

NTNU - kunnskap for en bedre verden

Ved NTNU, Norges teknisk-naturvitenskapelige universitet, skapes kunnskap for en bedre verden og løsninger som kan forandre hverdagen.

PhD Research Fellowship in Miniaturized Droplet Biotechnology

A PhD position is available at the Department of Physics. The position is financed by NTNU Biotechnology, being one of NTNU's three strategic enabling technology programs. The appointment has a duration of three years with the possibility of up to one year extension with 25 % teaching duties in agreement with the Department.

The NTNU Biotechnology enabling technology program brings together scientists from various disciplines towards strengthening development of new solutions in biotechnology. The ambitious overall aim of the initiative highlights that the most efficient strategy to develop new, high potential biotechnology, is through the confluence of life sciences, mathematical sciences and engineering sciences. See <http://www.ntnu.edu/biotechnology> for further information.

The Miniaturized Droplet Biotechnology project addresses the efficient preparation of miniaturized gel beads and double emulsions using microfluidic devices for custom design of structured soft materials, and for immobilization at the single-cell level and their subsequent processing and high-throughput screening. The overall aim is to offer strategies for control of local environmental properties as relevant in minimal systems and for biomedical applications. The project brings together a multidisciplinary consortium consisting of specialists from various departments at NTNU (Physics; Biotechnology and Food Science; and Clinical and Molecular Medicine).

Information about the department

The position is organized in the Department of Physics. Currently, there are 27 professors, 10 associate professors, 7 adjunct professors, 70 PhD research fellows and 24 postdoctoral researchers appointed at the Department of Physics. Further information is available at: <http://www.ntnu.no/fysikk/english>.

The Department's research spans a broad spectrum of natural sciences and technology, which in turn allows us to offer an education that provides a solid basis for future careers. Physics research is carried out in experimental as well as theoretical fields, often across conventional boundaries between disciplines through external collaborations. The Department's central research areas are biophysics, nanoscience, surface physics, modern optics, astrophysics, solar energy, materials science, soft matter physics, and medical technology. Research staff at the Department makes a special effort to increase the awareness and understanding of the importance and impact of physics in society.

Work description for PhD position within Miniaturized Droplet Biotechnology

The research activity for the announced PhD position is within the field of microfluidics. The main objective is to develop a platform for efficient preparation of gel beads, and double emulsions in the size range of 10 to 50 micrometer. The secondary objective is to include a proof-of-concept application, utilizing the to be developed miniaturized droplet technology, relevant for a biotechnological /biomedical application. The project will involve: design and fabrication of microfluidic devices; optimization of gel bead and double emulsion processes; a proof-of-concept screening strategy, for a biologically relevant application based on miniaturized gel beads and/or double emulsions. In addition, it will require the use of various techniques such as advanced microscopy, cell biology and image processing.

Qualifications

We seek highly motivated candidates with a completed M.Sc. degree in Bionanotechnology, Physics, Biophysics, BioMems, Nanotechnology, Microfluidics or related areas. The position requires competence underpinning the successful realization of the project, e.g. clean room experience for soft lithography based microfluidic device fabrication, microfluidic device characterization for soft material mesoscale structure formation, data analysis and interpretation. Candidates with additional competence within (bio)polymer gelation of injectable systems and molecular biology, will be preferred. The successful applicant should be highly competent, motivated, ambitious and with excellent English qualifications.

The regulations for PhD programmes at NTNU state that a Master degree or equivalent with at least 5 years of studies and an average grade of A or B within a scale of A-E for passing grades (A best) for the two last years of the MSc is required. Candidates from universities outside Norway are kindly requested to send a Diploma Supplement or a similar document, which describes in detail the study and grade system and the rights for further studies associated with the obtained degree:

http://ec.europa.eu/education/tools/diploma-supplement_en.htm

Terms of employment

The appointment of the PhD fellows will be made according to Norwegian guidelines for universities and university colleges and to the general regulations regarding university employees. Applicants must agree to participate in organized doctoral study programs within the period of the appointment and have to be qualified for the PhD-study.

NTNU's personnel policy objective is that the staff must reflect the composition of the population to the greatest possible extent.

The position as PhD is remunerated according to the Norwegian State salary scale. There is a 2% deduction for superannuation contribution.

Further information can be obtained from professor Bjørn Torger Stokke, Department of Physics, NTNU, E-mail: bjorn.stokke@ntnu.no

Further information about the Department can be found at <http://www.ntnu.no/fysikk>

The application

Applications with CV, certificates from both Bachelor and Master, possible publications and other scientific works, copies of transcripts, (copies of documentation on English language proficiency test) and reference letters should be submitted.

Applications must be submitted electronically through www.jobbnorge.no.

Applications submitted elsewhere will not be considered.

The reference number of the position is: **NV- 113/17**

Application deadline: 5th November 2017

Jobbnorge-ID: 143371, Søknadsfrist: 5. november 2017