



## PhD Program between the Freie Universität Berlin (FUB) and the China Scholarship Council (CSC)

### Open PhD position at FUB for CSC scholarship candidates 2018

*Please note: the PhD position is only offered to Chinese PhD candidates for application in the framework of the FUB-CSC PhD Program.*

<b><u>Department/Institute:</u></b>	Dpt. of Biology, Chemistry, Pharmacy/ Institute of Chemistry and Biochemistry- Organic Chemistry & Dpt. 6.0 Materials Protection and Surface Technologies, Research group "PolyNanotechBiomed" BAM (German Federal Institute for Materials Research and Testing, Berlin)
<b><u>Subject area:</u></b>	Polymer Chemistry
<b><u>Name of Supervisor:</u></b>	Jun.-Prof. Annabelle Bertin
<b><u>Number of open PhD positions:</u></b>	1
<b><u>Type of the PhD Study:</u></b>	Full-time
<b><u>Project title:</u></b>	Biologically inspired polymer-glass fibers composites with improved mechanical properties

#### **PhD Project description:**

Polymer-glass fiber composites play an important role as structural materials in a range of engineering fields where light-weight constructions are needed due to their potential to combine the best mechanical properties of their constituents. But even nowadays, after decades of research in this field, failure of the material at the interface between the hard and the soft components still occurs that can lead to dramatic consequences (airplanes, automotive, windmills, etc.). On the other hand, in Nature, heterogeneous mineralized composites are ubiquitous and exhibit fascinating and precise architectures over various length scales allowing them to reach remarkable mechanical properties, where the tendon to bone interface is a prime example. By learning from Nature, a novel approach is proposed for the synthesis of bio-inspired tough, structurally robust composites with simple building blocks by the use of novel organic-inorganic hybrid copolymers as well-defined interface. Furthermore, we want to correlate the molecular structure of this well-defined interface to the microscopic and macroscopic properties of the final composite in order to better understand safety-related malfunctions in marketed composite materials.

#### **Language requirements:**

IELTS: 6.5 or TOEFL: 95 ibt.

#### **Academic requirements:**

A Master degree in the field of Chemistry, Materials Science or Polymer Science is required.  
A Bachelor degree is not sufficient for a full time doctorate.

#### **Information of the professor or research group leader:**

Jun.-Prof. Dr. Annabelle Bertin  
Federal Institute for Materials Research and Testing (BAM)  
Dpt. 6.0 Materials Protection and Surface Technologies  
Research group "PolyNanotechBiomed"  
Unter den Eichen 87  
12205 Berlin  
Germany  
Fu webpage: <http://www.bcp.fu-berlin.de/en/chemie/chemie/forschung/OrgChem/bertin/index.html>

**Please note:** In a first step, the complete application must be submitted to the Beijing Office for evaluation by January 4<sup>th</sup>, 2018. Please do not contact the professor before. He/She will get in contact with you after having received the complete application via the Beijing Office in January.