DANISH CENTER FOR APPLIED MATHEMATICS AND MECHANICS

ANNUAL REPORT
2021

TECHNICAL UNIVERSITY OF DENMARK -
AALBORG UNIVERSITY - AARHUS UNIVERSITY –
UNIVERSITY OF SOUTHERN DENMARK

DANISH CENTER FOR APPLIED MATHEMATICS AND MECHANICS

Scientific Council as of January 2022

Chairman

Associate Professor Niels Leergaard Pedersen

Department of Mechanical Engineering, Solid Mechanics.

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Technical University of Denmark

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FOREWORD

This annual report for the year 2021 is in line with last years report comparably short due to the Corona situation. The purpose of the report is mainly to serve as a reference and documentation for accomplished activities. Detailed information is available on our homepage: www.dcamm.dk and on the homepages of the cooperating departments and universities.

In 2021 the annual speaker seminar was given by professor Fernando Porté-Agel from EPFL EAC IIE WIRE, Lausanne, Switzerland under the title "Fluid Mechanics of Wind Farms: Modelling and Control".

Furthermore, a total of 4 DCAMM seminars were held in 2021 and 8 courses were given in the auspices of DCAMM. All the details are available at the DCAMM webpage.

As of March 1st 2021, the departments cooperating in DCAMM are:

from the **Technical University of Denmark**:
Department of Civil and Mechanical Engineering
Department of Applied Mathematics and Computer Science
Department of Wind and Energy Systems

from **Aalborg University**:
Department of the Built Environment (BUILD)
Department of Materials and Production
Department of Mathematical Sciences

from **Aarhus University**
Department of Civil and Architectural Engineering
Department of Mechanical and Production Engineering

from **University of Southern Denmark**
Department of Mechanical and Electrical Engineering

I thank all the members of DCAMM and our international contacts for their support and inspiration, and I look forward to our future continued collaboration. Hoping that in 2022, it will be possible for full collaboration again.

Niels Leergaard Pedersen

CONTENTS

1. MEMBERS 2021

63 professors
232 scientific members
135 PhD students
} at the nine cooperating departments at the Center

28 elected members
4 foreign members

(A complete list of names is given in the Appendix).

2. FOREIGN MEMBERS

Professor John W. Hutchinson
Division of Applied Sciences
Harvard University, 315 Pierce Hall
29 Oxford St.
Cambridge, MA 02138
USA

Professor Ole Secher Madsen
Ralph M. Parsons Laboratory
Massachusetts Institute of Technology
Cambridge, MA 02139
USA

Professor Alan Needleman
Department of Materials Science & Engng.
Texas A&M University 3003
College Station
TX 77843-3003
USA

Professor S. Nemat-Nasser
Jacobs School of Engineering
University of California, San Diego
4209 Engineering Building 1
9500 Gilman Drive
La Jolla, CA 92093-0416
USA

3. GUESTS FOR EXTENDED PERIODS IN 2021
(more than a fortnight)

Guest professors & post docs:

Ali, Kashif, Aalborg University, Denmark, 1.7.21 -31.10.21

Becker, Hanka, Freiberg University, Germany, 1.11.21 – 28.2.22

Chen, Bei, Hunan University, China, 12.11.21 – 1.3.23

Gaile, Liga, Riga Technical University, Latvia, 11.10.21 – 23.11.21

Peng, Yawei, Nanjing TECH, China, January – May 2021

Qin, Huibin, China, 14.8.21 – 31.10.21

Wang, Ruizhou, Guangdong University of Technology, China, 1.7.21 – 30.6.23

Yaacob, Mohd Rusdy Bin, Technical University of Malaysia, Malaysia, 2.8.21 – 8.10.21

PhD students

Afarinifard, Milad, University of Tarbiat Modares, Iran, 1.8.21 – 30.4.22

Bedmad, Javier, Rey Juan Carlos University, Spain, 19.4.21 – 23.7.21

Cho, Dong Hyuk, KAIST, Republic of Korea, 13.11.21 – 19.12.21

Fan, Zhun, Shanghai Jiao Tong University, China, 20.10.21 – 20.4.22

Fava, Thales Coelho Leite, Sweden, 1.11.21 – 1.12.21

Feng, Ponan, Chang'an University, China, 5.9.21 – 5.7.22

Hu, Xuejan, China, 1.4.21 – 31.3.22

Koohestanian, Mohammad, Sharif University of Technology, Iran, 15.2.21 – 15.9.21

Liu, Yongtao, College of Water Conservancy and Hydropower Engineering, Hohai University, China, 15.2.21 – 30.4.22

Liu, Zhe, Nanjing TECH, China, June – December 2021

Ren, Yongli, Hunan University, China, 1.12.21 – 30.5.23

Sun, Yupeng, Central South University, China, 1.11.21 – 31.10.22

Talha, Khandokar Abu, University of Southampton, United Kingdom, 6.1.21 – 31.3.22

Wang, Yuqi, Dalian University of Technology, China, 1.2.21 – 31.7.22

Shi, Qianqian, Donghua University, China, 20.12.21 – 19.12.22

Sicchieri, Leonardo C., Federal University of Uberlandia, Brazil, 4.12.21 – 4.12.22

TučEk, Jonas, Czech University in Prague, the Czech Republic, 15.9.21 – 14.4.22

Xia, Siqi, Xi'an Jiaotong University, China, 15.12.21 – 14.12.22

Zhang, Xiangyu, China, 1.8.21 – 31.3.22

Zheng, Wenbin, School of Mech. Eng., Xi'an Jiaotong University, China, 1.10.21 – 30.9.23

Zhou, Chen, Harbin Engineering University, China, 15.12.21 – 15.12.22

Zhu, Jinxuan, Sichuan University, China, 1.2.21 – 31.1.23

4. ACTIVITY AT THE DEPARTMENTS

Reorganisation at DTU

As of 1st of March 2022, several departments at DTU have been reorganised. The Department of Electrical Engineering and the Department of Civil Engineering were closed and reorganized under new departments. Approximately half the Department of Civil Engineering has merged with the Department of Mechanical Engineering to form a new institute called Department of Civil and Mechanical Engineering - or in short: DTU Construct.
The merger added three new sections so that the new institute have nine sections:

- Design and Processes
- Energy and Services
- Engineering Design and Product Development
- Fluid Mechanics, Coastal and Maritime Engineering
- Manufacturing Engineering
- Materials and Surface Engineering
- Solid Mechanics
- Structures and Safety
- Thermal Energy

You can find more information on the homepage of the new Department: construct.dtu.dk

5. LIST OF DCAMM S-REPORTS

S1 – S107: Ask for separate book.

S108. JONCQUEZ, SOIZIC ANNICK GABRIELLE: Second-order Forces and Moments acting on Ships in Wawes (August 2009)

S109. DÜHRING, MARIA BAYARD: Optimization of acoustic, optical and optoelastic devices (July 2009)

S110. NIELSEN, KIM LAU: Modelling of damage development and ductile failure in welded joints (December 2009)

S111. ESTUPINAN, EDGAR ALBERTO: Feasibility of Applying Controllable Lubrication Techniques to Reciprocating Machines (December 2009)

S112. BANG-MØLLER, CHRISTIAN: Design and Optimization of an Integrted Biomass Gasification and Solid Oxide Fuel Cell System (April 2010)

S113. PEDERSEN, RUNE: Dynamic Modeling of wind Rubine Gearboxes and Experimental Validation (April 2010)

S114. BRIX, WIEBKE: Modelling refrigerant distribution in minichannel evaporators (May 2010)

S115. HUMMELSHØJ, THOMAS STRABO: Mechanisms of metal dusting corrosion (December 2009)

S116. CIPOLLA, LEONARDO: Conversion of MX Nitrides to Modified Z-Phase in 9-12%Cr Ferritic Steels (March 2010)

S117. HAIDER, SAJJAD: Two Stroke diesel Engines for Large Ship Propulsion (January 2011).

