**Jobbnorge ID:** 178732
**Deadline:** 2/1/2020
**Website:** http://www.ntnu.no
**Scope:** Fulltime
**Duration:** Temporary

The Department of Electronic systemshas a vacancy for a

# PhD position in the acoustics group

## This is NTNU

At NTNU, creating knowledge for a better world is the vision that unites our 7 000 employees and 40 000 students.

We are looking for dedicated employees to join us.

Video: https://www.youtube.com/watch?v=clgKd1SwGLI

## About the position

We have a vacancy for one PhD position in the acoustics group, at the Department of Electronic Systems (IES). The PhD position is for up to 4 years with 25% work assignments for NTNU - IES.

The position reports to Head of department.

## Main duties and responsibilities

The prediction of sound fields is a classical problem in many subfields of acoustics. In spite of its classical status, the problem is as current as ever, and there is room for new prediction methods for several reasons:

- Reference methods, based on numerical solution of the wave equation, have a computational cost that scales very poorly with frequency. In addition the highest cost occurs for the high frequencies where the details matter the least.
- Alternative, high-frequency asymptotic, methods based on geometrical acoustics, on the other hand, have some limitations that limit their general usefullness.
- Some applications require huge-scale modeling approaches with relatively high expectations for accuracy: noise mapping in city environments, prediction of sound fields in large indoor spaces with complex geometry, prediction of performance of complex transducer configurations (loudspeakers, microphones), modeling of the interaction of complex sound sources with their acoustic environments, and more.
- The auralization technique, which facilitates listening to computed sound fields, requires adequate accuracy over a very wide bandwidth.

The challenges mentioned above can be attacked with new hybrid methods, e.g., diffraction-based modeling that is being developed in the acoustics group. Furthermore, the use of advanced measurement techniques can be used in conjunction with prediction methods for fitting models to real-world environments.

The research should focus on developing efficient yet accurate hybrid calculation methods. The comparison of simulations with measurements and/or reference results will be a crucial component in the research. Applications might be geometrically simplified scattering cases, and/or indoor cases (with a focus on performance spaces) and/or outdoor cases (with a focus on city environments).

## 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 acoustics, engineering physics, 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.

For more information on the application submission and a detailed list of required documents, see subsection "About the application" below.

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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

Other qualifications:

A research-oriented master thesis in a relevant field for the research direction, and experience with programming, is expected. is expected. Publication activities in the aforementioned disciplines will be considered an advantage but is not a requirement.

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

## Personal characteristics

The successful candidate should:

- be creative, independent, and self-motivated
- possess good skills to deliver oral and written presentations of research results in English

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 479 600 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, or up to 4 years with teaching duties. Appointment to a PhD position requires admission to the PhD programme in Electrical Engineering. 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.

The national labour force must reflect the composition of the population to the greatest possible extent, NTNU wants to increase the proportion of women in its scientific posts. Women are encouraged to apply. Furthermore, Trondheim offers great opportunities for education (including international schools) and possibilities to enjoy nature, culture and family life (http://trondheim.com/). Having a population of 200 000, Trondheim is a small city by international standards with low crime rates and little pollution. It also has easy access to a beautiful countryside with mountains and a dramatic coastline.

Questions about the position can be directed to Peter Svensson, e-mail peter.svensson@ntnu.no

**About the application:**
Publications and other academic works that the applicant would like to be considered in the evaluation must accompany the application. Joint works will be considered. If it is difficult to identify the individual applicant's contribution to joint works, the applicant must include a brief description of his or her contribution.

Please submit your application electronically via jobbnorge.no with your CV, diplomas and certificates. Applications submitted elsewhere will not be considered. Diploma Supplement is required to attach for European Master Diplomas outside Norway. Chinese applicants are required to provide confirmation of Master Diploma from China Credentials Verification (CHSI): http://www.chsi.com.cn/en/).

Applicants invited for interview must include certified copies of transcripts and reference letters. Please refer to the application number 2019/37513 when applying.

**Application deadline: 01.02.2020**

# NTNU - knowledge for a better world

**NTNU - knowledge for a better world**

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

**Department of Electronic Systems**

The digitalization of Norway is impossible without electronic systems. We are Norway’s leading academic environment in this field, and contribute with our expertise in areas ranging from nanoelectronics, phototonics, signal processing, radio technology and acoustics to satellite technology and autonomous systems. Knowledge of electronic systems is also vital for addressing important challenges in transport, energy, the environment, and health. The Department of Electronic Systems is one of seven departments in the Faculty of Information Technology and Electrical Engineering .

## Additional information

### Place of service:

Trondheim 7491 Trondheim (Trondheim Municipality)