



PhD in Dynamics of Reheat Flames (IV-171/19)

About the position

A PhD position is available at the Department of Energy and Process Engineering, Faculty of Engineering Science, Norwegian University of Science and Technology.

Hydrogen will play a key role in our future energy system. This carbon-free fuel can serve as energy storage medium and may be produced from excess renewable energy or via carbon capture from natural gas. Large-scale power production from hydrogen is therefore desirable, and stationary gas turbines are the most promising technology for this task. However, presently available combustor technology is not capable of burning undiluted hydrogen because of its high reactivity. The best candidate is a reheat combustor architecture, but unsteady phenomena in the form of thermoacoustic oscillations are a severe challenge. The aim of the present PhD project is to increase our fundamental understanding of unsteady phenomena in hydrogen-fueled reheat combustors and to provide predictive modeling capabilities.

The starting date is September 2019.

The position reports to Associate Professor Jonas Moeck.

Main duties and responsibilities

The successful candidate will be tasked with the theoretical analysis and modeling of thermoacoustic interaction mechanisms in reheat flames. This work will be conducted in close collaboration with an experimental team at the Technical University Munich and our numerical colleagues at SINTEF Energy. The PhD project will be focused on the following objectives

- Gain physical insight into the dynamics of reheat flames
- Model the unsteady response to upstream perturbations
- Develop a stability framework for two-stage reheat combustors

Qualification requirements

The PhD-position's main objective is to qualify for work in research positions. The qualification requirement is completion of a master's degree or second degree (equivalent to 120 credits) with a strong academic background in in engineering, physics or applied mathematics or equivalent education with a grade of B or better in terms of [NTNU's grading scale](#). Applicants with no letter grades from previous studies must have an equally good academic foundation. Applicants who are unable to meet these criteria may be considered only if they can document that they are particularly suitable candidates for education leading to a PhD degree.

The appointment is to be made in accordance with the regulations in force concerning State Employees and Civil Servants and [national guidelines for appointment as PhD, postdoctor and research assistant](#)

NTNU is committed to following evaluation criteria for research quality according to [The San Francisco Declaration on Research Assessment - DORA](#).

Other qualifications

- Strong expertise in at least two of the following fields: fluid dynamics, acoustics, combustion.
- Excellent command of the English language in oral and written form.
- Advanced knowledge of Matlab, Python or similar.
- Experience in data analysis and/or experimental work in a thermo-fluids context.

Personal characteristics

- Enthusiastic and motivated.
- Able to work in a structured and goal-oriented manner.
- Able to work efficiently both independently and in a team.

In the evaluation of which candidate is best qualified, emphasis will be placed on education, experience and personal suitability, as well as motivation, in terms of the qualification requirements specified in the advertisement

We offer

- exciting and stimulating tasks in a strong international academic environment
- an open and [inclusive work environment](#) with dedicated colleagues

- favourable terms in the [Norwegian Public Service Pension Fund](#)
- [employee benefits](#)

Salary and conditions

PhD candidates are remunerated in code 1017, and are normally remunerated at gross from NOK 449 400 before tax per year. From the salary, 2 % is deducted as a contribution to the Norwegian Public Service Pension Fund.

The period of employment is 3 years without required duties. Appointment to a PhD position requires admission to the PhD programme in Engineering, please see <https://www.ntnu.edu/studies/phiv>.

As a PhD candidate, you undertake to participate in an organized PhD programme during the employment period. A condition of appointment is that you are in fact qualified for admission to the PhD programme within three months.

The engagement is to be made in accordance with the regulations in force concerning State Employees and Civil Servants, and the acts relating to Control of the Export of Strategic Goods, Services and Technology. Candidates who by assessment of the application and attachment are seen to conflict with the criterias in the latter law will be prohibited from recruitment to NTNU. After the appointment you must assume that there may be changes in the area of work.

General information

A good work environment is characterized by diversity. We encourage qualified candidates to apply, regardless of their gender, functional capacity or cultural background. Under the Freedom of Information Act (offentleglova), information about the applicant may be made public even if the applicant has requested not to have their name entered on the list of applicants.

Questions about the position can be directed to Jonas Moeck, jonas.moeck@ntnu.no.

About the application:

Please submit your application electronically via jobb Norge.no with your CV, diplomas and certificates. Applicants invited for interview must include certified copies of transcripts and reference letters. Please refer to the application number IV-171/19 when applying.

In addition to the required fields on the Jobbnorge website, please include a "Qualifications" document in which you detail how you meet the required and desired qualifications listed above (max one page). An application missing this document may be considered incomplete by the selection committee.

Application deadline: 26.05.19

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The Norwegian University of Science and Technology (NTNU) creates knowledge for a better world and solutions that can change everyday life.

Department of Energy and Process Engineering

We conduct research and teaching covering the entire energy chain, from resources to the end-user. We look at how energy is produced and used by humans and machines in a sustainable way with regard to health, climate change and the resource base. [The Department of Energy and Process Engineering](#) is one of eight departments in the [Faculty of Engineering](#).

Jobbnorge-ID: 169984, Søknadsfrist: Søknadsfristen er gått ut