S118. VELTE, CLARA: Simultation and control of Wind Turbine Flows using Vortex Generators (February 2009)

S119. ENZ, STEPHANIE: Factors Affecting Coriolis Flowmeter Accuracy, Precision, and Robustness (September 2010)

S120. KJÆRSGAARD-RASMUSSEN, JIMMY: Inside-out electrical capacitance tomography for downhole multiphase flow evaluation (April 2010)

S121. LAJIC, ZORAN: Fault-Tolerant Onboard monitoring and Decision Support Systems (October 2010)

S122. SVENDSEN, MARTIN NYMANN: Wind Turbine Rotors with Active Vibration Control (January 2011)

S123. CLAUSEN, LASSE RØNGAARD: Design of novel DME/methanol synthesis plants based on gasification of biomass (February 2011)

S124. SHIN, KEUN WOO: Cavitation simulation on marine propellser (November 2010)

S125. HAUGAARD, ASGER MARTIN: On Controllable Elastohydrodynamic Fluid Film Bearings (May 2010)

S126. PEDERSEN, TROELS DYHR: Homogeneous Charge Compression Ignition Combustion of Dimethyl Ether (May 2011)

S127. GARCÌA, NÈSTOR RAMOS: Quasi-3d aerodynamic code for analysing dynamic flap response (April 2011)

S128. ZAMBRANO, HARVEY A: Molecular Dynamics Studies of Nanofluidic Devices (May 2011)

S129. AAGE, NIELS: Topology optimization of radio frequency and microwave structures (April 2011)

S130. MATZEN, RENÉ: Topology Optimization for Transient Wave Propagatio Problems (March 2011)

S131. ANDREASEN, CASPER SCHOUSBOE: Multiscale topology optimization of solid and fluid structures (May 2011)

S132. KÆRN, MARTIN RYHL: Analysis of flow maldistribution in fin-and-tube evaporators for residential air-conditioning systems (August 2011)

S133. BEHRENS, TIM: Simulation of Moving Tailing edge Flaps on a Wind Turbine Blade using a Nivier-Stokes based Immersed Boundary Method (July 2011)

S134. BLASQUES, JOSÉ PEDRO ALBERGARIA AMARAL: Optimal Design of Laminated Composite Beams (August 2011)

S135. AZIZI, REZA: Multi-scale modelling of composites (September 2011)

S136. JACOBSEN, NIELS GJØL: A Full Hydro- and Morphodynamic Description of Breaker Bar Development (April 2011)

S137. MOROSI, STEFANO: From Hybrid to Actively-Controlled Gas Lubricated Bearings – Theory and Experiemt (September 2011)

S138. KÆRGAARD, KASPER: Numerical Modeling of Shoreline Undulations (September 2011)

S139. BHOWMIK, SUBRATA: Modelling and Control of Magnetorheological Damper: Real-time implementation and experimental verification (October 2011)

S140. ANDKJÆR, JACOB: Wave Manipulation by Topology Optimization (January 2012)

S141. MOSLEMIAN, RAMIN: Residual Strength and Fatigue Lifetime of Debond Damaged Sandwich Structures (September 2011)

S142. HANSEN, SØREN VINTHER: Performance Monitoring of Ships (September 2011)

S143. HANSEN, NILAS MANDRUP: Interaction between Seabed Soil and Offshore Wind Turbine Foundations (March 2012)

S144. THOMSEN, KIM: Modeling of dynamically loaded hydrodynamic bearings at low Sommerfeld numbers (March 2012)

S145. WANG, FENGWEN: Systematic Design of Slow Light Waveguides (August 2012)

S146. RASMUSSEN, JOHANNES TOPHØJ: Particle Methods in Bluff Body Aerodynamics (October 2011)

S147. ANDERSEN, SØREN BØGH: Design and Optimization of Gearless Drives using Multi-Physics Approach (September 2012)

S148. LAHRIRI, SAID: On the Rotor to Stator Contact Dynamics with Impacts and Friction – Theoretical and Experimental Study (November 2012)

S149. VARELA, ALEJANDRO CERDA: Mechatronics Applied to Fluid Film Bearings: Towards More Efficient Machinery (December 2012)

S150. SCHLECHTINGEN, MEIK: A Global Condition Monitoring System for Wind Turbines (February 2013)

S151. SENG, SOPHEAK: Slamming and Whipping Analysis of Ships (December 2012)

S152. HOSSEINZADEH, ELHAM: Fuel Cell Hydrogen manifold for Lift Trucks (December 2012)

S153. DIMITROV, NIKOLAY: Structural Reliability of wind Turbine Blades: Design Methods and Evaluation (February 2013)

S154. RABBANI, ABID: Dynamic Performance of a PEM Fuel Cell System (March 2013)

S155. LINDBERG, OLE: Multiscale Simulation of Breaking Wave Impacts (March 2012)

S156. NIELSEN, MARTIN BJERRE: Dynamics of Rigid Bodies and Flexible Beam Structures (September 2013)

S157. JENSEN, MICHAEL V.: Heat Transfer in Large Two-Stroke Marine Diesel Engines (August 2012)

S158. TORRY-SMITH, JONAS MØRKEBERG: Designing Mechatronic Products – Achieving Integration by Means of Modelling Dependencies (February 2013)

S159. POULIOS, KONSTANTINOS: Tribology of A Combined Yaw Bearing and Brake for Wind Turbines (September 2013)

S160. JØRGENSEN, MARTIN FELIX: Aerodynamic and Mechanical System Modelling (November 2013)

S161. ROTHUIZEN, ERASMUS DAMGAARD: Hydrogen Fuelling Stations – A Thermodynamic Analysis of Fuelling Hydrogen Vehicles for Personal Transportation (September 2013)

S162. WÖRÖSCH, MICHAEL: End-to-end requirements management for multiprojects in the construction industry (February 2014)

S163. BUREAU, EMIL: Experimental Bifurcation Analysis Using contro-Based continuation (January 2014)

S164. VAJARI, DANIEL ASHOURI: Micromechanical failure in fiber-reinforced composites (March 2014)

S165. JOHANSEN, AXEL OHRT: Numerical study of evaporators in power plants for improved dynamic flexibility (March 2013)

S166. ANDERSEN, INGRID MARIE VINCENT: Full Scale Measurements of the Hydro-Elastic Response of Large Container Ships for Decision Support (April 2014)

S167. GIVERSEN, SØREN: Blast Testing and Modelling of composite Structures (March 2014)

S168. SAREMI, SINA: Density-Driven Currents and Deposition of Fine Materials (April 2014)

S169. CERULLO, MICHELE: Computational stress and damage modelling for rolling contact fatigue (September 2014)

S170. NGUYEN, TUONG-VAN: Modelling, analysis and optimization of energy systems on offshore platforms (October 2014)

S171. AMINI AFSHAR, MOSTAFA: Towards Predicting the Added Resistance of Slow Ships in Waves (October 2014)

S172. ANDREASSEN, ERIK: Optimal Design of Porous Materials (January 2015)

S173. JOHANSEN, VILLADS EGEDE: Structural colours and applications to anodized aluminium surfaces (November 2014)

S174. BRUUN, HANS PETER LOMHOLT: PLM support to architecture based development – Contribution to computer-supported architecture modelling (January 2015)

S175. FUGLEDE, NIELS: Kinematics and Dynamics of Roller Chain Drives (July 2014)

