

AR-963

Møde nr.: 66

Dagsordenspunkt: 3

Dato: 13/12/18

## **Professor in Innovation and Integrated Micro- and Nano Technological Systems**

The Department of Bioengineering and Biomedicine at DTU, Technical University of Denmark, invites applications for a position as professor in integrated micro- and nanotechnological systems for biological and biomedical applications with focus on research and innovation.

The successful candidate will be part of the Section for Microbial and Chemical Ecology studies, which studies and uses pure cultures of microorganisms and microbiomes with desirable properties such as probiotic activity, production of bioactive secondary metabolites, pigments, or degradative enzymes. In addition, the section applies basic insight into natural microbial habitats and exploits physiological, metabolic, and functional diversity to combat pathogenic bacteria and filamentous fungi and their toxin production. Microbial diversity, evolution, and community dynamics are studied by both classical microbiological, genetic, and biochemical approaches, advanced molecular profiling, genomics, transcriptomics, proteomics, metabolomics, and bioinformatics, as well as functional and structural characterization of purified key molecules.

### **Responsibilities and tasks**

The successful candidate is expected to lead an international competitive research group focusing on the development of highly sensitive and reliable point of use (POU) technologies with specific emphasis on microorganisms in medical diagnostic, treatment, and monitoring as well as in environmental monitoring. It is also expected that the research has focus on applying physics in biological systems to separate and differentiate biological structures to monitor biological processes and to optimize growth, nutrient delivery, and waste removal in cellular and bacterial cultures. The development of microfluidic controlled sensor systems integrating micro- and nanoscience in standalone lab-on-chip systems is expected to be an integrated part of the research strategy.

The professor is expected to collaborate with other department faculty members to further develop our expertise in application-driven research in biological processes, medical diagnostics, and environmental monitoring using micro- and nanotechnology. We expect the professor to take strong initiative towards strengthening the innovation activities in the department, including teaching, leading student teams towards innovation solution like patents, venture competitions, spin-out companies, industrial PhDs etc. The candidate is expected to lead interdisciplinary research teams together with external research collaborators and industrial partners in the biotechnological and biomedical field.

The position is available immediately and will carry responsibilities in research, innovation, and teaching. The activities are expected to link to other relevant engineering areas in the department and the new professor is expected to engage in collaborative projects with groups in the department and relevant DTU departments (e.g. DTU Health Technology, DTU Compute, and DTU Biosustain). The aim will be to complement existing competences at DTU and create synergies with state-of-the-art methodologies for biological and medical applications and environmental monitoring using micro- and nanotechnological integrated applications.

The successful candidate is expected to be involved in teaching activities related to BSc and MSc students. For international candidates, DTU can provide Danish language courses enabling the candidates to teach in Danish within 2-3 years.

### **Qualification:**

Candidates should have obtained well-documented high international recognition within one or more of the above-mentioned research themes. It is required that the candidate has documented experience as research group leader and documented teaching experience at all university levels (bachelor-, master-, and PhD) in areas within micro- and nanofabrication, material research, digital microfluidics, physical properties of biological systems, functionalization of biological surfaces, integration of micro- and nanotechnology in biological systems, and innovation of micro- and nanotechnological systems for biological and biomedical applications.

The candidate should have extensive expertise in innovative research and have demonstrated successful outcome going from research to innovation, like a patent portfolio and establishment of spin-out companies. The

candidate should have strong entrepreneurship experience, including student mentoring in this area. It is also an advantage if the candidate has a strong national and international network as well as experience in working with private companies. More specifically, the candidate is expected to strengthen activities within the following areas:

- Micro- and nanofabrication for development of custom-made biosensors
- Integration of sensors in point-of-use systems for biological applications
- Differentiation and sorting of biological systems based on microfluidic integration.
- Functionalization of physical surfaces for detection of biomarkers and biological molecules
- Design-based nano- and microtechnology for innovation of point-of-use applications.

### **Assessment**

In the assessment of the candidates, consideration will be given to

- experience and quality of teaching
- research impact and experience, funding track record, and research vision
- societal impact
- documented innovation activities, including commercialization and collaboration with industry
- international impact and experience
- leadership and collaboration
- communication skills.

Consideration will also be given to:

- ability to promote and utilize research results
- research and innovation visions in relation to the position content detailed above.

### **We offer**

DTU is a leading technical university globally recognized for the excellence of its research, education, innovation, and scientific advice. We offer a rewarding and challenging job in an international environment. We strive for academic excellence in an environment characterized by collegial respect and academic freedom tempered by responsibility.

### **Salary and terms of employment**

The appointment will be based on the collective agreement with the Danish Confederation of Professional Associations. The allowance will be agreed upon with the relevant union.

### **Further information**

Further information may be obtained from Head of Department, Bjarke Bak Christensen, +45 3066 4233.

You can read more about Department of Bioengineering on [www.bioengineering.dtu.dk](http://www.bioengineering.dtu.dk)

### **Application procedure**

Please submit your online application no later than **XXX 2018 (local time)**.

Applications must be submitted as **one PDF file** containing all materials to be given consideration. To apply, please open the link 'Apply online', fill out the online application form, and attach **all your materials in English in one PDF file**. The file must include:

- Application (cover letter) addressed to the President
- CV
- A vision for future research
- Teaching and research statement, with a focus on the "Assessment" bullet points listed above

- Documentation of previous teaching and research, as related to the “Assessment” bullet points listed above
- List of publications indicating scientific highlights
- H-index and ORCID (see e.g. <http://orcid.org/>)
- Diploma (MSc/PhD).

Applications and enclosures received after the deadline will not be considered.

All interested candidates irrespective of age, gender, disability, race, religion, or ethnic background are encouraged to apply.