

# **DANISH CENTER FOR APPLIED MATHEMATICS AND MECHANICS**

**ANNUAL REPORT  
2010**



**TECHNICAL UNIVERSITY OF DENMARK  
and AALBORG UNIVERSITY**

**D A N I S H   C E N T E R   F O R  
A P P L I E D   M A T H E M A T I C S   A N D   M E C H A N I C S**

**Scientific Council**

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Erik Lund	Department of Mechanical Engineering, AAU
Lars Pilgaard Mikkelsen	Risø DTU, National Laboratory for Sustainable Energy
Søren R.K. Nielsen	Department of Civil Engineering, AAU
Niordson, Christian	Dept. of Mechanical Engineering, DTU (from 1.1.11)
Niels Olhoff	Department of Mechanical Engineering, AAU (until 31.12.10)
Pauli Pedersen	Dept. of Mechanical Eng., Solid Mechanics, DTU
Ole Sigmund	Dept. of Mechanical Eng., Solid Mechanics, DTU (until 31.12.10)
Jens Nørkær Sørensen	Dept. of Mechanical Eng., Fluid Mechanics, DTU

**Chairman**

Ole Sigmund, Professor, dr. techn.

Christian Niordson, Associate Professor (from 1 January 2011) – [cn@mek.dtu.dk](mailto:cn@mek.dtu.dk)

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## FOREWORD

This 2010 annual report contains information on publications, seminars and guests. The report mainly serves as a reference and documentation for accomplished activities. Detailed information is available on our homepage: [www.dcamm.dk](http://www.dcamm.dk) and on the homepages of the cooperating departments.

As decided last year, the DCAMM report series has been discontinued, and the last three DCAMM reports have been published on our webpage this year. The reports have no doubt had a great influence on DCAMM's research in the past, but the internet and rapid publication possibilities elsewhere have declined their importance.

The DCAMM Research School receives funding from Forskeruddannelsesudvalget (FUU) under the Ministry of Science, Technology and Innovation, for course activities and scholarship programmes for visiting students and postdocs. The school organized or co-organized 12 special, intensive courses in 2010, in addition to the standard courses at DTU and AAU. The courses attracted around 300 participants, and of these approximately 80 were from abroad. The school thus continues to maintain its strong international profile. Details on the activities of the school and on 2011-courses are available on the DCAMM website. The funding from FUU will stop in August 2011. In the future, DCAMM's Research School will form the basis for the research education activities at DTU Mathematics and DTU Mechanical Engineering. Hence the activities are expected to be continued or even strengthened under the new chairmanship.

As of January 1<sup>st</sup>, 2011 Christian F. Niordson has taken over the chairmanship of DCAMM .

As of 1 January 2011, the departments cooperating in DCAMM are:

from the **Technical University of Denmark:**

IMM: Dept. of Informatics and Mathematical Modelling

MAT: Dept. of Mathematics

MEK: Dept. of Mechanical Engineering

(Solid Mechanics, Fluid Mechanics, Manufacturing Engineering, Materials and Surface Engineering, Maritime Engineering, Thermal Energy Systems)

Risø DTU: National Laboratory of Sustainable Energy

from **Aalborg University:**

CIVIL: Department of Civil Engineering

M-TECH: Department of Mechanical and Manufacturing Engineering

I thank our international contacts for their support and inspiration.

Ole Sigmund

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## 1. MEMBERS 2010

42 professors  
123 scientific members      at the six cooperating departments at the Center  
118 Ph.D.-students

27 elected members  
9 foreign members

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

## 2. FOREIGN MEMBERS

Professor Hassan Aref  
Department of Engineering Science & Mechanics  
Virginia Polytechnic Institute and State University  
Norris Hall 320  
Blacksburg, VA 24061  
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Professor G.I. Barenblatt  
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Division of Applied Sciences  
Harvard University, 315 Pierce Hall  
29 Oxford St.  
Cambridge, MA 02138  
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Professor Joseph B. Keller  
Department of Mathematics and Mechanical Engineering  
Stanford University, Stanford, California  
USA

Professor Michael S. Longuet-Higgins  
Department of Applied Mathematics and Theoretical Physics  
University of Cambridge  
UK

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

Professor Alan Needleman  
Department of Materials Science & Engng.  
University of North Texas  
1155 Union Circle  
305310 Denton, TX 76203-5017  
USA

Professor S. Nemat-Nasser  
The UCSD Jacobs School of Engineering  
Center of Excellence for Advanced Materials  
4209 Engineering Building I  
9500 Gilman Drive  
La Jolla, CA 92093  
USA

Professor Bertil Storåkers  
Kungliga Tekniska Högskolan  
S-100 44 Stockholm 9500  
Sweden