S176. LARSEN, ULRIK: Design and modelling of innovative machinery systems for large ships (October 2014)

S177. LARSEN, JON STEFFEN: Nonlinear Analysis of Rotors Supported by Air Foil Journal Bearings – Theory & Experiments (February 2015)

S178. INGVORSEN, KRISTIAN MARK: Investigations of the turbulent swirling flow in a two-stroke marine diesel engine (November 2013)

S179. ERIKSEN, RASMUS NORMANN: High Strain Rate characterization of Composite materials (March 2014)

S180. PEDERSEN, BENJAMIN PJEDSTED: Data-driven Vessel Performance Monitoring (June 2014)

S181. JANAKIRAMAN, SHRAVAN: Fatigue and Wer in Rolling and Sliding Contacts (November 2014)

S182. CHRISTIANSEN, NIELS HØRBYE: Hybrid Method Simulation of Slender Marine Structures (August 2014)

S183. PIEROBON, LEONARDO: Novel design methods and control strategies for oil and gas offshore power systems (October 2014)

S184. DOU, SUGUANG: Gradient-based optimization in nonlinear structura dynamics (April 2015)

S185. CORDTZ, RASMUS FAURSKOV: The Influence of Fuel Sulfur on the Operation of Large Two-Stroke Marine Diesel Engines (January 2014)

S186. JEPSEN, ALLAN DAM: ARCHITECTURE DESCRIPTIONS – A contribution to Modeling of Production System Architecture (September 2014)

S187. OMMEN, TORBEN SCHMIDT: Heat Pumps in CHP Systems. High-efficienty Energy System Utilising Combined Heat and Power and Heat Pumps (April 2015)

S188. MODI, ANISH: Numerical evaluation of the Kalina cycle for concentrating solar power plants (August 2015)

S189. ENEMARK, SØREN: Integration of shape Memory Alloys into Low-Damped Rotor-Bearing Systems – Modelling, Uncertainties and Experimental Validation (October 2015)

S190. WRONSKI, JORRIT: Design and Modelling of Small Scale Low Temperature Power Cycles (May 2015)

S191. ANDERSEN, FREDERIK HERLAND: Integrated Analysis of the Scavenging Process in Marine Two-Stroke Diesel Engines (August 2015)

S192. GUOLAUGSSON, TÓMAS VIGNIR: Modelling architectures in multi-product oriented technology development (July 2015)

S193. CHRISTIANSEN, CHRISTIAN KIM: Diesel Engine Tribology (December 2015)

S194. COSTACHE, ANDREI: Anchoring FRP Composite Armor in Flexible Offshore Riser Systems (October 2015)

S195. COUTURIER, PHILIPPE JACQUES: Structural modelling of composite beams with application to wind turbine rotor blades (January 2016)

S196. VÁSQUEZ, FABIÁN GONZALO PIERART: Model-Based Control Design for flexible Rotors Supported by Active Gas Bearings - Theory & Experiment (January 2016)

S197. MAZZUCCO, ANDREA: Tank designs for combined high-pressure gas and solid-state hydrogen storage (January 2016)

S198. HEJLESEN, MADS MØLHOLM: A high order regularisation method for solving the Poisson equation and selected applications using vortex methods (February 2016)

S199. ÓLAFSSON, ÖLAFUR MAGNÚS: Improved Design Basis of Welded Joints in Seawater (March 2016)

S200. PARSLOV, JAKOB FILIPPSON: Defining Interactions and Interfaces in Engineering Design (March 2016)

S201. FRANDSEN, NIELS MORTEN MARSLEV: Design of advanced materials for linear and nonlinear dynamics (April 2016)

S202. MONTAZERI, NAJMEH: Estimation of waves and ship responses using onboard Measurements (March 2016)

S203. BRODERSEN, MARK LAIER: Damping of Wind turbine tower vibrations (December 2015)

S204. MANCA, MARCELLO: Fracture Characterization of Sandwich Face/Core Interfaces (March 2015)

S205. ANDERSEN, JAKOB BEJBRO: PSS Support for Maritime Technology Ventures: From Exploration to Methodology and Theory (November 2015)

S206. MOUGAARD; KRESTINE: A framework for conceptualisation of PSS solutions: On network-based development models (January 2016)

S207. JENSEN, JONAS KJÆR: Industrial heat pumps for high temperautre process applications - A numerical study of the ammonia-water hybrid absorption-compression heat pump (December 2015)

S208. CHRISTIANSEN, RASMUS E.: Topology Optimization for Wave Propagation Problems with Experimental Validation (June 2016)

S209. NEUMEYER, STEFAN: Macromechanical Parametric Amplification (April 2016)

S210. MADSEN, STINE SKOV: Dynamic Modeling of Pavements with Application to Deflection Measurements (July 2016)

S211. SALAZAR, JORGE ANDRÉS GONZÁLEZ: Towards Model-Based Control Design for Flexible Rotors Supported by Active Tilting Pad Bearings - Theory & Equipment (August 2016)

S212. VOIGT, ANDREAS JAUERNIK: Towards Identification of Rotordynamic Properties for Seals in Multiphase Flow Using Active Magnetic Bearings. Design and Commissioning of a Novel Test Facility (June 2016)

S213. EL-NAAMAN, SALIM ABDALLAH: Miro-Structural Evolution and Size-Effects in Plastically Deformed Single Crystals - Strain Gradient Continuum Modeling (July 2016)

S214. CLAUSEN, ANDERS: Topology Optimization for Additive Manufacturing (September 2016)

S215. RAVN, POUL MARTIN: Coherent Architecture Development as a Basis for Technology Development (December 2015)

S216. ALEXANDERSEN, JOE: Efficient topology optimisaton of multiscale and multiphysics problems (September 2016)

S217. KONTOS, STAVROS: Robust Numerical Methods for Nonlinear Wave-Structure Interaction in a Moving Frame of Reference (August 2016)

S218. LYTCHKE-JØRGENSEN, CHRISTOFFER: Design and optimization of flexible multi-generation systems (April 2016)

S219. CHRISTENSEN, MARTIN EBRO: Applying Robust Design in an Industrial ontext (August 2015)

S220. HØGH, JACOB HEROLD: Hybrid Simulation of Composite Structures (January 2016)

S221. NIELSEN, BO BJERREGAARD: Combining Gas Bearing and Smart Material Technologies for Improved Machine Performance Theory and Experiment (July 2016)

S222. OBEIDAT, ANAS: Development of Smoothed Particle Hydrodynamics for flow in Complex Geometries and Application of Open Source Software for the Simulation of Turbulent Flow (June 2014)

S223. REGENER, PELLE BO: Hull-Propeller Interaction and Its Effect on Propeller Cavitation (November 2016)

S224. GÖHLER, SIMON MORITZ: Metric-driven Robust Design – Robustness Quantification of Complex Engineering Systems (February 2017)

S225. LAURIDSEN, JONAS: Control design of Active Magnetic Bearings for Rotors Subjected to Destabilising Seal Forces Theory & Experiment (May 2017)

S226. WESTLYE, FREDRIK REE: Experimental Study of Liquid Fuel Spray Combustion (June 2016)

S227. SIGURJONSSON, HAFTHOR ÆGIR: Modeling and Evaluation of Bioenergy and Agriculure system Integration (January 2016)

S228. LINHARES DA FONSECA, CESAR AUGUSTO LAMPE: A theoretical-experimental study of backup bearings – The pinned vs ball bearing (July 2017)

S229. KERMANI, NASRIN ARJOMAND: Design and prototyping of an ionic liquid piston compressor as a new generation of compressor for hydrogen refueling stations (May 2017)

S230. NØRGAARD, SEBASTIAN ARLUND: Topology optimization and lattice Boltzmann methods (October 2017).

