From May 1st, 2022, there will be eight positions at the Friedrich Schiller University Jena

Scientific staff (f/m/d)

for a doctorate (13 TV-L, 67%)

to occupy. The positions are limited for a period of 3 years. The doctoral positions are advertised as part of the research group FOR 5301 FuncHeal at the FSU Jena.

The FuncHeal research group (www.ceec.uni-jena.de) deals with self-healing materials that are able to restore functional properties (e.g., optical properties, conductivity, etc.). These new materials can be used to regenerate the functions of batteries or solar cells.

PhD 1 (P1, Prof. Dr. Ulrich S. Schubert): monomer synthesis (organic chemistry); synthesis of polymers with reversible binding units, fabrication and characterization of battery electrodes; investigation of the self-healing of the polymers; previous experience in the field of macromolecular chemistry and/or electrochemistry is desirable.

PhD 2 (P2, Prof. Dr. Felix H. Schacher): The position deals with anionic ring-opening polymerization for the production of functional polyether-based block copolymers. These are then to be used by means of reversible and irreversible crosslinking to form novel gel electrolytes (both aqueous and organic) in order to use them in polymer batteries, for example. The reversible crosslinking points in particular are there to heal possible defects after damage and, if necessary, to restore changed conductivities.

PhD 3 (P3, Dr. Martin D. Hager): Monomersynthese (org. Chemie); Synthesis and characterization of conjugated polymers with flexible linker units or with reversible binding units; investigation of the self-healing of the polymers; Previous experience in macromolecular chemistry is desirable.

PhD 4 (P3, Prof. Dr. Kalina Peneva): Synthesis of organic chromophores (organic chemistry), synthesis and characterization of rylene dyes to be used as acceptors in solar cells. Production of dyes and polymer blends, investigation of the self-healing of the polymer blends. Previous experience in organic chemistry is desirable.

PhD 5 (P4, PD Dr. Martin Presselt): Assembly of amphiphiles into molecular monolayers and their integration into solar cell architectures; Characterization of the monolayers using photothermal deflection spectroscopy, UV-vis transmission spectroscopy and modeling of the spectra using fit routines, fluorescence spectroscopy and microscopy, atomic force microscopy, electrochemistry, application of Langmuir-Blodgett and related techniques; Previous experience in physical chemistry, especially interface chemistry and optical spectroscopy is desirable.

PhD 6 (P5, Prof. Dr. Stefanie Gräfe): Theoretical description of self-healing functional materials using multiscale simulations, molecular dynamics (MD) and quantum chemical calculations; Previous knowledge in the field of theoretical description of matter, ideally with quantum chemical and/or molecular dynamic methods desired.
PhD 7 (P6, Prof. Dr. Benjamin Dietzek-Ivanšić): Time-resolved optical spectroscopy (emission and transient absorption spectroscopy) to characterize electron transfer processes in self-healing conjugated polymers; Absorption and resonance Raman spectroelectrochemistry to characterize strain-induced structural changes in materials; Previous knowledge in the field of optical spectroscopy or material synthesis for applications in organic electronics desired.

PhD 8 (P6, Prof. Dr. Jürgen Popp): Linear and non-linear (micro)spectroscopic Raman experiments on self-healing polymers; 2D correlation analysis of the obtained spectroscopic datasets; Experience in physical chemistry or physics and ideally experience in molecular spectroscopy with a focus on vibrational or Raman spectroscopy is desirable.

Your profile

• Scientific university degree (master’s degree in chemistry, materials science, physics or equivalent);

• Relevant language skills in German or English

• Enjoy working independently in the laboratory and scientific curiosity

• Open communication and the ability to work in a team

The positions are intended to serve the qualification of young academics and offer the opportunity for a doctorate. The employees work within the framework of the research program of the research group. Regular workshops contribute to an inspiring scientific environment.

Our offer:

• A stimulating scientific environment that offers opportunities for personal development and academic teaching;

• Attractive fringe benefits, e.g. capital-forming benefits, job ticket (discounts for public transport), company pension scheme (VBL)

• University health promotion and a family-friendly working environment with flexible working hours

Severely disabled people will be given preference, if they have the same suitability, ability and professional qualifications.

Have we piqued your interest? Then send us your detailed application documents (curriculum vitae in tabular form; copies of university entrance qualifications, B.Sc./intermediate diploma, M.Sc./diploma or a current excerpt; description of previous experience and motivation; naming 2-3 references if necessary); please cite the above position (PhD 1 to PhD 8) by June 6th, 2022 as a single PDF file to: ceec-jena@uni-jena.de