The department of *Biomaterials* at the *University of Bayreuth* is offering a

three-year PhD position (TV-L13, 67%)

starting in summer/fall 2020. The study focuses on:

'Using Crispr-Cas9 to create customizable spider silk for the investigation of structure-function relationships'

Being a member of the Elite Network of Bavaria, the University of Bayreuth focuses on interdisciplinarity and international collaborations. In this spirit, the Department of Biomaterials employs a multi-national team of chemists, bio-chemists, biologists and engineers to investigate and develop bio-based materials with applications in medicine and material science, based on tough natural substances, such as spider silk and mussel byssus. For more information, please visit: http://fiberlab.de/

Spider silk is a fascinating natural fibre, with its superior toughness surpassing most man-made materials, like Kevlar. Being also biocompatible and sustainable, it is of great significance for materials researchers in this age of global environmental concern. To date a myriad of possible uses for spider silk have been proposed, from medical applications to the incorporation in textiles. To successfully implement silk into any (bio)technical system, we however need a detailed understanding of the interplay of different sequence motives and scales, which govern its tensile properties.

The goal of the PhD project is to establish genetic editing of silk by Crispr-Cas9 in a model spider species and to use this novel tool to manipulate specific silk and silk-related sequences to deduce their role in silk functionality. Furthermore, the limits of silk tuning and the incorporation of novel functionalities into the fibres will be investigated.

Your tasks:

- Breeding of spiders
- Establishing genetic editing in a model spider species
- Analysing effect of genetic changes on tensile properties
- Genetically incorporating novel functionalities into silk fibres

Your profile:

- Creative, highly motivated candidate, who is truly committed to research
- Master degree in Biology, Biochemistry or comparable
- Strong background in genetics
- Knowledge of statistical analysis
- Strong communication/writing skills in English
- No fear of spiders

What we offer:

- A big interdisciplinary and multi-national team
- An excellent international scientific network with several collaboration partners
- Modern and state-of-the-art equipped research laboratories with a wide spectrum of high-end equipment
- The opportunity for independent research and learning

Interested in joining us?

To apply, please send your application by E-mail (attached as a single PDF) including your CV, a statement of research interests and the names and contact addresses of two referees (or two letters of recommendation), as well as your transcripts to thomas.scheibel(.at.)bm.uni-bayreuth.de. The application deadline is 26th of June 2020.

The University of Bayreuth is an equal opportunity employer. Applications from severely disabled individuals with equal qualification and aptitude will be given preference.