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by Alexandra Radics

**REF. N. 21\_18**

**Job Description:**

**Job title: 1 PhD position in ENGINEERING**

**Name of Organisation:** Faculty of Engineering, Dept. of Structural Engineering - The Norwegian University of Science and Technology (NTNU)

**Country:** Norway

**City:** Trondheim

**Main research fields:** Engineering

**Sub research fields:** Biomaterial engineering

**Application deadline: 30/05/2018 23:00 – Europe/Brussels**

**Required Education:**

**Level:** Master Degree

**Fields:** Structural engineering, mechanical engineering, biomedical engineering, biophysics, applied mechanics or applied mathematics.

**Language skills:**

**Required languages:** English

**Level:** Good

**Application details:**

**Job description:**

Topic: Biomechanics: Mechanical testing and modeling of Barlow mitral valves (IV 166/18).

This project is a collaboration with Haukeland University Hospital in Bergen.

The goal of this project is to establish nonlinear finite element models of these mitral valve reconstructive repair techniques that can guide surgeons. Therefore, geometry, boundary conditions and material properties are of crucial importance for the accuracy of the finite element simulations. Material properties will be estimated via in-vitro mechanical testing such as biaxial tension. Geometrical reconstruction and motion measurements of the mitral apparatus will be done from three-dimensional echocardiographic recordings. Animal studies will be used for validation of the models. The candidates 25% of their work is teaching and 75% is research activities.

This project is a collaboration with Haukeland University Hospital in Bergen.

**Duration of job:** 4 years

**Job starting day:** Date may be discussed, but tentatively 1 August

**Status:** Full time

**Salary:** Gross NOK 436 900 before tax. There will be a 2 % deduction to the Norwegian Public Service Pension Fund from gross wage.

**Additional requirements:**

Highly motivated and ambitious students with excellent grades and a strong interest in material mechanical testing, continuum mechanics, constitutive modelling, parameter identification, the

finite element method, and programming. The candidates must have a strong motivation to work on a multidisciplinary research project.