nano- and microelectronics.
Experience in nanofabrication and electrical characterisation of nanoelectronic devices.

Position #10 **RTG2767-B3**
Investigators: Prof. Dr. Karl Leo
Terms: 75% of the full-time weekly hours
Location: Technische Universität Dresden
Tasks: **Semiconductor nanoparticles for infrared photodetectors**
Requirements: Excellent Master of Science or diploma in physics or electrical engineering with focus on microelectronics.
Experience in the processing of thin films; basic component knowledge

Position #11 **RTG2767-B4**
Investigators: Prof. Dr. Michael Mertig
Terms: 75% of the full-time weekly hours
Location: Technische Universität Dresden/ Kurt-Schwabe-Institut für Mess- und Sensortechnik Meinsberg e.V.
Tasks: **Putting DNA in motion - electro-switchable biosurfaces for micro-optical sensing applications**
Requirements: Excellent Master of Science or Diploma in natural sciences (physics, chemistry or biology) or engineering (materials sciences or electrical engineering) with focus on microphotonics.

Position #12 **RTG2767-B5**
Investigators: Dr. Caroline Murawski
Terms: 75% of the full-time weekly hours
Location: Technische Universität Dresden/
Kurt-Schwabe-Institut für Mess- und Sensortechnik Meinsberg e.V.
Tasks: **New transparent metal electrodes for flexible organic light-emitting diodes**
Requirements: Excellent Master of Science or diploma in physics, chemistry, material science or similar discipline with focus on optoelectronics.
Experience in thin film processing and characterization; basic knowledge in semiconductor physics and optics

Position #13 **RTG2767-B6**
Investigators: Dr. Robert Kirchner
Terms: 100% of the full-time weekly hours

Location:	Technische Universität Dresden
Tasks:	**3D microscopic particle platforms via multi-material two-photon laser lithography for optical and plasmonic applications**
Requirements:	Excellent Master of Science diploma in physics, chemistry, mechanical, or electrical engineering with focus on micro-nano-structures. Ideally with experience in the processing of thin films, patterning, and/or lithography as well as 3D printing.

General Requirements

- above-average degree achieved in short study period,
- willingness and ability to think beyond the boundaries of your field, to act in an international and diverse environment and to live an open and constructive communication,
- strong analytic and problem-solving skills, creativity,
- an independent, target- and solution-driven work attitude,
- fluency in English, knowledge of German would be a plus

What we offer

You will join an enthusiastic and ambitious research training group, where you can drive your project forward and benefit from inspirational interactions with like-minded researchers. The RTG offers structured training program with technical and soft skill courses, research stays abroad as well as contact to industry. It offers the opportunity for PhD thesis completion. The working language of our international teams is English.

For informal enquiries, please contact the investigators given above or Kristin Schmidt (kristin.schmidt@tu-dresden.de, +49 351 463 43703).

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

Your application **(in English only)** must include: a motivation letter, your CV with publication list, copy of degree certificate, and transcript of grades (i.e. the official list of coursework including your grades). Please include also a link to your Master's or diploma thesis. 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 **RTG2767-xx (see above)** in the subject header to **recruiting.cfaed@tu-dresden.de** or alternatively by post to: **TU Dresden, cfaed, Frau Kristin Schmidt, Helmholtzstr. 10, 01069 Dresden, Germany.** The closing date for applications is **15 Feb 2022** (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