



Jobbnoerge-ID: 141042

Søknadsfrist: Avsluttet

Nettside:

Omfang:

Varighet:

## Three PhD scholarships within fundamental and applied biomass enzymology

The Protein Engineering and Proteomics (PEP) group at the Faculty of Chemistry, Biotechnology and Food Science (KBM) at the Norwegian University of Life Sciences (NMBU) invites applicants for three PhD research fellowships within the fields of fundamental and applied enzymology of lignocellulosic biomass. The PhD candidates to be employed will work on different, but related, projects, dealing with enzymatic conversion of plant biomass and its main individual components, cellulose, hemicellulose and lignin, in Nature as well as in industry. The duration of a PhD research fellowship is three years.

The KBM faculty is located at Ås Campus, 30 km south of Oslo, and has approximately 130 employees spread over 13 research groups, including PEP, which together comprise approximately 30 persons, with focus on fundamental and applied enzymology, enzyme discovery, microbiology, microbial ecology, and bioprocesses technology, including anaerobic digestion. The projects entail research collaboration with other groups at KBM, as well as several national and international partners.

### Research project

The three fellowships are funded by the Research Council of Norway through the indicated programs, and co-funded by NMBU:

1. Innovative enzyme technology for sustainable biofuels (ENERGIX). The project is closely connected to Bio4Fuels, a Centre for Environment-friendly Energy Research (FME)
2. Unravelling the secrets of oxidative biomass decomposition (FRIMEDBIO)
3. Optimized oxidative enzyme systems for efficient conversion of lignocellulose to valuable products (BIOTEK2021)

Enzymology is at the core of all three projects. Projects 1 and 2 are closely related and focus on the conversion of polysaccharides by cellulases, hemicellulases and lytic polysaccharide monooxygenases. Project 1 is more applied and includes bioprocess development. This project is closely connected to the Centre for Environment-friendly Energy Research (FME) called Bio4Fuels. Project 2 is more fundamental in nature, with advanced enzymology, proteomics-based enzyme discovery and elements of microbiology (studying enzyme roles *in vivo*). Project 3 is part of a large project on studying enzyme systems *in vivo*, *in vitro* and *in computo* and focuses exclusively on redox enzymes, primarily enzymes that are active on lignin.

### Main tasks

Carry out high-level research relevant for the project, including critical assessment of the literature, planning and performance of experiments, oral presentation and discussion of the work, and writing scientific publications.

More details on the type of work to be conducted may be inferred from the items listed below under "The following qualifications will be considered beneficial for the indicated positions".

The successful candidate must submit a PhD education plan approved by KBM within the first months of appointment, and complete the PhD within the PhD scholarship period.

### Academic qualifications

The successful applicant must meet the conditions defined for admission to a PhD programme at NMBU. The applicant must have an academically relevant education corresponding to a five-year Norwegian degree programme, where 120 credits are at master's degree level. The applicant must have a documented strong academic background from previous studies, and be able to document proficiency in both written and oral English. For more detailed information on the admission criteria please see the [PhD Regulations](#) and the relevant [PhD programme description](#). Please note that the KBM Faculty requires candidates to have B or better for the MSc thesis and, on average, a B for courses taken during their Master studies. To be considered for a PhD fellowship at KBM, applicants must provide clearly understandable documentation of the grades they have obtained.

#### Required Academic qualifications

- Relevant training and research experience, at MSc level, including experience in the recombinant production, purification and handling of proteins.
- Good performance so far, documented by grades, written works, and active participation in high quality research.
- Experience in the analytical tools required to study (enzymatic conversion of) polysaccharides or other biopolymers.

*The following qualifications will be considered beneficial for the indicated positions*

- In-depth experience in analytical tools for the analysis of polysaccharides and/or lignin and/or their degradation products (1-3)
- Experience in biomass pretreatment and bioprocess development (1)
- Good knowledge of bioinformatical and experimental tools for enzyme discovery (2,3)

- Experience in working with lignocellulosic biomass (1-3)
- Experience in working with glycoside hydrolases (1,2) and/or lytic polysaccharide monoxygenases (1,2), redox enzymes (2,3), and/or lignin-active enzymes (3)
- Experience in fungal microbiology (2)
- Experience in advanced enzyme kinetics and/or biophysical methods for enzyme characterization (2,3)
- Computational experience related to protein chemistry, such as structural modelling, docking and molecular dynamics simulations (3)

### Personal skills

We are looking for candidates who are:

- Hard-working, ambitious and accurate
- Genuinely interested in scientific research and its industrial application
- Pleasant future members of our research group, with good social and communicative skills

Good communicative skills, orally and written, in English, are essential

### NMBU offers:

- An optimistic academic institution with focus on professional development, dissemination and competence.
- An interdisciplinary and inclusive environment that provides exciting research- and development opportunities.
- Daily contact with inspiring students and skilled colleagues.
- Various welfare schemes.
- Beautiful surroundings just outside Oslo.

### Remuneration

The salary for PhD-scholarship start at wage grade 50 on the Norwegian Government salary scale upon employment, and follow ordinary meriting regulations.

Employment is conducted according to national guidelines for University and Technical College PhD scholars.

### Further information

For further information, please contact Professor Vincent Eijsink, Group leader; E-mail: [vincent.eijsink@nmbu.no](mailto:vincent.eijsink@nmbu.no); phone +47 67232463.

### Application

To apply online for this vacancy, please click on the '**Apply for this job**' button above. This will route you to the University's Web Recruitment System, where you will need to register an account (if you have not already) and log in before completing the online application form.

**Application deadline:** September 7 2017

Applications should include (electronically) a letter of intent, curriculum vitae, full publication list, copies of degree certificates and transcripts of academic records (all certified), and a list of two persons who may act as references (with phone numbers and e-mail addresses). Publications should be included electronically within the application deadline. The relevant NMBU Department may require further documentation, e.g. proof of English proficiency.

Printed material which cannot be sent electronically should be sent by surface mail to Norwegian University of Life Sciences, Faculty of Chemistry, Biotechnology and Food Science, P.O. Box 5003, NO-1432 Ås, within September 7 2017 Please quote reference number (17/03420)

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.

The cover letter should include a short statement concerning the applicant's preference for one or more of the three positions, with motivation.

Please note that applicants who are selected for an interview will be given a research paper, which they need to present during the interview.

A compulsory contribution of 2 % is made to the Norwegian Public Service Pension Fund. A good working environment is characterized by diversity. We encourage qualified candidates to apply, irrespective of gender, physical ability or cultural background. The workplace will if necessary be facilitated for persons with disabilities.

According to the Freedom of Information Act § 25 the list of applicants for this position may be made public irrespective of whether the applicant has requested that his/her name be withheld.

## Tilleggsinformasjon

### Arbeidssted: