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*The Norwegian University of Science and Technology (NTNU) creates knowledge for a better world and solutions that can change everyday life.*

Faculty of Natural Sciences and Technology  
Department of Physics

## PhD position in Soft Matter Physics: Complex Photonic Materials Activated by Electric or Magnetic fields

A PhD position at the interface between experimental optics and soft matter physics is available at the Department of Physics. The appointment has a duration of 3 years with the eventual possibility of until 1 year extension with 25% teaching duties in agreement with the Department. The position is financed by NTNU.

### 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>.

Our 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. Our central research areas are biophysics, nanoscience, surface physics, modern optics, astrophysics, solar energy, materials science, and medical technology. Research staff at the institute makes a special effort to increase the awareness and understanding of the importance and impact of physics in our society.

### Job description

The project is a collaboration between two laboratories at the Department of Physics, NTNU: The Laboratory for Soft and Complex Matter Studies (<http://folk.ntnu.no/fossumj/lab>), and: The Optics-Polarimetry Laboratory. The project is part of an initiative to develop nano-micro-scale structures for materials and surfaces with advanced optical functionalities, including dynamic structural colors or reflection/transmission in the visible range, employing electrically or magnetically guided self-assembly of nano-micro-particles. The research approach is experimental, and includes theoretical activities.

The project has access to NTNU state-of-the-art instrument parks, and may therein involve the use of NTNU-Nanolab. National and international collaboration with world leading research environments in the area of complex photonic materials is an important in the project.

The activity will focus on developing, characterizing and understanding nano-micro-structures, including active matter systems and the use of microfluidics, for the purpose of developing active complex photonic materials with dynamic optical response in a wide spectral range. The work will involve designing and using appropriate experimental model systems and sample environments including the use of electric or magnetic fields for structural control. Optical studies of the materials will be performed in collaboration with the Optics-Polarimetry Laboratory at NTNU, and nano-structural characterizations will be performed at our NTNU X-ray laboratory, international neutron facilities, such as IFE or ILL, at international synchrotron X-ray facilities such as ESRF or MaxIVLab, or with other external collaborators.

### Qualifications

The applicant should hold an MSc (or equivalent) in physics, nanotechnology, materials science, or another relevant field. The position requires a strong interest in developing experimental skills needed for studies of soft matter physics phenomena. Experience from nano-structural characterization methods, e.g. SAXS, SANS, AFM and SEM, from the use of nano-lithography techniques, or the use of other types of advanced scientific equipment may be considered an advantage. Also there is an advantage if the applicant has experience with or courses in soft matter physics, related experimental methods and materials science. The applicant should have programming skills in Matlab or Python, and interest in learning and practicing real time control software such as Labview.

The successful candidate should be creative, with a strong ability to work goal-oriented, as well as possess good skills to deliver oral and written presentations of research results. He/she should also enjoy interdisciplinary research and take keen interest in learning and working in teams, which is of particular importance in this collaborative project.

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 and C or higher of the BSc. 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](http://ec.europa.eu/education/tools/diploma-supplement_en.htm)

The position requires spoken and written fluency in the English language.

### 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 has a personell policy objective that the staff must reflect the composition of the population to the greatest possible extent.

The appointment will be made according to the general regulations regarding university employees. PhD research positions are remunerated in salary code 1017, normally at start wage level 50 on the Norwegian Government pay scale, gross NOK 430 200 per year before tax. There is a 2% deduction for superannuation contribution.

Further information can be obtained from professor Jon Otto Fossum, Department of Physics, NTNU, E-mail: [jon.fossum@ntnu.no](mailto:jon.fossum@ntnu.no).

#### **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 this page.

**Applications submitted elsewhere will not be considered.**

The reference number of the position is: **NT 39/16**

Application deadline: **8 May 2016.**

Jobbnorge ID: 124024, Deadline: The application deadline has passed