



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

Open PhD position at FUB for CSC scholarship candidates 2017

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

<u>Department/Institute:</u>	Institute of Chemistry and Biochemistry, Organic Chemistry & Department 6.0 Materials Protection and Surface Technologies, German Federal Institute for Materials Research and Testing (BAM)
<u>Subject area:</u>	Organic Polymer Chemistry
<u>Name of Supervisor:</u>	Prof. Dr. Annabelle BERTIN (Ms.)
<u>Number of open PhD positions:</u>	1
<u>Type of the PhD Study:</u>	Full-time
<u>Project title:</u>	Development of hybrid nanoparticle-hydrogel nanocomposites with "on-demand" activation

PhD Project description:

The ability to control the state of a sensor that is to switch between its active and passive state on purpose is of paramount importance when a sensor should operate reliably over longer periods of time, a requirement that is essential for autonomous sensor networks in process control, food safety or environmental monitoring. Concerning the integration of such a control function within a chemical sensor, it is important that the recognition event and the state switching can be accomplished independently, leaving analytical performance unhampered by the control process. The aim of this project is to develop this kind of advanced sensor of various formats such as thin films on 2D supports, shells around silica core nanoparticles or layers on the inner pore walls of mesoporous silica nanoparticles and equip them with a switchable protective coating made of thermo-responsive polymers. These hierarchical, dual-functional hybrids are then integrated with fibre optical sensors and incorporated into hydrogel matrices which constitute the active sensing element of microfluidic devices. This combination of controlling the interface around an attached or embedded sensor matrix while monitoring the system's analytical response promises to yield a next-generation of powerful sensing devices.

Language requirements:

IELTS 6.5 or TOEFL 95 iBT. The doctoral thesis can be written in English. The candidate should therefore have a good level in English (fluent in spoken and written). Proficiency in German language is not necessary.

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:

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 <http://www.bcp.fu-berlin.de/en/chemie/chemie/forschung/OrgChem/bertin/index.html>

Please note:

In a first step the complete application should be submitted to the Beijing Office for evaluation by January 4th, 2017. Please don't contact the professor before. He/She will get in contact with you after having received the complete application in January.