

PhD Fellowship – Geochemist or Chemist

CO₂ conversion to solids: Transforming waste into new, valuable products

Technical University of Denmark, Kongens Lyngby

We are developing fast, cheap, environmentally friendly ways to mineralise CO₂, to make stable useful products. We invite enthusiastic candidates to join our team.

As a result of recently funded projects, our research group is looking to fill a PhD position. Our goal is to develop novel methods to mineralise CO₂, converting it to products that are stable long term. Even with the very best alternative energy sources, current air and ocean CO₂ levels will need 1,000 to 10,000 years to return to preindustrial levels. We will help overcome these limitations through the development of new processes and products.

We are running several projects in parallel, ranging from fundamental investigations of mineral-water-gas properties, through developing predictive models and new experimental methods and instrumentation, to design creative and cost effective CO₂ trapping processes. The need is urgent, the task is challenging and a multidisciplinary approach is essential - so our group consists of highly motivated scientists and engineers, including chemists, physicists, nanoscientists, mineralogists, geoscientists, engineers and others. Our group includes members at all academic levels, from bachelor students to experienced scientists and engineers.

The job – PhD Fellowship

We shall work together, as a cross disciplinary team, to understand solid-water-gas interactions and the potential effects of dissolved organic compounds, using traditional techniques as well as state-of-the-art, ultrahigh resolution instruments and modelling. Our goals are to gain very fundamental knowledge about how nature works and to build reactors to convert CO₂ to valuable products, including low CO₂ construction materials.

Our expectations of you

We are looking for an enthusiastic geochemist (or chemist), who enjoys solving problems and working together to meet the project goals. We expect you to have a strong background in:

- Geochemistry, Physical Chemistry and/or Mineralogy (mineral-fluid interactions)
- Thermodynamics/kinetics
- PHREEQC for making speciation calculations
- X-ray diffraction and Reitveld refinement

Flexibility is essential. We are looking for curiosity and creativity in a team player who can also work independently, with motivation to help make, and be part of, a dynamic research environment, who has a positive, supportive outlook. Good communication and personal interaction skills and fluent English are essential.

We offer

DTU is among the leading technical universities of Europe and the top in the Nordic countries. Our CO₂ projects unite researchers from several DTU departments as well as national and international researchers from a number of fields. The research atmosphere is friendly and supportive, allowing us to produce ground breaking results essential for society.

The PhD program at the Technical University of Denmark is 3 years. In addition to research and writing papers and a thesis, the program includes an opportunity to take courses (30 ECTS), to teach and to take part in an external stay at one of the project partner laboratories somewhere else in the world.

Salary and appointment terms

Appointment will be based on the collective agreement with the Danish Confederation of Professional Associations. Salary will be determined by the applicant's qualifications and in agreement with the relevant union.

The position is full time and starts as soon as possible but we are prepared to wait for the right candidate. The contract will be for 3 years. The workplace is the DTU Lyngby Campus.

To apply

To be considered for this position, **your application must include all requested parts, collected into a single pdf file**. This includes:

- a cover letter (1 or 2 pages) explaining how you are perfect for the position, using your background as examples; include a few words about your perspectives on teaching and research;
- your CV, including employment history, research and teaching experience with dates, scientific highlights, ORCID identifier and other relevant information about you as a scientist and a person;
- if you have authored or coauthored one or more publications, please include the full references in proper format (*do not include the actual papers in your application*);
- your course list and grades from your university education;
- the name, email and phone number for 3 personal references (*do not include letters of reference*).

For questions: Prof. Susan Stipp, stipp@dtu.dk. Please combine all parts of your application into a single pdf file and submit it on the DTU jobs website.

https://efzu.fa.em2.oraclecloud.com/hcmUI/CandidateExperience/en/sites/CX_1/requisitions/preview/4202/?keyword=PhD&location=Denmark&locationId=30000000228648&locationLevel=country&mode=job-location

It is job # 4202. The application deadline is **Monday, 25 November 2024 (Danish time)**.

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

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 vision to develop and create value using science and engineering to benefit society. That vision lives on today. DTU has 13,400 students and 5,800 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.