S231. BAJRIĆ-HODŽIĆ, ANELA: Identification of damping from structural vibrations (October 2017)

S233. PEDERSEN, SØREN NYGAARD: Perceptual Robust Design (January 2017)

S234. NELLEMANN, CHRISTOPHER: Micro-structural evolution in plastically deformed crystalline materials (December 2017)

S235. BÜHLER, FABIAN: Energy efficiency in the industry: A study of the methods, potentials and interactions with the energy system (March 2018)

S236. BOORLA, SRINIVAS MURTHY: Zero Variation Manufacturing (ZVM) – A strategy for robust products with zero perceivable variation (January 2018)

S237. MARGALIT, JONATAN: Development of matural seabed forms and their interaction with offshore wind farms (Devember 2017)

S238. TIDEMANN, LASSE: Cyclic Yielding of Tubular Structures (January 2018)

S239. KJÆR, LOUISE LAUMANN: Environmental Impacts of Product/Service-Systems – broadening the life cycle assessment methodology (January 2018)

S240. KLIEM, MATHIAS: Damping of Composite Mast Structures (March 2018)

S241. SASEENDRAN, VISHNU: Fracture Chracterizatio and Analysis of Debonded Sandwich Composites (December 2017)

S242. PAGOROPOULOS, ARIS: Product/service systems in the maritime industry – from economic evaluation throughout the life sycle to implementation (September 2017)

S243. REBOUCAS, GERALDO FRANCISCO DE SOUZA: Vibro – Impact Mechanics. Analytical, Numerical and Experimental Investigations (September 2018)

S244. LØKKEGAARD, MARTIN: Top-Down Financially Driven Modularization (October 2017)

S245. LUNDGAARD, CHRISTIAN: Topology Optimization for multiphysics problems: Thermoelectric energy conversion and fluid-structure-interaction (June 2018)

S246. DAGNÆS-HANSEN, NIKOLAJ A.: Magnetic Bearings for Offshore Flywheel Energy Storage Systems (July 2018)

S247. JUUL, KRISTIAN JØRGENSEN: Steady-state and self-similar solution techniques in solid mechanics (August 2018)

S248. SPIETZ, HENRIK JUUL: A Vortex-particle Mesh Method for Large Eddy Simulation of Bluff Body Aerodynamics (June 2018)

S249. CHOI, JU-HYUCK: Efficient Estimation of Extreme Roll Motion of Ships (October 2018)

S250. OVERGAARD, HANNIBAL TOXVÆRD: Lubricant Transport across Piston Rings in large Two-Stroke Diesel Engines – Theory and Experiments (September 2018)

S251. MERONI, ANDREA: Design and Optimization of Turbomachinery for Thermodynamic Cycles Utilizing Low-Temperature Heat Sources (May 2018)

S252. RODRIGUES, VINIVIUS PICANÇO: “In search of gold”: measuring performance and evaluating potential business benefits of eco-design (July 2018)

S253. FARSHIDI, ARASH: Disbond Damage in Aircraft Sandwich Structures (January 2019)

S254. GROEN, JEROEN PETER: Multi-scale design methods for Topology Optimization (December 2018)

S255. BJARKLEV, KRISTIAN: Mode of Action-Based Variation Risk Identification (December 2018)

S256. JENSEN, LASSE SKOVGAARD: Design by Prototypin in Hardware Start-ups (October 2018)

S257. FERRUZZA, DAVIDE: Design of steam generator systems for concentrating solar power plants (October 2018)

S258. MIRSADRAEE, YASAMAN: Development of a Model for Propeller Tip Vortex Caviation and Analysis of the Radiated Pressure Fluctuations (September 2018)

S259. KARVOUNIS, NIKOLAS: Numerical Simulation of The Hydrodynamic Behavior of the Lubricant Oil Film in Large Two-stroke Marine Diesel Engines (October 2018)

S260. MANOUCHEHR MEHRTASH: Composite Materials for Electrical Transmission Mast Structures (February 2019)

S261. ZÜHLSDORF, BENJAMIN: High-performance heat pump systems. Enhancing performance and range of heat pump systems for industry and district heating (May 2019)

S262. YAACOB, MOHD RUSDY BIN: State-of-the-art laser Doppler systems development for turbulence measurements (June 2019)

S263. HOFFMEYER, DAVID: Damping of Torsional Beam Vibrations (August 2019)

S264. MØLLER, RANDI NØHR: Aerodynamic Stabilit of Long Span Bridges (June 2018)

S265. LUKASSEN, TROELS VESTERGAARD: Constitutive Behavior of Tensile Armor Wires in Unbounded Flexible Pipes (February 2019)

S266. ASADZADEH, SEYED SAEED: Numerical and experimental study of flow in choanoglagellates and choanocytes (August 2019)

S267. GOTFREDSEN, ERIK: Flow Phenomena in Selective Catalytic Reduction Systems used in Large Two-stroke Marine Diesel Engines (November 2018)

S268. MANCINI, ROBERTA: Design and Performance Analysis of Plate Heat Exchangers for Heat Pumps using Pure and Mixed Refrigerants (May 2019)

S269. TOFTEKÆR, JOHAN FREDERIK: Resonant Piezoelectric Shunt Damping of Structures (September 2019)

S270. ANDERSEN, RASMUS GRAU: Advancing Numerical Simulation Tools for Ductile Fracture in Thin metal Plates (February 2020)

S271. BALDASSO, ENRICO: Evaluation of the prospects for waste heat recovery on board liquefied natural gas-fuelled ships (February 2020)

S272. DILGEN, CETIN BATUR: Optimization of multiphysics problems: transient vebroacoustic and thermal-fluid systems (March 2020)

S273. VON OSMANSKI, ALEXANDER SEBASTIAN: Modelling of Gas Foil Bearings Towards Controllable Operation Multi-domain Analysis (April 2020)

S274. PÉREZ, IGNACIO VIDAL: Through-Thickness Damage Timeline of Fiber Composites under Dynamic Loading (April 2020)

S275. RASMUSSEN, JEPPE BREDAHL: Operation and maintenance of prodct configuration systems in project-based small and medium-sized enterprises (March 2020)

S276. JOHANSEN, NICOLAI FROST-JENSEN: Test Methods for Evaluating Rain Erosion Performance of Wind Turbine Blade Leading Edge Protection Systems (April 2020)

S277. DE PÁDUA PINHEIRO PIERONE, MARINA: Circular Economy Business Modelling: Decoupling value creation from resource consumptions within manufacturing companies (June 2020)

S278. BRØNS, MARIE: Vibration-based Estimation of Bolt Tension (June 2020)

S279. PIEPER, HENRIK: Optimal Integration of District Cooling, Heat Sources and Heat Sinks (December 2019)

S280. MEESENBURG, WIEBKE: Heat pumps supplying district heating and ancillary services for the power system (January 2020)

S281: BUTERA, GIACOMO: Methanol production integrating biomass thermochemical conversion and solid oxide cells (August 2020)

S282: CONLAN-SMITH, CIAN: Aerodynamic and Aeroelastic Shape Optimization of Aircraft Wings (November 2020)

S283: KRAVCHENKO, MARIIA: Sustainability screening as a decision support for early stage circular economy development: Moving the sails of circular economy in the direction of sustainability (November 2020)

S284: HICKS, JACOB BJARKE HANSEN: Development of a high-order potential flow solver for nonlinear wavestructure interaction (December 2020)

S285: KRISTIANSEN, HANSOTTO: Topology optimization of transient problems with frictional contact and finite strain (December 2020)

S286: BERGAMINI, RICCARDO: Development of expeditous process integration methods for retrofit of non-energy-intesive industries (December 2020)

