

ELEGANCE: machinE LEarning for inteGrated multi-parAmetric eNzyme and bioproCess dEsign

DC2: Kinetic stability data collection for predictive bioprocess modelling of CYP enzymes

The Bioprocess Science and Engineering (BSE) group at DTU Chemical Engineering is amongst other activities developing novel methods to measure the kinetics and stability of enzymes under industrial process conditions. The group is embedded in the PROSYS research center, part of DTU Chemical Engineering. Key to this scale-down approach is to ensure measurements are made at a small scale in the laboratory, saving time and money. To this end, novel equipment allows testing and the collection of experimental data. To support this goal, we are looking for a colleague who is independent, who thrives within an interdisciplinary environment, and who is highly motivated to move the area of applied biocatalysis to the next level. We currently work with oxidative enzymes, of particular value as sustainable catalysts for the synthesis of a range of industrially valuable compounds.

This PhD project is part of the Horizon Europe Marie Skłodowska-Curie Action (MSCA) doctoral network (DN) ELEGANCE (machinE LEarning for inteGrated multi-parAmetric eNzyme and bioproCess dEsign), and it will focus on:

- Expression, characterization and application of enzymes from University of Turin and other laboratories.
- Testing enzyme in defined gas-liquid interface apparatus and other reactors to determine stability under a range of experimental conditions.
- Using the experimental data to develop a model describing the effect of conditions on stability.
- Testing the model in standard stirred tank apparatus
- Refining the model to allow predictability between different types of apparatus.
- Defining an algorithm for testing enzyme stability.

Responsibilities and qualifications

Responsibilities:

- Combine enzyme and process engineering supported by modelling as described above
- Participate in training events, workshops and secondments within MSCA doctoral network ELEGANCE
- Collaborate within the BSE research group and our local, national and international networks
- Report your research results in peer-review scientific publications and international conferences
- Disseminate your results through public engagement and social media
- Teach and supervise MSc and BSc students as well as research assistants

Qualifications:

- MSc in biotechnology, (bio)chemical engineering, or related area
- Excellent English proficiency in written and oral form
- Excellent communication and social skills for working within an interdisciplinary research team
- Strong analytical skills and ability to work independently
- Ability to convert experimental data into useful functioning models

Preferred qualifications but not mandatory:

- Interest in advanced computational methods to improve and understand enzymes

You must have a two-year master's degree (120 ECTS points) or a similar degree with an academic level equivalent to a two-year master's degree.

Approval and Enrolment

The scholarship for the PhD degree is subject to academic approval, and the candidate will be enrolled in one of the general degree programmes at DTU. For information about our enrolment requirements and the general planning of the PhD study programme, please see [DTU's rules for the PhD education](#).

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 appointment terms

The preferred starting date is 1st June 2026 (or according to mutual agreement). The appointment will be based on the collective agreement with the Danish Confederation of Professional Associations. Furthermore, the PhD salary will be based on the Marie S. Curie compensation scheme conditions and according to the grant agreement. The period of employment is 3 years. Based on seniority the candidate will receive a minimum of DKK 29.701,83 (base salary) and 1.551,00 (PhD supplement). In addition, DTU will also pay pension consisting of 18,07%. Finally, it is possible to apply for family allowance.

You can read more about [career paths at DTU here](#).

Further information

Further information may be obtained from John Woodley: jw@kt.dtu.dk
MSCA doctoral network ELEGANCE website: <https://elegance.dtu.dk/>
More information about DTU Chemical Engineering: <https://www.kt.dtu.dk/>

If you are applying from abroad, you may find useful information on working in Denmark and at DTU at [DTU – Moving to Denmark](#). Furthermore, you have the option of joining our monthly free seminar “[PhD relocation to Denmark and startup “Zoom” seminar](#)” for all questions regarding the practical matters of moving to Denmark and working as a PhD at DTU.

Application procedure

Your complete online application must be submitted no later than **January 31st, 2026 (23:59 Danish time)**.

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

- A letter motivating the application (cover letter)
- Curriculum vitae
- Grade transcripts and BSc/MSc diploma (in English) including official description of grading scale

You may apply prior to obtaining your master's degree but cannot begin before having received it.

Applications 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. As DTU works with research in critical technology, which is subject to special rules for security and export control, open-source background checks may be conducted on qualified candidates for the position.

DTU Chemical Engineering

Translating laboratory-based chemistry and biology into large scale processes lies at the heart of the work of DTU Chemical Engineering. Experimental and modelling-based studies complement a world-class pilot plant for testing novel concepts. The department is one of the largest and strongest in Europe and collaborates widely with international industries as well as start-up companies in the Copenhagen area.

Technology for people

DTU develops technology for people. With our international elite research and study programmes, we are helping to create a better world and to solve the global challenges formulated in the UN's 17 Sustainable Development Goals. Hans Christian Ørsted founded DTU in 1829 with a clear mission to develop and create value using science and engineering to benefit society. That mission lives on

today. DTU has 13,500 students and 6,000 employees. We work in an international atmosphere and have an inclusive, evolving, and informal working environment. DTU has campuses in all parts of Denmark and in Greenland, and we collaborate with the best universities around the world.