

Doctoral student in Chemical Engineering (Natural Materials Technology)

Åbo Akademi University is an internationally acknowledged research university, with an extensive responsibility for providing education in Swedish in Finland.

The Faculty of Science and Engineering offers a **doctoral position in Chemical Engineering within the project 'Exploiting Lignin-Carbohydrate Complex (LCC) through Artificial Intelligence (AI-4-LCC)' funded by Academy of Finland for 3,5 years** starting on January 1st 2021.

Background

To address UN Sustainability Goals, the current petroleum-based industry must be replaced with a green and sustainable alternative. Biorefineries, i.e. facilities that integrate biomass conversion processes and equipment to produce fuels, power, and value-added chemicals from biomass, are well suited for this purpose. The cross-disciplinary international AI-4-LCC team include researchers from both Åbo Akademi University and Aalto University with expertise in wood chemistry, material science, 3D printing and computer science. The team will develop a new green and cost-efficient biorefinery concept for a range of high-value applications like carbon fibers, thermoplastics and 3D objects. The research results are expected to establish a roadmap for adoption of wood-derived products in these advanced applications. This database of digitalized research data and results will serve as a future resource, to mine in the future via artificial intelligence (AI) methods the optimal processing conditions and thus, identify promising new investigation routes.

In this recruitment, we are primarily looking for a candidate with a background in the following fields: wood chemistry, chemistry and chemical technology and material science and engineering.

Description of the position

The doctoral student will carry out work within the scope of the doctoral thesis. In addition, the employed doctoral student may be assigned tasks in connection to teaching, supervision or other administrative tasks in accordance with the regulations of the universities' collective agreement.

The main tasks of the doctoral candidate will include but not be limited to comprehensive characterization of chemical and physicochemical characterization of wood biopolymers, their chemical modification and formulation for 3D printing.

The selected candidate will be employed for a period of 42 months. The employment can start on the 1st of January 2021 or as per agreement. The Doctoral Student will be placed within the Laboratory of Natural Materials Technology at the Faculty of Science and Engineering. The position is located in Turku.

Qualification and assessment

We are looking for a motivated doctoral student with a master's degree in chemistry or chemical engineering or material science or other closely related field suitable for the position described above.

The qualification requirements and merits for the position are defined below and will together with the application be considered in the evaluation.

Qualification requirements:

- Master's degree (or equivalent) in chemistry or chemical engineering or other field defined above.
- A high quality research plan (3-5 pages)
- Excellent oral and written skills in English

Good knowledge in wood chemistry, physical chemistry, polymer chemistry and/or material chemistry are considered a merit.

An applicant, who is not yet accepted as a doctoral student at the Faculty, needs to fulfil the requirements for applicants to doctoral studies according to the principles for admission to the doctoral programmes at the Faculty. Please note, that there is a [separate application process for the admission to a doctoral programme](#) at ÅAU.

The applicants are assessed on the basis of their study achievements, research plan and possible results of research in the relevant field or related subjects. During the selection process the applicants can be invited to an interview.

Terms of employment

The principle of total working time (1,612 hours per year) is applied to appointed doctoral students. The individual study plan for doctoral students will be evaluated annually. A maximum of 5 % of the working hours can be dedicated to teaching and supervision. The work tasks are defined in an annual work plan.

The salary for a doctoral position will be based on levels 2-4 of the job demand level for teaching and research personnel in the salary system. In addition, there is a salary component based on personal work performance, according to the general collective agreement for universities. Doctoral students employed by Åbo Akademi University should actively take part in the existing research environment in Turku. A trial period applies for new employees.

Application

Submit the electronic application form below (www.abo.fi/rekrytering), no later than November 5th 2021 at 3:00 pm (Finnish time zone). Support for submitting the electronic application can be found here: <https://www.abo.fi/en/instructions-for-submitting-an-application/>.

The following attachments should be submitted:

1. A free-form application letter (max. one page)
2. Research plan (please see instructions below)
3. A list of max. three references and their contact details
4. A CV (max 2-3 pages) with the following content: 1) education, 2) working experience, 3) language skills, 4) participation in seminars and conferences, 5) publications, 6) commissions of trust, 7) other merits.
5. Copies of diplomas including transcript of records (BA, MA, MSc, other)

The applicant should present a research plan (3-5 pages), written in English. It may include research questions, methods, material, and a description of the implementation of the plan.

Contact details

For more information on the position, please contact Professor Chunlin Xu, email: chunlin.xu@abo.fi and (about the application process) HR-specialist Anna Lübchow, email: anna.lubchow@abo.fi.

Åbo Akademi University is actively working for equal gender distribution and diversity across all personnel groups.