S287. AKSHØJ, CHRISTOFFER: Implementing modular product architectures in mid-sized companies (January 2021)

S288. BERTRAM, CHRISTIAN: Variation Management in Project-Based Design: Contribution to a Product Portfolio Manager's Toolbox (January 2021)

S289. HOLTE, INGRID: Modelling of ductile failure over multiple scales (January 2021)

S290. KLAHN, MATHIAS: A numerical investigation of irregular water waves and their statistical properties (April 2021)

S291. HEMMINGSEN, CASPER SCHYTTE: Optimizing Oil Production by Novel Technology Integration – Well Flow Modeling (July 2019)

S292. SAETTONE, SIMONE: Ship Propulsion Hydrodynamics in Wawes (November 2020)

S293. SVENDSEN, NICKLAS WERGE: Exploring multi-functionality in biologically-inspired design through systematic development of medical equipment supporting corneal transplantation research (March 2021)

S294. MONCY, AAKASH: Tunelling cracks incomposite laminates under planar biaxial strain controlled fatigue loading (April 2021)

S295. BLUHM, GORE LUKAS: Analysis and optimization of non-linear structures and materials including internal contact (April 2021)

S296: ANDERSEN, MORTEN NØRGAARD: Stiffness and strength of architected materials (May 2021)

S297: MOGENSEN, JULIE LYNGGAARD: Modelling of Hydraulic Fracturing (June 2021)

S298: MAHDAVI, HAMIDREZA: Micromechanical Modeling of Rolling Contact Fatigue (July 2021)

S299: CRISCUOLO, GENNARO: Two-phase cooling of power electronics: An investigation on flow boiling of refrigerants in narrow channels (July 2021)

S300: SIGSGAARD, KRISTOFFER VANDRUP: Modularization in Maintenance – A New Paradigm (August 2021)

S301: SOMLÓ, KINGA: Micromechanics of 3D printed Metals (August 2021)

S302. XU, YAN: A high-order finite difference method with immersed-boundary treatment for fully nonlinear wave-structure interaction (August 2021)

6. OTHER THESES

ANDERSEN, SEBASTIAN AAGAARD: “Open Architecture Laser Powder Bed Additive Manufacturing”, DTU Mechanical Engineering, 2021, PhD Thesis.

BANGARU, ASHISH KUMAR: “Fatigue behavior of polymer matrix at the microstructural scale”, DTU Wind Energy, 2021, PhD Thesis.

CHEN, GUOXINNG: “Development of an Adsorption Techniques for Reduction of Greenhouse Gas Emissions in Livestock Buildings”, Aarhus University, Department of Civil and Architectural Engineering, 2021, PhD Thesis.

CIUCANI, UMBERTO MARIA: “Stability of tungsten plates during high temperatures”, DTU Wind Energy, 2021, PhD Thesis.

CONTI, DAVIDE: “Wind turbine load validation under wake conditions using Doppler lidar”, DTU Wind Energy, 2021, PhD Thesis.

DAHMEN, THOMAS: “Additive Manufacturing for Fuel Injectors: Design, Processes and Materials”, DTU Mechanical Engineering, 2021, PhD Thesis.

ERIKSEN, STIG: “Autonomous Ships from the Perspective of Operation and Maintenance”, SDU, Department of Mechanical and Electrical Engineering, 2021, PhD Thesis.

FILSOOF, OLIVER TIERDAD: “Modal Dynamics and Design Analysis of Multi-rotor Wind Turbines”, Aarhus University, Department of Mechanical and Production Engineering, 2021, PhD Thesis.

FOLDAGER, FREDERIK: “Physiscs-based modeling and simulation of agricultural machine-soil interaction”, Aarhus University, Department of Mechanical and Production Engineering, 2021, PhD Thesis.

GAUTAM, KHEM RAJ: “Effective indoor climate and air quality control via optimal ventilation air distribution”, Aarhus University, Department of Civil and Architectural Engineering, 2021, PhD Thesis.

GLAVIND, SEBASTIAN TØLBØLL: “Information-consistent systems modeling and analysis: With applications in offshore engineering”, Aalborg University, Department of the Built Environment, 2021, PhD Thesis.

HANSEN, HANS NØRGAARD: “Design and manufacturing of micro products – a framework based on process chains and metrology”, DTU Mechanical Engineering, 2021, Doctoral Thesis.

HESSELLUND, KRISTIAN BJØRN: “Semiparametric Multinomial Logistic Regression for Multivariate Point Pattern Data”, Aalborg University, Department of Mathematical Sciences, 2021, PhD Thesis.

ISLAM, MUHAMMAD RAZA UL: “FMG based upper limb motion detection methods, performance analysis and control of assistive exoskeletons”, Aalborg University, Department of Materials and Production, 2021, PhD Thesis.

JENSEN, SIMON MOSBJERG: “Delamination in composites with fiber bridging under quasi-static loading and variable amplitude fatigue loading”, Aalborg University, Department of Materials and Production, 2021, PhD Thesis.

KABEL, THOMAS: “LIDAR measurement of waves – Wave identification and data processing”, Aarhus University, Department of Civil and Architectural Engineering, 2021, PhD Thesis.

KIEFER, JANIK: “High Reynolds number Airfoil Experiments”, DTU Wind Energy, 2021, PhD Thesis.

KLINGAA, CHRISTOPHER GOTTLIEB: “Digital Twin of Additively Manufactured Components: Enabling Simulation-based Qualification”, DTU Mechanical Engineering, 2021, PhD Thesis.

KVÆRNDRUP, FREDERIK B.: “Thermodynamics and kinetics of mixed interstitial phases in the titanium system”, DTU Mechanical Engineering, 2021, PhD Thesis.

LANDI, LEONARDO: “Semigroups, curves and AG codes”, DTU Compute, 2021, PhD Thesis.L

LI, FENG: “Solder flux chemistry and climatic reliability of electronics: optimization of flux chemistry for robust performance, DTU Mechanical Engineering, 2021, PhD Thesis.

LONG, LIJIA: “Quantification of the value of monitoring information for deteriorated structues”, Aalborg University, Department of the Built Environment, 2021, PhD Thesis.

MADURO, MARCO AURÉLIO MIRANDA: “Experimental and modelling study of the composite piltrusion process for manufacturing of pre-fabricated elements for wind turbine blades”, DTU Wind Energy, 2021, PhD Thesis.

MANKAR, AMOL: “Fatigue Reliability of Concrete Elements in Bridges and Wind Turbines”, Aalborg University, Department of the Built Environment, 2021, PhD Thesis.

MENG, YICHEN: “Thermochemical treatment of titanium and titanium alloys”, DTU Mechanical Engineering, 2021, PhD Thesis.

NABUCO, BRUNA SILVA: “Acutal Stress and Fatigue in Wave Loaded Structures”, DTU Civil Engineering, 2021, PhD Thesis.

NIELSEN, KIM LAU: “Fracture and Plasticity Across Scales: Methods and Mechanisms”, DTU Mechanical Engineering, 2021, Doctoral Thesis.

PERI, ELENA: “Compression and Time-Dependent Behaviour in Danish Clays and Chalk – An Experimental Study” Aalborg University, Department of the Built Environment, 2021, PhD Thesis.

RIBO, MACARENA MENDEZ: “Vat Photopolymerization Process Chain”, DTU Mechanical Engineering, 2021, PhD Thesis.

SANDBERG, MICHAEL: “Numerical Modelling of Material Flow in the Resin-injection Pultrusion Process”, DTU Mechanical Engineering, 2021, PhD Thesis.

