# Design and Optimization of Active Magnetic Bearings (AMB) for Offshore Flywheel Energy Storage System (FESS)

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Project: PhD

Phd Student: Dagnæs-Hansen, Nikolaj Aleksander
Department of Mechanical Engineering, Technical University of Denmark, Nils Koppels Allé, 2800, Kgs. Lyngby, Denmark
Email: nadh@mek.dtu.dk

Main Supervisor: Santos, Ilmar Ferreira
Department of Mechanical Engineering, Technical University of Denmark, Nils Koppels Allé, 2800, Kgs. Lyngby, Denmark
Email: ifs@mek.dtu.dk

Supervisor: Høffner, Jan

Supervisor: Zamany, Jamshid

View graph of relations

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## KAIST dual degree

Dual degree Master of Science in Engineering in Offshore Wind Energy with Korean Advanced Institute of Science and Technology (KAIST).

Description | Admission and deadlines | Programme structure | Curricular conditions

## Description

Boost your CV by studying abroad and earn a double degree from two internationally acclaimed universities. Spend one year in Korea, and gain a unique specialization in Offshore Wind Energy.

Offshore Wind Energy is a DTU-KAIST Dual Degree programme. This means that you get to spend one year at DTU and one year at KAIST—Korean Advanced Institute of Science and Technology. You earn both a Danish and an international degree, which gives you personal and academic skills with an international foundation.

The aim of the Offshore Wind Energy Dual Degree programme is to give you a general understanding of offshore wind energy systems and an in-depth knowledge of aerodynamics, aero-elasticity, mechanics, grid connection, power systems, hydrodynamics, offshore structure design, and wind farm planning, which will qualify you to analyse, design, develop, and operate offshore wind energy systems.

The programme offers cross-disciplinary knowledge of a wide range of offshore wind power technologies, and the offshore wind energy specialization from DTU and KAIST gives you education-based on world-leading expertise at the heart of global offshore wind power development.

Fast-growing offshore wind energy
In 2020, wind power is expected to deliver 12 per cent of global electricity demand, create millions of jobs, and make a substantial contribution to reducing CO2 emissions. Wind power is a very important source for producing electricity, and its importance is steadily increasing. Having increased significantly in recent years, global offshore wind power capacity is

### Contact

Taeseong Kim
Associate Professor
DTU Wind Energy
+45 21 33 19 61
tkim@dtu.dk


**Ilmar Santos**
Professor, Dr.-Ing. dr.techn. livre-docente

DTU MECHANICAL ENGINEERING
Department of Mechanical Engineering

**Section of Solid Mechanics**

Technical University of Denmark
Nils Koppels Allé
Building 404, room 006
2800 Kgs. Lyngby

**Ph.** +45 45 25 62 69
**Fax** +45 45 25 19 61
**E-mail** ifs@mek.dtu.dk
**ORCID** 0000-0002-8441-5523

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# Structural Mechanics

The structural mechanics group is active in the research areas of structural modeling, damping and control of structures, and computational dynamics.

**Structural modelling**

Current activities within *structural modelling* include the development of an explicit format for large-deformation three-dimensional beam elements, and a general analysis procedure for anisotropic cross-sections based on a finite-thickness slice formulation. In addition the area includes the development of a compact theory and computational procedure for cyclic plasticity, aiming specifically at reversed loading of offshore structures.

**Damping and control of structures**

Within *damping and control of structures* contributions have been made to the design principles for dampers on lightly damped flexible structural elements like cables and a general frequency-based design procedure for resonant dampers. Key contributions are the development of design based on the principle of ‘equal modal damping’, as well as a current extension to include the background flexibility from non-resonant modes. Currently, an effort is made to extend the principles originally developed in the group for passive mechanical devices to electro-mechanical devices with active control.

**Computational dynamics**

The activities within *computational dynamics* are concentrated on the development of improved time integration

## Contact

Jan Becker Høgsberg
Associate Professor
DTU Mechanical Engineering
+45 45 25 19 71
jhg@mek.dtu.dk