

Particular for position as Professor/Associate Professor of Physics at Norwegian University of Life Sciences

UMB is recognised as a leading international centre of knowledge, focused on higher education and research within environmental and biosciences. Together with other research institutes established at Ås, UMB provides state-of-the-art knowledge based on a broad range of disciplines. A broad range of study programmes are offered at the Bachelor, Master and PhD level. In total, UMB has some 3500 students of which about 380 are PhD students. There are many different nationalities at UMB; the international students make up over 10% of all students at the University. Of the 1050 University staff, more than half hold scientific positions. UMB is located 35 km south of Oslo. See www.umb.no.

Professor/Associate Professor of Physics (ref. no 2009/1633)

A Professor/Associate professor position in physics in the field of bioenergy is available at the Department of Mathematical Sciences and Technology at the Norwegian University of Life Sciences.

The Department has approximately 100 employees, 50 PhD students and 600 students enrolled in Bachelor and Master Programmes. The position is based in the Section for Mathematical Sciences which consisted of 35 persons of which 13 are academic staff.

The Section's main research areas are currently:

- Energy physics with emphasis on renewable energy; bioenergy, thermal energy and solar energy technologies.
- Biophysics where the main activities are in imaging, pattern recognition and image analysis, (2) computational biology with emphasis on neuroscience and cellular systems, and (3) artificial photosynthesis
- Micrometeorology and local climate changes
- Theoretical hydrodynamics with emphasis on waves and flow in porous media

The Section has several research laboratories including the Laboratory for Biological Physics, the Visualisation Laboratory, the Bioenergy Laboratory, the Solar Cell Laboratory and the Field Station for Agroclimatic Studies (FAGKLIM). In addition, the Section has a demonstration platform for renewable energy technologies and several student laboratories used in laboratory courses. See <http://www.umb.no/?viewID=1350> for information.

The Section administers the 5 year MSc study programme – Environmental Physics and Renewable Energy as well as Bachelor and MSc programmes in physics, mathematics and informatics. In addition, the Section offers introductory physics, mathematics and computer sciences courses for many of the UMB study programmes given outside the Department.

The course portfolio in physics is as follows:

- FYS100 Physics and environment, 10 credits
- FYS110 Statics, 5 credits
- FYS101 Mechanics, 10 credits
- FYS102 Thermal physics and electromagnetism, 10 credits
- FYS103 Measurement techniques, optics and sensors, 5 credits
- FYS145 Quantum physics, 10 credits
- FYS155 Laboratory course in physics, 5 credits
- FYS160 Boundary layer meteorology, 5 credits
- FYS161 Meteorology and climate, 5 credits
- FYS200 Classical physics, 10 credits
- FYS210 Hydrodynamics, 10 credits
- FYS231 Electronics and basic electrical engineering, 10 credits
- FYS241 Environmental physics, 10 credits
- FYS250 Engineering physics, 10 credits
- FYS271 Energy physics and energy conversion, 10 credits
- FYS371 Energy technology, 10 credits
- FYS372 Solar cell technology, 5 credits
- FYS375 Energy technology, lab, 5 credits
- FYS381 Biological physics, 10 credits
- FYS385 Project in biological physics, 5 credits
- FYS386 Mathematical neuroscience, 5 credits

The position

The primary duties of the position are in research and in teaching and dissemination. Further development of the physics course portfolio, the physics MSc and Bachelor study programmes as well as initiation of new courses are considered part of the position. Supervision of MSc and PhD students is also required. We seek a candidate who has good qualifications in general physics and research and supervision experience in energy physics. Experience and interest in experimental physics, energy technology, or related subjects is highly desirable. A good record of publishing in peer-reviewed journals is expected. Experience in initiating and participating in research projects as well as writing research proposals is a strength. The successful candidate is expected to strengthen, complement and make an active contribution to our current research interests and to initiate and develop new research programmes.

The successful applicant will participate in teaching general physics at the undergraduate level (i.e. 100- and 200-level physics courses, see above) and specialised courses at the MSc and PhD level. The candidate is expected to participate in course revisions and initiation of new courses. This will provide the candidate with ample opportunity to use her/his background to strengthen the course portfolio. Proven experience in teaching in higher education is desirable. If the successful candidate does not have formal qualifications in pedagogics, he/she is obliged to take a course in university pedagogics within 2 years. A successful candidate who does not speak Norwegian, Swedish or Danish is obliged to learn Norwegian within 2 years.

Further information on the course portofolio can be found on:

<http://www.umb.no/?viewID=11955>.

Note that the position will also include administrative duties according to current regulations.

In assessing the applicants, the main emphasis will be placed on the submitted scientific publications and the research plan. Research management and participation in research projects will also be assessed if sufficient documentation of such activities is presented. Weight will also be ascribed to documented pedagogical qualifications, outreach activities, the ability to create a good working environment and expected potential. Good interpersonal, organisational and communications skills are essential.

Bioenergy related research

Currently, the main activities related to bioenergy in Section for Mathematical Sciences are:

- **Pyrolysis of biomass**

High temperature thermochemical conversion of biomass is conducted by microwave-assisted methods or in molten salt environments. The main focus has been on the conversion of dry biomass to liquids (liquifaction). The methods have also been used to yield gaseous products such as syngas.

- **Combustion of biomass**

Several units for combustion of biomass have been installed. Currently, these are primarily used for educational purposes and are coupled with water based heat storage units and solar heat collectors for simulation of advanced distributed energy systems.

- **Thermomechanical energy conversion.**

Researchers in the section are involved in the development of novel conversion units for conversion of low value heat- to mechanical energy.

Application procedure

The application is to be sent electronically at this link:

Application deadline: 15th February 2010

Please include the following in the application:

- Application letter, CV, full publication list, research plan, copies of degree certificates and transcripts of academic records (all certified) and a portfolio containing documentation of teaching experience, funding raising, and other qualifications the applicant wants to have considered.
- Three copies of up to 10 publications judged as the most relevant for the position and important in the applicant's production. If it is difficult to judge the applicant's contribution for publications with multiple authors, a short description of the applicant's contribution must be included.

Printed material which cannot be sent electronically should be sent by regular mail to Norwegian University of Life Sciences, Department of Mathematical Sciences and Technology P.O.Box 5003, N-1432 Ås, Norway, within 15th February, 2010. Reference no: 2009/1633.

According to personnel policy objectives that the staff shall reflect the composition of the population in general, both with respect to gender and cultural diversity, women and persons with a minority ethnic background in particular are encouraged to apply.

UMB aims to recruit more females to science. If two or more applicants are considered to be equally qualified for the position, and at least one of them is a female, the female will be employed.

A successful candidate who can document competence as full professor may apply for a full professorship

The annual salary for the position ranges from NOK 438 700 (Norwegian government salary scale 57, Associate Professor) to NOK 789 000 (Norwegian government salary scale 84, Professor depending on qualifications. A compulsory contribution of 2 % is made to the Norwegian State Pension Fund.

For further information please contact, Head of Department Professor Vidar Thue-Hansen (phone + 47 6496 5411, e-mail vidar.thue-hansen@umb.no) or Associate Professor Espen Olsen (phone +47 64 96 54 39, e-mail espen.olsen@umb.no).