SCHRÖDER, LAURA: “Towards digital twins: wind farm operation analysis and optimization using model-supported data analytics”, DTU Wind Energy, 2021, PhD Thesis.

SOLOMATOV, GRIGORY ALEKSANDROVICH: “Computational Aspects of Algebraic Geometry Codes”, DTU Compute, 2021, PhD Thesis.

YADAV, ABHIJEET: “Developing high performance and climatically reliable hearing aids”, DTU Mechanical Engineering, 2021, PhD Thesis.

7. DCAMM COURSES GIVEN IN 2021

DTU Mechanical Engineering

High Performance Computing: FORTRAN, OpenMP and MPI
Advanced Engineering Thermodynamics
Topology Optimization – Theory, Methods and Applications
Electron Microscopy and Analysis for Materials Research
PhD course on application of x-ray diffraction in materials science
Nanotribology: Theory and application
Measurement uncertainty estimation using statistical methods

DTU Wind Energy

The 6th International Summer School – CINEMAX, August 23 – 27, 2021

APPENDIX: List of members 2021

Abbreviations:

from Technical University of Denmark

CIVIL: Dept. of Civil Engineering
COMPUTE: Dept. of Applied Mathematics and Computer Science
MEK-FAM: Dept. of Mechanical Engineering, Solid Mechanics
MEK-FVM: Dept. of Mechanical Engineering, Fluid Mechanics, Coastal and Maritime Engineering
MEK-K&P: Dept. of Mechanical Engineering, Engineering Design and Product Development
MEK-MPP: Dept. of Mechanical Engineering, Manufacturing Engineering
MEK-MTU: Dept. of Mechanical Engineering, Materials and Surface Engineering
MEK-TES: Dept. of Mechanical Engineering, Thermal Energy
WIND: DTU Wind Energy

from Aalborg University

BUILD, AAU: Department of the Built Environment
MATH, AAU: Department of Mathematical Sciences
MECH, AAU: Department of Materials and Production

from Aarhus University

CAE, AU: Department of Civil and Architectural Engineering
MPE, AU: Department of Mechanical and Production Engineering

from University of Southern Denmark

SDU-ME: Department of Mechanical and Electrical Engineering

Abbiati, Giuseppe	(CAE, AU)	Assistant Professor
Abrahamsen, Asger	(WIND)	Senior Researcher
Agergaard, Julie Krogh	(MEK-K&P)	PhD student
Aghababaei, Ramin	(MPE, AU)	Assistant Professor
Aimon, Arhimny Hasdi	(MEK-MPP)	PhD student
Akbar, Mahdi	(MPE, AU)	Assistant Professor
Alexandersen, Joe	(SDU-ME)	Assistant Professor
Ali, Basit	(MEK-MTU)	PhD student
Alibrandi, Umberto	(CAE, AU)	Associate Professor
Alting, Leo	(MEK-MPP)	Professor Emeritus
Amador, Sandro Diod Rescinho	(CIVIL)	Assistant Professor
Ambat, Rajan	(MEK-MTU)	Professor
Anchondo, Ruben Isaac Erives	(WIND)	PhD student
Andersen, Asger Gade	(MEK-MTU)	PhD student
Andersen, Lars Vabbersgaard	(CAE AU)	Professor, PhD
Andersen, Martin Pihl	(MEK-TES)	PhD student
Andersen, Martin Skovgaard	(COMPUTE)	Associate Professor
Andersen, Michael Skipper	(MECH, AAU)	Associate Professor
Andersen, Mikkel	(MATH, AAU)	Associate Professor

Andersen, Poul	(MEK-FVM)	Emeritus
Andersen, Sebastian Aagaard	(MEK-MPP)	Postdoc
Andersen, Søren Juhl	(WIND)	Associate Professor
Andersen, Søren Rindom		Elected member, PhD
Andreasen, Casper Schousboe	(MEK-FAM)	Associate Professor
Andreasen, Jens H.	(MECH, AAU)	Associate Professor, PhD
Andreasen, Mogens Myrup	(MEK-K&P)	Professor Emeritus
Andresen, Gorm Bruun	(MPE, AU)	Associate Professor
Andrillo, Tito	(MEK-MPP)	Researcher
Arlitt, Ryan Michael	(MEK-K&P)	Assistant Professor
Arora, Vikas	(SDU-ME)	Associate Professor
Aschmoneit, Fynn Jerome	(MATH, AAU)	Postdoc
Badri, Samaneh	(MECH, AAU)	Research Assistant
Bahrebar, Saijad	(MEK-MTU)	PhD student
Bai, Shaoping	(MECH, AAU)	Associate Professor
Bak, Brian Lau Verndal	(MECH, AAU)	Assistant Professor
Balling, Ole	(MPE, AU)	Aff. Professor
Balser, Felix	(MECH, AAU)	Research Assistant
Bangaru, Ashish Kumar	(WIND)	PhD student
Barari, Amin	(BUILD, AAU)	Associate Professor
Bartawi, Emad Hasan	(MEK-MTU)	PhD student
Basso, Alberto	(MEK-MPP)	PhD student
Bay, Niels O.	(MEK-MPP)	Professor Emeritus
Beelen, Peter	(COMPUTE)	Professor MSO
Bender, Jens Jakob	(MECH, AAU)	Postdoc
Bendsøe, Martin		Elected member, Professor Emeritus, dr. techn.
Bentzon, Jakob Roar	(MEK-FVM)	PhD student
Berggreen, Christian	(MEK-FAM)	Associate Professor
Berntsen, Jesper	(SDU-ME)	Scientific Assistant
Bibbo, Nimai Domennico	(SDU-ME)	PhD student
Bingham, Harry B.	(MEK-FVM)	Professor
Biondani, Francesco G.	(MEK-MPP)	Postdoc
Bisacco, Giuliano	(MEK-MPP)	Associate Professor
Bjerregård, Mathias Blicher	(COMPUTE)	PhD student
Blomgren, Emma Margareta Viktoria	(COMPUTE)	PhD student
Bluhm, Gore Lukas	(MEK-FAM)	Postdoc
Boccia, Rossana	(MEK-TES)	PhD student
Bohlmann, Berend	(SDU-ME)	Associate Professor
Bohr, Tomas		Elected member, Professor
Bræstrup, M. W.		Elected member, PhD
Brander, David	(COMPUTE)	Associate Professor
Brandt, Anders	(MPE, AU)	Professor, Head of Department
Branner, Kim	(WIND)	Senior Researcher
Bräuner, Lars	(MPE, AU)	Associate Professor
Bredmose, Henrik	(WIND)	Professor
Brincker, Rune	(CIVIL)	Professor
Broberg, Peter Hede	(MECH, AAU)	PhD student
Brockhoff, Per B.	(COMPUTE)	Head of Department, Professor
Brok, Niclas Lauersen	(COMPUTE)	PhD student
Brøns, Marie	(MEK-FAM)	Postdoc
Brøns, Morten	(COMPUTE)	Professor, PhD, Head of Section
Budden, Christian Leslie	(MEK-MPP)	PhD student
Budzik, Michal	(MPE, AU)	Assistant Professor
Buhl, Thomas	(SDU-ME)	Professor, Head of Department
Calaon, Matteo	(MEK-MPP)	Senior Researcher
Cardenas de Rio, Daniel	(MEK-MPP)	PhD student

