

PhD position as Chemist or Chemical Engineer (E13 (75%) or equivalent stipend)

### **Magnetic Nanoparticle Synthesis in a Microfluidic Workflow with Integrated Characterization**

This PhD work is part of a research project funded by the International Graduate School of Science and Engineering (IGSSE) with the title "Microreactor with integrated characterization for the synthesis of magnetic nanoparticles (MiCSMaP)". The PhD work will be conducted at the Chair of Analytical Chemistry in Großhadern and will be co-supervised by the IMETUM (Zentralinstitut für Medizintechnik der Technischen Universität München) in Garching.

The work package includes:

- Design and production of a microfluid microreactor for nanoparticle synthesis
- Synthesis of antibody coated magnetic nanoparticles
- Adapting the nanoparticle synthesis to a multi-step microfluidic system
- Evaluation of the designed microfluidic system for each nanoparticle coating step using different characterization techniques (dynamic light scattering, zeta potential, transmission electron microscopy)
- Proof-of-principle studies with bioanalytical applications in the field of food analysis, water analysis and diagnostics

We are looking for a talented young researcher who would like to do his/her PhD thesis in an international and interdisciplinary work environment.

Qualifications:

The applicant should possess a Master's degree or equivalent in chemistry, chemical engineering or technical chemistry. Excellent writing and communication skills in English are required. German would be nice but is not obligatory. The applicant is expected to have laboratory experience and be able to work independently in the laboratory. Furthermore, experience in the synthesis and handling of nanoparticles is required. Also knowledge of colloidal chemistry and physics will be advantageous. There should be interest in molecular physics and microdimensional engineering and bioanalytics. The applicant should also be interested in solving construction problems and being able to work in an interdisciplinary and international work environment.

Our offer:

The successful candidate will become part of the IGSSE and a member of the Technische Universität München (TUM). The program will actively assist the candidate in achieving a doctoral degree within the scheduled time of three years. She/he will obtain an interdisciplinary training and a solid knowledge of adjacent research fields. Guest research stays for up to three months at renowned international partner universities are part of the program as well. The payment and the conditions of employment follow the specifications of IGSSE projects at the TUM.

Application details:

As part of the Excellence Initiative of the German federal and state governments, TUM has been pursuing the strategic goal of substantially increasing the diversity of its faculty. The TUM is an equal opportunity employer. TUM aims to increase the proportion of women and therefore particularly welcomes applications by women.

Applications should include curriculum vitae, certificates and transcript of MA/Diploma or equivalent degree, summary of the previous work, letter of motivation, proof of fluency in English and names of two references. Please send your application within one pdf-document.

For more information please contact:

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