



DLR – DAAD Fellowships

Fellowship No. 402

Research Area : Transportation

Research Topic: **Synthesis of Aerogels from Natural Fibres for Biodegradation Resistant Products**

DLR Institute: Institute of Materials Research, DLR Cologne

Position: Doctoral Fellow

Openings: 1

Job Specification: This project is a joint collaboration between DLR (Institute of materials research, department of aerogels and aerogel composites) and UBC (BMR Laboratory). These laboratories conduct cutting-edge research on biodegradation resistant bio-materials and aerogels in particular. The laboratories' activities include fundamental research (chemistry, microbiology, and molecular biology) and product integration and development (materials science). We are very well equipped for aerogel synthesis, microbiology and molecular biology as well as material characterization (BET, NMR, SEM, TEM, AFM-IR, X-ray μ CT).

We will determine the factors that govern the microstructure of aerogels synthesized from natural fibres such as hemp and flax, by systematic parametric studies. The molecular interactions and structure of selected samples will be analysed by advanced analytical and material characterization techniques. Finally, we will develop strategies to hydrophobized bio-aerogels and their composites and subject the resulting materials to accelerated aging and biodegradation under to assess their performance.

Required Qualification: We are looking for a highly motivated PhD student with background in chemistry or/and molecular biology. You have a MSc. degree in chemistry, molecular biology, materials science, chemical engineering or similar field. You are experienced in both chemical and molecular biology laboratories and are confident to operate complex analytical instruments (MALDI-TOF)

MS/MS, ESI-MS/MS, Biofilm formation analysis, PCR/Pulsed Field/Gel electrophoresis, calibration and maintenance of all automated laboratory equipment) and study requires at the same time an analytical mind-set for data interpretation, and a hands-on approach to trouble-shooting in the lab.

- Advantageous Skills:** You are self-motivated, a team player and take personal responsibility
- English competence:** See requirements on www.daad.de/dlr Test of English as a Foreign Language (TOEFL): minimum score of 550 (paper version); 90 overall with a minimum score of 22 in Reading & Listening and a minimum score of 21 in Writing & Speaking (Internet version). International English Language Testing Service (IELTS): minimum overall band score of 6.5 with no component score less than 6.0
- Earliest Start Date:** September 2019
- Application Deadline:** **1 August 2019**
- Further Information:** <http://www.dlr.de>
<http://www.daad.de/dlr>