Carstensen, Stefan	(MEK-FVM)	Associate Professor
Castro Ardilla, Oscar Gerardo	(WIND)	PhD student
Cavichiolo, Louis Sadowski	(MEK-MPP)	PhD student
Cederkvist, Jan		Elected member, PhD.
Cederlöf, Daan Jonas Hottentot	(WIND)	PhD student
Chawla, Ashish	(MEK-MPP)	PhD student
Chen, Limin	(MEK-FVM)	PhD student
Chen, Xiao	(WIND)	Associate Professor
Cheng, Chong	(MEK-TES)	PhD student
Chivaee, Hamid Sarlek	(WIND)	Associate Professor
Christensen, Christoffer Fyllgraf	(MEK-FAM)	PhD student
Christensen, Erik Damgaard	(MEK-FVM)	Professor, Head of Section
Christensen, Ole	(COMPUTE)	Professor, dr.scient.
Christensen, René Bødker	(MATH, AAU)	Research Assistant
Christensen, Silas Sverre	(SDU-ME)	Postdoc
Christiansen, Christian Kim		Elected member, PhD.
Christiansen, Jesper De Claville	(MECH, AAU)	Professor
Christiansen, Rasmus Ellebæk	(MEK-FAM)	Associate Professor
Christiansen, Thomas Lundin	(MEK-MTU)	Associate Professor
Clausen, Johan Christian	(CAE, AU)	Associate Professor
Clausen, Lasse Røngaard	(MEK-TES)	Associate Professor
Conlan-Smith, Cian	(MEK-FAM)	Postdoc
Conseil-Gudia, Hélène Virgine	(MEK-MTU)	Postdoc
Cordtz, Rasmus Faurskov	(MEK-TES)	Researcher
Cornean, Horia	(MATH, AAU)	Professor
Dahl, Kristian Vinter	(MEK-MTU)	Senior Researcher
Dahmen, Thomas	(MEK-MPP)	Postdoc
Damkilde, Lars	(BUILD, AAU)	Professor
Dammann, Bernd	(COMPUTE)	Associate Professor
Danielak, Anna Halina	(MEK-MPP)	PhD student
Danielsen, Hilmar K.	(WIND)	Senior Researcher
Darula, Radoslav	(MECH, AAU)	Assistant Professor
De Baere, David	(MEK-MPP)	Postdoc
De Chiffre, Leonardo	(MEK-MPP)	Professor Emeritus
Deininger, Michael	(MEK-K&P)	Associate Professor
Desai, Nishith Babubhai	(MEK-TES)	Postdoc
Dimitrov, Nikolai	(WIND)	Senior Researcher
Dominikovic, Dimitri Franjo	(COMPUTE)	Postdoc
Dong, Yiqiu	(COMPUTE)	Associate Professor, PhD
Drozdov, Aleksey	(MECH, AAU)	Professor
Ebbehøj, Kristian Ladefoged	(MEK-FAM)	PhD student
Eder, Martin Alexander	(WIND)	Senior Researcher
Eifler, Tobias	(MEK-K&P)	Associate Professor
Elmegaard, Brian	(MEK-TES)	Professor, Head of Section
Eltard-Larsen, Bjarke	(MEK-FVM)	Postdoc
Endelt, Benny	(MECH, AAU)	Associate Professor
Engsig-Karup, Allan	(COMPUTE)	Associate Professor
Eriksen, Svante	(MATH, AAU)	Associate Professor
Erlandsson, Anders Christiansen	(MEK-TES)	Professor mso
Evgrafov, Anton	(MATH, AAU)	Associate Professor
Faber, Michael Havbro	(BUILD, AAU)	Professor
Fajstrup, Lisbeth	(MATH, AAU)	Associate Professor
Felter, Christian Lotz		Elected member, PhD
Feng, Ju	(WIND)	Senior Researcher
Fojan, Peter	(MECH, AAU)	Associate Professor
Franka, Andrea	(CAE, AU)	Postdoc
Fredsøe, Jørgen	(MEK-FVM)	Professor Emeritus

Frier, Christian	(BUILD, AAU)	Associate Professor, PhD
Fuentes, Valentin Salgado	(MEK-TES)	PhD student
Fuhrman, David R.	(MEK-FVM)	Associate Professor
Funch, Cecilie Vase	(MEK-MTU)	PhD student
Föhring, Leonie	(SDU-ME)	PhD student
Gani, Michael	(MEK-FAM)	PhD student
Garcia, Néstor Ramos	(WIND)	Senior Researcher
Ge, Jingrui	(MEK-K&P)	Research Assistant
Geiselhart, Matthias	(MEK-MPP)	Scientific Assistant
Georgakis, Christos T.	(ENG, AU)	Professor
Ghawla, Ashish	(MEK-MPP)	PhD student
Gnilke, Oliver Wilhelm	(MATH, AAU)	Associate Professor
Gohlamar, Alireza	(MEK-FAM)	PhD student
Gourevitch, Leonid	(MECH, AAU)	Associate Professor
Graeme, Keith		Elected member
Gravesen, Jens	(COMPUTE)	Associate Professor, dr.phil
Greiner, Martin	(MPE, AU)	Professor
Grüner, Magnus Felix	(MEK-MTU)	Research Assistant
Gunneskov, Ole		Elected member, PhD.
Gupta, Kapil Kumar	(MEK-MTU)	PhD student
Gupta, Shivangi	(MEK-MTU)	PhD student
Göral, Koray Deniz	(MEK-FVM)	PhD student
Haglind, Fredrik	(MEK-TES)	Associate Professor
Hald, John	(MEK-MTU)	Professor
Han, Anpan	(MEK-MPP)	Senior Researcher
Hansen, Camilla Arndt	(MEK-K&P)	PhD student
Hansen, Claus Thorp	(MEK-K&P)	Associate Professor
Hansen, Hans Nørgaard	(MEK-ADM)	Professor, dr. techn, Head of Department
Hansen, Kasper Barslund	(MEK-K&P)	PhD student
Hansen, Martin Otto Laver	(WIND)	Associate Professor
Hansen, Morten Hartvig	(SDU-ME)	Professor
Hansen, Per Chr.	(COMPUTE)	Professor, dr. techn.
Haque, Rubaiyet Iftekharul	(MEK-MPP)	Postdoc
Haratian, Saber	(MEK-MTU)	Postdoc
Haselbach, Philip Ulrich	(WIND)	Researcher
Hassan, Hafiz Muhammad Adeel	(SDU-ME)	PhD student
Hassing, Henrik		Elected member, PhD
Hattel, Jesper Henri	(MEK-MPP)	Professor, Head of Section
Heide-Jørgensen, Simon	(MPE, AU)	Postdoc
Hermansen, Sebastian Malte	(MECH, AAU)	PhD student
Henrichsen, Søren Randrup Daugaard		Elected member, PhD
Henriksen, Christian	(COMPUTE)	Associate Professor, PhD
Henriksen, Nikolaj Gersager	(MEK-MPP)	PhD student
Hjorth, Poul	(COMPUTE)	Associate Professor, PhD
Hodgson, Emily Louise	(WIND)	PhD student
Hodzic, Azur	(MEK-FVM)	Postdoc
Hoffmeyer, David		Elected member, PhD
Høeg, Christian Elkjær	(ENG-AU)	PhD student
Høghøj, Lukas Christian	(MEK-FAM)	PhD student
Høgsberg, Jan Becker	(MEK-FAM)	Associate Professor
Højsgaard, Søren	(MATH, AAU)	Associate Professor, Head of Department
Ibsen, Lars Bo	(BUILD, AAU)	Professor, PhD
Iori, Jenna	(WIND)	PhD student
Isiklar, Göktug	(MEK-FAM)	PhD student
Islam, Mohammad Aminul	(MEK-MPP)	Associate Professor
Ivarsson, Anders	(MEK-TES)	Associate Professor
Jacobsen, Christian Brix		Elected member, PhD.

