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.