



# Postdoctoral position within fluid-structure interaction during violent wave impact- slamming structural response(IV-194/19)

## About the position

We have a vacancy for a Postdoctoral Fellowship at the Department of Structural Engineering

A two-year postdoctoral position is available at the Department of Structural Engineering, NTNU, within the area of fluid-structure interaction during violent wave impact and slamming structural response.

The candidate will be associated with the Structural Impact Laboratory (SIMLab). SIMLab is a research group at the Department of Structural Engineering, NTNU, aiming to understand the material and structural behaviour during impact and other extreme loading situations. Experiments are combined with theoretical and numerical analyses to understand the underlying physics of the problems under consideration.

The position is associated with the KPN project SLADE on "fundamental investigations of violent wave actions and impact response", currently carried out by SINTEF Ocean. The objective of the SLADE project is to improve safety at sea, for which impact loads from steep and energetic waves represent a critical part of the structural design. This requires a better understanding of the mutual interaction between the impacting wave and the response of the structure. In order to enable this, the project will perform: (A) experimental studies of relevant wave-impact scenarios and (B) systematic theoretical and numerical investigations guided and validated by (A) and complementing (A). This will bridge the gap between model tests and reliable structural integrity assessment and will enable a robust and practical basis for design of optimal structures with the required safety level. SINTEF is one of Europe's largest independent research organisations. SINTEF Ocean has together with NTNU world-leading laboratory and test facilities.

The position reports to Associate Professor Vegard Aune and Professor Magnus Langseth.

## Main duties and responsibilities

The candidate will participate actively in the project team of SLADE, where the research tools consist of theoretical, numerical and experimental approaches. The main discipline for this position is structural mechanics. The candidate will be actively involved in

- physical testing through drop tests and wave impact tests performed within SLADE. The main contribution of the candidate will be to measure the structural response during tests, using non-intrusive methods to extract deformation and strain fields.
- development of a novel method for reconstruction of the hydrodynamic forces acting on the structure. The load reconstruction will be based on the non-intrusive measurements from physical tests.
- detailed numerical simulations of the tests in order to understand the physics of the structural response and hydrodynamic loading.
- discussions with the project team responsible for the development of improved design procedures for slamming response calculations.

It is expected that the results from the project are published in peer-reviewed journals and presented at conferences.

## Qualification requirements

A postdoctoral research fellowship is a qualification position in which the main objective is qualification for work in academic positions. Completion of a Norwegian doctoral degree in Structural Engineering, Mechanical Engineering, Computational Mechanics or corresponding foreign doctoral degree recognized as equivalent to a Norwegian doctoral degree is required.

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](#)

- background in structural mechanics, experimental mechanics, computational mechanics or similar.
- a strong background in non-linear finite element methods (FEM) is particularly relevant.
- basic knowledge with digital image correlation (DIC) is considered an advantage.
- the applicant should be fluent in English (spoken and written) and familiar with giving presentations and lectures in English. Applicants from non-English speaking countries outside Europe must document English skills by an approved test. Approved tests are TOEFL, IELTS, Cambridge Certificate in Advanced English (CAE) or Cambridge Certificate of Proficiency in English (CPE).

## Personal characteristics

- motivated and ambitious students with excellent grades
- highly motivated to perform interdisciplinary work
- willing to work both independently and to collaborate with other researchers
- able to carry out theoretical, experimental and numerical work.

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

Postdoctoral candidates are remunerated in code 1352, and are normally remunerated at gross from NOK 515 200 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 2 years.

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 Associate Professor Vegard Aune, email: [vegard.aune@ntnu.no](mailto:vegard.aune@ntnu.no) or Professor Magnus Langseth, email: [magnus.langseth@ntnu.no](mailto:magnus.langseth@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](http://jobbnorge.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-194/19 when applying.

**Application deadline: 25.08.19**

## NTNU - knowledge for a better world

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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 Structural Engineering

We teach mechanical engineering, engineering and ICT, and civil and environmental engineering. The Department conducts internationally leading research and participates in several large national research projects. [The Department of Structural Engineering](#) is one of eight departments in [the Faculty of Engineering](#).

Jobbnorge-ID: 172125, Søknadsfrist: Søknadsfristen er gått ut