Jakobsen, Christian Sidelmann		Elected member, R&D Engineer
Jakobsen, Lasse	(MEK-MPP)	Scientific Assistant
Jelicic, Goran	(SDU-ME)	PhD student
Jellesen, Morten Stendahl	(MEK-MTU)	Senior Researcher
Jensen, Dorte Juul	(MEK-MPP)	Professor
Jensen, Henrik Myhre	(MPE, AU)	Professor
Jensen, Jonas Kjær	(MEK-TES)	Senior Researcher
Jensen, Jørgen Juncher	(MEK-FVM)	Professor Emeritus, dr. techn.
Jensen, Kenneth Mahagam	(MEK-FAM)	PhD student
Jensen, Lars Rosgaard	(MECH, AAU)	Associate Professor
Jensen, Peter Dørffler Ladegaard	(MEK-FAM)	PhD student
Jensen, Simon Mosbjerg	(MECH, AAU)	PhD student
Jensen, Stina Rask	(CAE, AU)	PhD student
Jespersen, Mads Carsten	(MEK-TES)	Scientific Assistant
Jespersen, Kristine Munk	(WIND)	Postdoc
Juhl, Peter Møller	(SDU-ME)	Associate Professor
Juhl-Nyholm, Herle Kjemtrup	(MEK-K&P)	PhD student
Junker, Rune Grønborg	(COMPUTE)	PhD student
Juttner, Benjamin	(COMPUTE)	PhD student
Jönsson, Jeppe	(CIVIL)	Professor
Jørgensen, Jakob Sauer	(COMPUTE)	Senior Researcher
Jørgensen, Jens Grandjean		Elected member, PhD
Jørgensen, John Bagterp	(COMPUTE)	Associate Professor
Kain, Martin	(MEK-MPP)	PhD student
Karamehmedovic, Mirza	(COMPUTE)	Associate Professor
Kaschube, Deborah	(SDU-ME)	PhD student
Katsanos, Evangelos	(CIVIL)	Associate Professor
Kepler, Jørgen	(MECH, AAU)	Associate Professor
Kermani, Nasrin Arjomand	(MEK-TES)	Postdoc
Khalid, Waqas	(MEK-K&P)	PhD student
Khan, Daniyal	(SDU-ME)	PhD student
Kim, Taesong	(WIND)	Associate Professor
Kirkegaard, Poul Henning	(CAE, AU)	Professor
Kjeld, Jonas Gad	(SDU-ME)	PhD student
Kjer, Magnus Bolt	(MEK-MPP)	PhD student
Klit, Peder	(MEK-FAM)	Professor Emeritus, PhD
Knudsen, Kim	(COMPUTE)	Associate professor
Knudsen, Stig Staghøj	(MEK-FVM)	PhD student
Kofler, René	(MEK-TES)	Scientific Assistant
Kontos, Stavros	(WIND)	Postdoc
Koss, Holger	(CIVIL)	Associate Professor
Krenk, Steen	(MEK-FAM)	Professor Emeritus, dr.techn.
Kristensen, Philip Kræn	(MEK-FAM)	PhD student
Kristiansen, Kristian Uldall	(COMPUTE)	Associate Professor
Krogh, Christian	(MECH, AAU)	Postdoc
Krüger, Kilian	(MEK-MPP)	PhD student
Kumar,Rajnish	(WIND)	PhD student
Kærn, Martin Ryhl	(MEK-TES)	Senior researcher
Körkel, Andreas F.K.	(MEK-MTU)	PhD student
Lakkaraju, Anish Rao	(MEK-MTU)	PhD student
Langthjem, Mikael	(MPE, AU)	Associate Professor
Larsen, Jan Balle		Elected member, PhD.
Larsen, Michael Roland	(MEK-MPP)	PhD student
Larsen, Mikkel Løvenskjold	(SDU-ME)	PhD student
Larsen, Poul Scheel	(MEK-FVM)	Professor Emeritus, PhD
Larsen, Raino Mikael	(MECH, AAU)	Associate Professor
Legarth, Brian N.	(MEK-FAM)	Associate Professor, dr. techn.

Lemvig, Jakob	(COMPUTE)	Associate Professor
Lenau, Torben Anker	(MEK-K&P)	Associate Professor
Leto, Harun	(MECH, AAU)	PhD student
Li, Feng	(MEK-MTU)	Postdoc
Li, Runguang	(MEK-MPP)	Postdoc
Li, Xuerong	(MECH, AAU)	PhD student
Liang, Jierong	(MEK-TES)	Postdoc
Lin, Lujin	(MEK-FAM)	PhD student
Lindgaard, Esben	(MECH, AAU)	Associate Professor
Lindkvist, Adam Alexander	(MEK-MPP)	PhD student
Liu, Qiong	(CAE, AU)	PhD student
Luczak, Martin M.	(WIND)	Senior Researcher
Lund, Erik	(MECH, AAU)	Professor, PhD
Lund, Ivar	(SDU-ME)	Associate Professor
Luongo, Andrea	(MEK-MPP)	Postdoc
Lyck, Christian	(MEK-MPP)	PhD student
Lützen, Marie	(SDU-ME)	Associate Professor
Madsen, Bo	(WIND)	Associate Professor
Madsen, Frederik Grønborg	(MEK-MPP)	PhD student
Madsen, Per A.	(MEK-FVM)	Professor emeritus, dr.techn.
Madsen, Søren Peder	(ENG, AU)	Associate Professor
Malektaj, Haniyeh	(MECH, AAU)	PhD student
Mallick, Pravin Kumar	(MEK-K&P)	PhD student
Manouchehr, Mehrtash	(MEK-FAM)	Scientific Assistant
Mantis, Ioannis	(MEK-MTU)	Scientific Assistant
Markussen, Wiebke Brix	(MEK-TES)	Associate Professor
Markvorsen, Steen	(COMPUTE)	Professor, dr. techn., PhD
Marti, Ignacio	(WIND)	Head of Section
Matte, Oliver	(MATH, AAU)	Associate Professor
Mazuryn, Maksim	(COMPUTE)	PhD student
McAloone, Tim C.	(MEK-K&P)	Professor MSO
Meesenburg, Wiebke	(MEK-TES)	Postdoc
Mendonca, Heloisa Guedes	(WIND)	PhD student
Merali, Mehdi	(MEK-MPP)	Senior Researcher
Meyer, Knud Erik	(MEK-FVM)	Associate Professor, PhD
Mikkelsen, Henrik	(MEK-FVM)	PhD student
Mikkelsen, Lars Pilgaard	(WIND)	Associate Professor
Mikkelsen, Robert Flemming	(WIND)	Senior Researcher
Mishin, Oleg V.	(MEK-MTU)	Senior Researcher
Mishnaevsky, Leon	(WIND)	Senior Scientist, Dr.-ing.habil
Mittendorf, Malte	(MEK-FVM)	PhD student
Moalemi, Arefhossein	(WIND)	PhD student
Moghaddam, Alireza Daman Pak	(SDU-ME)	Assistant Professor
Mohanty, Sankhya	(MEK-MPP)	Researcher
Mollah, Md. Tusher	(MEK-MPP)	PhD student
Mortensen, Niels Henrik	(MEK-K&P)	Professor, Head of Section
Mortensen, Ulrich Andreas	(WIND)	Postdoc
Mounet, Raphaël Emile Gilberg	(MEK-FVM)	PhD student
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Nielsen, Frank	(MEK-MTU)	Postdoc
Nielsen, Jannie Sønderkær	(BUILD, AAU)	Associate Professor
Nielsen, Jens Henrik	(CIVIL)	Assistant Professor
Nielsen, Kim Lau	(MEK-FAM)	Associate Professor
Nielsen, Leif Otto	(CIVIL)	Associate Prof. Emeritus
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Nielsen, Ole	(WIND)	PhD student
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