### 3. GUESTS FOR EXTENDED PERIODS IN 2010 (more than a fortnight)

#### **Guest professors & post docs:**

Aldred, R.E.L., University of Otago, Dunedin, New Zealand, 4.10.10 – 27.11.10

Chandra, Abhijit, Iowa State University, Ames, USA, 30.4.10 – 28.5.10

Gaididei, Yuri B., Bogolyubov Institute of Theoretical Physics, Kiev, Ukraine, 25.5.10 – 25.6.10

Genta, Gianfranco, Politecnico di Torino, Italy, 31.8.10 – 15.9.10

Ghorpade, Sudhir Ramakant, Indian Institute of Science, 26.4.10 – 17.7.10

Hubert, Cedric, Univ. of Valenciennes et Hainaut Cambresis, France, Oct. – Dec. 2010

Iakolov, Serguei, Dalhousie University, Halifax, Canada, 20.4.10 – 31.8.10

Jaskula, Marian, Jagiellonian University – 5 months from 2010 - 2011

Jündgen, André, California State University San Marcos, 3.5.10 – 30.6.10

Kircave, Ozgur, Istanbul Technical University, Turkey, 1.4.09 – 1.4.10

Schevenelt, Mattias, K.U. Leuven, Belgium, 2.8.10 – 30.10.10

Sherry, Machael, Monash University, Australia, 1.10.10 – 30.11.10

Tetsuo, Aida, Toyama University, Japan, January – March 2010

Wadman, Boel, SWERFA – IVF, Gothenburg, Sweden – 1 month 2010

#### **Ph.D. students**

Bagheri, Nasour, 6.8.10 – 2.10.10

Bela, Szilvia, Johannes Kepler Universität, Austria, 6.4.10 – 2.6.10

Byeongseon, Jeong, KAIST, Republic of Korea, 28.5. – 1.7.10

Cheng, Jiangtao, ChongQing University, China, 1.9.09 – 31.8.10

Farcaș, Ramona Păcurar, DME Technical University of Cluj-Napoca, 31.8.10 – 20.12.10

Jang, Sumi, KAIST, Republic of Korea, 28.5. – 1.7.10

Junge, Steffen, Norweg. Univ. of Science and Technology, Norway, 1.2.10 - 30.6.10

Kook, Junghwan, Gwangju Institute of Science & Techn., Korea, 20.11.09 – 20.5.10

Qiang, Xiaoping, Illinois Institute of Technology, Chicago, USA, 20.8.10 – 20.12.10

Wang, Ming Qing, Beijing University, China, 10.09.09 – 10.03.10

Xiao, Xiangchung, Xiamen University, China, 1.1.10-26.4.10



## 4 . PUBLICATIONS IN 2010

### 4A. INTERNATIONAL JOURNALS WITH PEER REVIEW

Aage, Niels; Mortensen, Asger; Sigmund, Ole.

Topology optimization of metallic devices for microwave applications. *International Journal for Numerical Methods in Engineering*, (2010), 83(2), 228-248.

Ali, Syed Talat; Lebæk, Jesper; Nielsen, Lars Pleth; Mathiasen, Claus; Møller, Per; Kær, S.K.

Thin film thermocouples for in situ membrane electrode assembly temperature measurements in a polybenzimidazole-based high temperature proton exchange membrane unit cell. *Journal of Power Sources*, (2010), 195(15), 4835-4841.

Lebæk, Jesper; Ali, Syed Talat; Møller, Per; Mathiasen, Claus; Nielsen, Lars Pleth; Kær, Søren Knudsen.

Quantification of in situ temperature measurements on a PBI-based high temperature PEMFC unit cell. *International Journal of Hydrogen Energy*, (2010), 35(18), 9943-9953.

Amir, Oded; Stolpe, Mathias; Sigmund, Ole

Efficient use of iterative solvers in nested topology optimization. *Structural and Multidisciplinary Optimization*, vol.: 42(1), pp. 55-72 (2010). Springer.

Andersen, Lars: Assessment of Lumped-Parameter Models for Rigid Footings. *Computers & Structures*. (2010), 88(23-24). 1333-1347.

Andersen, M.S.; Damsgaard, M.; Mac-Williams, B.; Ramussen, J.

A computationally efficient optimisation-based method for parameter identification of kinematically determinate and over-determinate biomechanical systems. *Computer Methods in Biomechanics and Biomedical Engineering*, (2010) 13, 2, s. 171-183.

Andersen, M.S.; Benoit, D.; Damsgaard, M.; Ramsey, D.K.; Rasmussen, J.

Do kinematic models reduce the effects of soft tissue artefacts in skin marker-based motion analysis? An in vivo study of knee kinematics. *Journal of Biomechanics*. (2010) 43, 2, s. 258-273.

Saraswat, P.; Andersen, M.S.; MacWilliams, B.A.

A musculoskeletal foot model for clinical gait analysis. *Journal of Biomechanics* (2010) 43, 9.s., 1645-1652.

Andersen, Søren; Andersen, Lars. Analysis of Spatial Interpolation in the Material-Point Method. *Computers & Structures*. 2010, 88(7-8). 506-518.

Andkjær, Jacob Anders; Sigmund, Ole; Nishiwaki, Shinji; Nomura, Tsuyoshi.

Topology optimization of grating couplers for the efficient excitation of surface plasmons. *Optical Society of America. Journal B: Optical Physics*, (2010), 27(9), 1828-1832.

Bai, S.

Optimum Design of spherical Parallel manipulators for a Prescribed Workspace. Mechanism and machine Theory. (2010) 45, 2.

Bang-Møller, Christian; Rokni, Masoud.

Thermodynamic Performance Study of Biomass Gasification, Solid Oxide Fuel Cell and Micro Gas Turbine Hybrid Systems. Energy Conversion and Management, (2010), 51, 2330-2339.

Bay, Niels; Azushima, A.; Groche, P.; Ishibashi, I.; Merklein, M.; Morishita, H.; Nakamura, T.; Schmid, S.; Yoshida, M..

Environmentally Benign Tribo-systems for Metal Forming: Keynote paper. C I R P Annals, (2010), .59(2), 760-780.

Berglund, J.; Brown, C.A.; Rosén, B.-G.; Bay, Niels.

Milled Die Steel Surface Roughness Correlation with Steel Sheet Friction. C I R P Annals, (2010), 59(1), 577-580.

Nilsson, Morten Sixten; Olsson, David Dam; Petrushina, Irina; Andreasen, Jan L.; Bay, Niels; Christensen, Erik; Bjerrum, Niels.

Strategic surface topographies for enhanced lubrication in sheet forming of stainless steel. International Journal of Surface Science and Engineering, (2010), 4(1), 68-79.

Olsson, David Dam; Bay, Niels; Andreasen, Jan L..

A quantitative lubricant test for deep drawing. International Journal of Surface Science and Engineering, (2010), 4(1), 2-12.

Shimizu, Ichiro; Martins, P. A. F.; Bay, Niels; Andresen, Jan Lassen; Bech, Jakob Ilsted.

Influences of lubricant pocket geometry and working conditions upon micro lubrication mechanisms in upsetting and strip drawing. International Journal of Surface Science and Engineering, (2010), 4(1), 42-54.

Skjødt, Martin; Silva, M.B.; Martins, P. A. F.; Bay, Niels.

Strategies and limits in multi-stage single-point incremental forming. Journal of Strain Analysis for Engineering Design, (2010), 45(1), 33-44.

Beelen, Peter; Brander, Kristian

Efficient list decoding of a class of algebraic-geometry codes. Advances in Mathematics of Communication, vol.: 4(4), pp. 485-518 (2010). American Institute of Mathematical Sciences.

Beelen, Peter; Brander, Kristian

Key-equations for list decoding of Reed-Solomon codes and how to solve them. Journal of Symbolic Computation, vol.: 45(7), pp. 773-786 (2010). Academic Press.

Beelen, Peter; Bassa, Alp

The Hassa-Witt invariant in some towers of function fields over finite fields. *Sociedade Brasileira de Matematica. Boletim, Nova Serie*, vol.: 41(4), pp. 567-582 (2010). Springer.

Berggreen, Christian; Carlsson, Leif A..

A Modified TSD Specimen for Fracture Toughness Characterization – Fracture Mechanics Analysis and Design. *Journal of Composite Materials*, (2010), .44(15), 1893-1912.

Lundsgaard-Larsen, Christian; Berggreen, Christian; Carlsson, Leif A..

Tailoring Sandwich Face/Core Interfaces for Improved Damage Tolerance: Part I: Finite Element Analysis. *Applied Composite Materials: An International Journal for the Science and Application of Composite Materials*, (2010), 17(6), 609-619.

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Ducrozet, Guillaume; Bingham, Harry B.; Engsig-Karup, Allan Peter; Ferrant, Pierre.

High-order finite difference solution for 3D nonlinear wave-structure interaction. *Journal of Hydrodynamics*, (2010), 22(5), 225-230.

Molin, Bernard; Kimmoun, O.; Liu, Y.; Remy, F.; Bingham, Harry B. Experimental and numerical study of the wave run-up along a vertical plate. *Journal of Fluid Mechanics*, (2010), 654, 363-386.

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Towards the effective tool wear control in micro-EDM milling. *International Journal of Advanced Manufacturing Technology*, (2010), 47(1-4), 3-9.

Blasques, José Pedro Albergaria Amaral; Berggreen, Christian; Andersen, Poul.

Hydro-elastic analysis and optimization of a composite marine propeller. *Marine Structures*, (2010), 23(1), 22-38.

Brander, David

Singularities of spacelike constant mean curvature surfaces in Lorentz-Minkowski space. *Mathematical Proceedings of the Cambridge Philosophical Society* (2010).

Brander, David; Dorfmeister, Josef

The Björling problem for non-minimal constant mean curvature surfaces. *Communications in Analysis and Geometry* (2010).

Brander, David; Rossman, Wayne; Schmitt, Nicholas

Holomorphic representation of constant mean curvature surfaces in Minkowski space: Consequences of non-compactness in loop group methods. *Advances in Mathematics*, vol.: 223(3), pp. 949-986 (2010). Academic Press.

Bredmose, Henrik; Hunt-Raby, A.; Jayaratne, R.; Bullock, G. N..  
The ideal flip-through impact: experimental and numerical investigation. *Journal of Engineering Mathematics*, (2010), 67(1-2), 115-136.

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Hoang, L C.; Braestrup, M W:  
Discussion of K-H Yang, H-S Chung & A F Ashour: Influence of Section Depth on the Structural Behaviour of Reinforced Concrete Continuous Deep Beams  
*Magazine of Concrete Research*, Vol 62, No 3, March 2010, pp 229 - 230

Brøns, Morten; Kaasen, Rune  
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Brøns, Morten; Bisgaard, Anders Villefrance  
Topology of vortex creation in the cylinder wake. *Theoretical and Computational Fluid Dynamics*, vol.: 24(1-4), pp. 299-303 (2010). Springer.

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Bifurcation analysis in a vortex flow generated by an oscillatory magnetic obstacle. *Physical Review E (Statistical, Nonlinear, and Soft Matter Physics)*, vol.: 81(3), Article no. 036309 (2010). American Physical Society.

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An Enhanced Asymptotic Expansion for the Stability of Nonlinear Elastic Structures. *Journal of Mechanics of Materials and Structures*. 2010, 5(6). 925–961.

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Gabor windows supported on [-1,1] and compactly supported dual windows. *Applied and Computational Harmonic Analysis*, vol.: 28(1), pp. 89-103 (2010). Academic Press.

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On Dual Gabor Frame Pairs Generated by Polynomials. *Journal of Fourier Analysis and Applications*, vol.: 16(1), pp. 1-16 (2010). Birkhaeuser Boston.

Christensen, Ole; Goh, Say Song  
Pairs of oblique duals in spaces of periodic functions. *Advances in Computational Mathematics*, vol.: 32(3), pp. 353-379 (2010). Springer New York LLC.

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Expanded austenite, crystallography and residual stress. Presented at: International Conference on Surface Modification Technologies. Trollhattan, SWEDEN, 2008. *Surface Engineering*, (2010), 26(4), 242-247.

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Expanite - en ny proces til at opnå slidbestandige rustfrie ståloverflader. Medicinsk Teknologi og Informatik, (2010), 3(7), 7-9.

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Low temperature gaseous nitriding of Ni based superalloys. Presented at: International Conference on Surface Modification Technologies. Trollhattan, SWEDEN, 2008. Surface Engineering, (2010), 26(4), 248-255.

Oddershede, Jette; Christiansen, Thomas; Ståhl, Kenny; Somers, Marcel A. J..  
Extended X-ray absorption fine structure investigation of nitrogen stabilized expanded austenite. Scripta Materialia, (2010), 62(5), 290-293.

Clausen, Lasse Røngaard; Houbak, N.; Elmegaard, Brian.  
Technoeconomic analysis of a methanol plant based on gasification of biomass and electrolysis of water. Energy, (2010), 35(5), 2338-2347.

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Technoeconomic analysis of a low CO<sub>2</sub> emission dimethyl ether (DME) plant based on gasification of torrefied biomass. Energy, (2010), 35(12), 4831-4842.

Lindemann, J.; Sandberg, G.; Damkilde, Lars.  
Finite-Element Software for Conceptual Design. Institution of Civil Engineers. Proceedings. Engineering and Computational Mechanics. 2010, 163(1). 15-22.

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Conversion of MX nitrides to Z-phase in a martensitic 12% Cr steel. Acta Materialia, (2010), 58(2), 669-679.

Cipolla, L.; Danielsen, Hilmar Kjartansson; Di Nunzio, P.E.; Venditti, D.; Hald, John; Somers, Marcel A. J..  
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Hansson, Anette Nørgaard; Danielsen, Hilmar Kjartansson; Grumsen, Flemming Bjerg; Montgomery, Melanie.  
Microstructural investigation of the oxide formed on TP 347H FG during long-term steam oxidation. Materials and Corrosion, (2010), 61(8), 665-675

Marinello, F.; Voltan, A.; Savio, E.; Carmignato, S.; De Chiffre, Leonardo.  
Error sources in atomic force microscopy for dimensional measurements: Taxonomy and modeling. Journal of Manufacturing Science and Engineering, (2010), 132(3), 0309031-0309038.

Dühring, Maria Bayard; Sigmund, Ole; Feurer, Thomas.

Design of photonic bandgap fibers by topology optimization. Optical Society of America. Journal B: Optical Physics, (2010), 27(1), 51-58.

Jensen, Jesper Buch; Engelbrecht, Kurt; Bahl, Christian Robert Haffenden; Pryds, Nini; Nellis, Gregory F.; Klein, Sanford A.; Elmegaard, Brian.

Modeling of parallel-plate regenerators with non-uniform plate distributions . International Journal of Heat and Mass Transfer, (2010), 53(23-24), 5065-5072.

Enz, Stephanie.

Effect of asymmetric actuator and detector position on Coriolis flowmeter and measured phase shift. Flow Measurement and Instrumentation (2010).

Eriksen, Rasmus Solmer; Weidel, S.; Hansen, Hans Nørgaard.

Tribological influence of tool surface roughness within microforming. International Journal of Material Forming, (2010), 3(SUPPL. 1), 419-422.

Byrne, Cormac; Eldrup, Morten Mostgaard; Ohnuma, Masato; Eriksen, Rasmus Solmer.

Free standing bulk metallic glass microcomponents: Tooling considerations. Journal of Materials Processing Technology, (2010), 210(11), 1419-1428.

Kreissl, Sebastian; Pinggen, Georg; Evgrafov, Anton; Maute, Kurt

Topology optimization of flexible micro-fluidic devices. Structural and Multidisciplinary Optimization, vol.: 42(4), pp. 495-516 (2010). Springer.

Pinggen, Georg; Waidmann, Matthias; Evgrafov, Anton; Maute, Kurt

A parametric level-set approach for topology optimization of flow domains. Structural and Multidisciplinary Optimization, vol.: 41(1), pp. 117-131 (2010). Springer.

Goutianos, S.; Frandsen, H.L.; Sørensen, B.F.

Fracture properties of nickel-based anodes for solid oxide fuel cells. J. Euro. Ceram. Soc., Vol. 30, pp. 3173-9. (2010).

Pedersen, Lars; Frier, Christian.

Sensitivity of Footbridge Vibrations to Stochastic Walking Parameters. Journal of Sound and Vibration. 2010, 329(13). 2683-2701 .

De Backer, Griet; Vantorre, Marc; Frigaard, Peter; Beels, Charlotte; De Rouck, Julien  
Bottom Slamming on Heaving Point Absorber Wave Energy Devices. Journal of Marine Science and Technology. 2010, 15(2). 119-130.

De Backer, G.; Vantore, M.; Beels, C.; De Rouck, J.; Frigaard, Peter.

Power Absorption by Closely Spaced Point Absorbers in Constrained Conditions. I E T Renewable Power Generation. 2010, 4(6). 579-591.

Hartvig, Peres Akrawi A.; Thomsen, Jess Mccann M.; Frigaard, Peter; Andersen, Thomas Lykke L.

Experimental Study of the Development of Scour and Backfilling Coastal Engineering Journal. 2010, 52(2). 157-194.

Fuhrman, David R.; Dixen, Martin; Jacobsen, Niels Gjørl.

Physically-consistent wall boundary conditions for the k- $\omega$  turbulence model. Journal of Hydraulic Research, (2010), 48(6), 793-800.

Gauravaram, Praveen; Kelsey, John; Knudsen, Lars Ramkilde; Thomsen, Søren Steffen

On hash functions using checksums. International Journal of Information Security, vol.: 9(2), pp. 137-151 (2010). Springer.

Willatzen, M.; Gravesen, Jens; Voon, L. C. Lew Yan

Analytic theory of curvature effects for wave problems with general boundary conditions. Physical Review A (Atomic, Molecular and Optical Physics), vol.: 81(6), Article no. 060102 (2010). American Physical Society.

Willatzen, M.; Gravesen, Jens

Electron conductance in curved quantum structures. Superlattices and Microstructures, vol.: 47(1), pp. 202-206 (2010). Academic Press.

Bagheri, Nasour; Gauravaram, Praveen; Naderi, Majid; Sadeghiyan, Babak

EPC: A Provably Secure Permutation Based Compression Function. I E I C E Transactions on Fundamentals of Electronics, Communications and Computer Sciences, vol.: E93-A(10), pp. 1833-1836 (2010). Denshi Jouhou Tsuushin Gakkai.

Haglund, Fredrik.

Variable geometry gas turbines for improving the part-load performance of marine combined cycles - Gas turbine performance. Energy, (2010), 35(2), 562-570.

Chidambaram, Vivek; Hald, John; Hattel, Jesper Henri.

Development of Au-Ge based candidate alloys as an alternative to high-lead content solders. Journal of Alloys and Compounds, (2010), 490(1-2), 170-179.

Yao, Bing-Yin; Zhou, Rong-Can; Fan, Chang-Xin; Li, Tai-Jiang; Hald, John.

Measuring laves phase particle size and thermodynamic calculating its growth and coarsening behavior in P92 steels. Zhongguo Dianji Gongcheng Xuebao: Proceedings of the Chinese Society of Electrical Engineering, (2010), 30(8), 94-100.

Tabrizian-Ghalehno, Naja; Hansen, Hans Nørgaard; Hansen, P.E.; Ambat, Rajan; Møller, Per.

Influence of annealing and deformation on optical properties of ultra precision diamond turned and anodized 6060 aluminium alloy. Surface and Coatings Technology, (2010), 204(16-17), 2632-2638.

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Quantifying the Impact of Wind Turbine Wakes on Power Output at Offshore Wind Farms. *Journal of Atmospheric and Oceanic Technology*, (2010), 27(8), 1302-1317.

Troldborg, Niels; Larsen, Gunner Chr.; Aagaard Madsen, Helge; Hansen, Kurt Schaldemose; Sørensen, Jens Nørkær; Mikkelsen, Robert Flemming.

Numerical simulations of wake interaction between two turbines at various inflow conditions. *Wind Energy*. (2010).

Chidambaram, Vivek; Hattel, Jesper Henri; Hald, John.

Design of lead-free candidate alloys for high-temperature soldering based on the Au-Sn system. *Materials & Design*, (2010), 31(10), 4638-4645.

Haugaard, Asger M.; Santos, Ilmar.

Stability of multi orifice active tilting-pad journal bearings. *Tribology International*, (2010), 43(9), 1742-1750.

Haugaard, Martin Asger; Santos, Ilmar.

Multi-orifice active tilting-pad journal bearings—Harnessing of synergetic coupling effects. *Tribology International*, (2010), 43, 1374-1391.

Haugaard, Martin Asger; Santos, Ilmar.

Elastohydrodynamics Applied to Active Tilting-Pad Journal Bearings. *Journal of Tribology*, (2010), 132(2), 1-10.

Hummelshøj, Thomas Strabo; Christiansen, Thomas; Somers, Marcel A. J.

Lattice expansion of carbon-stabilized expanded austenite. *Scripta Materialia*, (2010), 63(7), 761-763.

Høgsberg, Jan Becker.

The role of negative stiffness in semi-active control. *Structural Control and Health Monitoring*. (2010).

Weber, Felix; Høgsberg, Jan Becker; Krenk, Steen.

Optimal Tuning of Amplitude Proportional Coulomb Friction Damper for Maximum Cable Damping. *Journal of Structural Engineering*, (2010), 136(2), 123-134.

Høholdt, Tom; Beelen, Peter; Ghorpade, Sudhir Ramakant

Affine Grassmann codes. *IEEE Transactions on Information Theory*, vol.: 56(7), pp. 3166-3176 (2010). IEEE.

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## **8. DCAMM SEMINARS GIVEN IN 2010**

Professor M.D. Thouless: Some applications and mechanics for the cracking stiff films supported on compliant substrates. 13 July 2010. Department of Mechanical Engineering, University of Michigan, Ann Arbor, USA

Professor Jean-Baptiste Leblond: In-Plane Coalescence of Cracks. 24 February 2010. Institut Jean Le Rond d'Alembert, Université Pierre et Marie Curie (Paris VI) Paris, France

**APPENDIX: List of members 2010**

## Abbreviations:

from Technical University of Denmark

IMM:	Dept. of Informatics and Mathematical Modelling
MAT:	Dept. of Mathematics
MEK-FAM:	Dept. of Mechanical Engineering, Solid Mechanics
MEK-FM:	Dept. of Mechanical Engineering, Fluid Mechanics
MEK-MPP:	Dept. of Mechanical Engineering, Manufacturing Engineering
MEK-MTU:	Dept. of Mechanical Engineering, Materials Science and Engineering
MEK-SKK:	Dept. of Mechanical Engineering, Maritime Engineering
MEK-TES:	Dept. of Mechanical Engineering, Thermal Energy Systems
RISØ:	National Laboratory of Sustainable Energy

from Aalborg University

CIVIL, AAU:	Department of Civil Engineering
M-TECH, AAU:	Department of Mechanical and Manufacturing Engineering

Aage, Niels	(MEK-FAM)	PhD student
Abdelrahemm, Mohammed A.	(MAT)	PhD student
Ali, Syed Talat	(MEK-MTU)	PhD student
Alimadadi, Hossein	(MEK-MTU)	PhD student
Ambat, Rajan	(MEK-MTU)	Associate Professor
Amir, Oded	(MAT)	PhD student
Andersen, Lars	(CIVIL, AAU)	Associate Professor, PhD
Andersen, Michael Skipper	(M-TECH-AAU)	PhD student
Andersen, Morten	(MAT)	PhD student
Andersen, Poul	(MEK-SKK)	Associate Professor
Andersen, Søren Bøgh	(MEK-FAM)	PhD student
Andersen, Søren Mikkil	(CIVIL, AAU)	PhD student
Andkjær, Jacob Anders	(MEK-FAM)	PhD student
Andreasen, Casper Schousboe	(MEK-FAM)	PhD student
Andreasen, Jens H.	(M-TECH, AAU)	Associate Professor
Angel, Jais Andreas Breusch	(MEK-MPP)	PhD student
Azizi, Reza	(MEK-FAM)	PhD student
Back-Pedersen, Andreas		Elected member, PhD.
Bai, Shaoping	(M-TECH, AAU)	Assistant Professor
Bang-Møller, Christian	(MEK-TES)	PhD student
Bay, Niels	(MEK-MPP)	Professor
Beelen, Peter	(MAT)	Associate Professor
Bendsøe, Martin		Elected member, Professor
Berggreen, Christian	(MEK-SKK)	Associate Professor
Bhowmik, Subrata	(MEK-SKK)	PhD student
Bihlet, Uffe	(MEK-MTU)	PhD student
Bingham, Harry B.	(MEK-SKK)	Associate Professor
Bisacco, Giuliano	(MEK-MPP)	Assistant Professor, PhD
Blasques, José Pedro A. A.	(MEK-SKK)	PhD student
Bohr, Tomas		Elected member, Professor
Borbye, Jakob	(MEK-FM)	PhD student
Borghoff, Julia	(MAT)	PhD student
Bræstrup, M. W.		Elected member, PhD.

Brander, David	(MAT)	Assistant Professor
Branner, Kim	RISØ	Senior Researcher
Bredmose, Henrik	(MEK-FM)	Assistant Professor
Brix, Wiebke	(MEK-TES)	PhD student
Brohus, Henrik	(CIVIL, AAU)	Associate Professor, ph.d.
Brøndsted, Povl	RISØ	Senior Researcher
Brøns, Morten	(MAT)	Professor, PhD
Buhl, Thomas	RISØ	Senior Researcher
Bureau, Emil	(MEK-FAM)	PhD student
Byskov, Esben	(CIVIL, AAU)	Emeritus Professor, dr.techn.
Calaon, Matteo	(MEK-MPP)	Research Assistant
Cantatore, Angela	(MEK-MPP)	Postdoc
Carli, Lorenzo	(MEK-MPP)	PhD student
Cavar, Dalibor	(MEK-FM)	Assistant Professor
Cederkvist, Jan		Elected member, PhD.
Cerda, Alejandro	(MEK-FAM)	PhD student
Ceron, Emanno	(MEK-MPP)	PhD student
Charca, Samuel	(M-TECH, AAU)	Postdoc
Chougule, Prasad	(CIVIL, AAU)	PhD student
Christensen, Ole	(MAT)	Professor, dr.scient.
Christiansen, Caspar Ask	(MEK-FM)	PhD student
Christiansen, Thomas	(MEK-MTU)	Senior Scientist
Clausen, Johan Christian	(AAU-CIVIL)	Postdoc
Clausen, Lasse Røngaard	(MEK-TES)	PhD student
Dahl, Jonas	(M-TECH, AAU)	PhD student
Dahl, Kristian Vinter	(MEK-MTU)	Postdoc.
Damkilde, Lars	(CIVIL, AAU)	Professor
Dammann, Bernd	(IMM)	Associate Professor
Danielsen, Hilmar	(MEK-MTU)	Postdoc.
Darula, Radoslav	(M-TECH, AAU)	PhD student
De Chiffre, Leonardo	(MEK-MPP)	Professor
De Grave, Arnaud	(MEK-MPP)	Assistant Professor
Dimitrov, Nikolai	(MEK-SKK)	PhD student
Ditlevsen, Ove Dalager	(MEK-SKK)	Emeritus Professor
Dolomanova, Viktoriya	(M-TECH, AAU)	PhD student
Dühring, Maria B.	(MEK-FAM)	Postdoc
Duun, Marie Bro	(MAT)	PhD student
Egelund, Arne Jørgensen	(MEK-TES)	Associate Professor
Elesin, Yuriy	(MEK-FAM)	Postdoc
Elmegaard, Brian	(MEK-TES)	Head of Section, Associate Prof.
Elmegaard, Michael	(MAT)	PhD student
Engsig-Karup, Allan Peter	(IMM)	Assistant Professor
Eriksen, Rasmus Normann W.	(MEK-SKK)	PhD student
Eriksen, Rasmus Solmer	(MEK-MPP)	PhD student
Evgrafov, Anton	(MAT)	Assistant Professor
Farahani, Saeed D.	(M-TECH, AAU)	PhD student
Fedorov, Vladimir	(MEK-SKK)	PhD student
Frandsen, Henrik Lund	RISØ	Researcher
Fredsøe, Jørgen	(MEK-SKK)	Professor
Frier, Christian	(CIVIL, AAU)	Assistant Professor, PhD
Friis, Kasper Storgaard	(MEK-MPP)	Postdoc
Frisvad, Jeppe	(IMM)	Assistant professor
Fuglede, Niels	(MEK-FAM)	PhD student
Fuhrman, David R.	(MEK-SKK)	Assistant Professor
Gasparin, Stefania	(MEK-MPP)	Research Assistant
Gauravaram, Praveen	(MAT)	Postdoc.
Giversen, Søren	(MEK-SKK)	PhD student

Godi, Allesandro	(MEK-MPP)	PhD student
Graeme, Keith		Elected member
Gravesen, Jens	(MAT)	Associate Professor, dr.phil
Gregersen, Mishra Marie	(MAT)	Postdoc
Gunnarsson, Sverrir Grjimir	(MEK-MTU)	PhD student
Gunneskov, Ole		Elected member, PhD.
Haglund, Fredrik	(MEK-TES)	Postdoc.
Haider, Sajjad	(MEK-FM)	PhD student
Hald, John	(MEK-MTU)	Affiliated Professor
Halkjær, Søren		Elected member
Hansen, Hans Nørsgaard	(MEK-MPP)	Professor
Hansen, Kim Rene	(MEK-FM)	PhD student
Hansen, Kurt Schaldemose	(MEK-FM)	Assistant Professor
Hansen, Martin Otto Laver	(MEK-FM)	Assistant Professor
Hansen, Morten Hartvig	RISØ	Senior Researcher
Hansen, Nilas Mandrup	(MEK-SKK)	PhD student
Hansen, Per Chr.	(IMM)	Professor, dr. techn.
Hassing, Henrik		Elected member
Hattel, Jesper Henri	(MEK-MPP)	Professor
Henriksen, Christian	(MAT)	Associate Professor, PhD
Hernández, Gabriel G. M.	(MEK-FM)	PhD student
Hjorth, Poul	(MAT)	Associate Professor, PhD
Høgsberg, Jan Becker	(MEK-SKK)	Associate Professor
Høholdt, Tom	(MAT)	Professor
Horsewell, Andy	(MEK-MTU)	Professor
Hosseinzadeh, Elham	(MEK-TES)	PhD student
Hougaard, Peter		Elected member, PhD.
Hummelshøj, Thomas	(MEK-MTU)	PhD student
Ibsen, Lars Bo	(CIVIL, AAU)	Professor, MSO, PhD
Islam, Mohammad Aminul	(MEK-MPP)	Postdoc.
Ivarsson, Anders	(MEK-FM)	PhD student
Jacobsen, Christian Brix		Elected member, PhD.
Jacobsen, Niels Gjøøl	(MEK-SKK)	PhD student
Jakobsen, Kasper Rønnow	(MEK-MTU)	PhD student
Jariyaboon, Manthana	(MEK-MTU)	Postdoc
Jellesen, Morten Stendahl	(MEK-MTU)	Postdoc
Jensen, Henrik Myhre		Elected member, Professor
Jensen, Jacob Hjelmager	(MEK-SKK)	Associate Professor
Jensen, Jakob S.	(MEK-FAM)	Associate Professor, PhD
Jensen, Jørgen Juncher	(MEK-SKK)	Head of Section, Professor
Jensen, Lars Rosgaard	(M-TECH, AAU)	Associate Professor
Jensen, Louise Søgaard	(MEK-MTU)	PhD student
Jensen, Michael Vincent	(MEK-FM)	PhD student
Jensen, Palle Martin	(MEK-SKK)	PhD student
Jespersen, Klaus Nielsen	(MEK-FAM)	Research Assistant
Jessen, Jannie	(CIVIL, AAU)	PhD student
Johansen, Axel Ohrt	(MEK-TES)	PhD student
Jørgensen, Jakob Heide	(IMM)	PhD student
Jørgensen, John Bagtermp	(IMM)	Assistant Professor
Kallesøe, Bjarne S.	RISØ	Senior Researcher
Kartansdóttir, Cecilia	(MEK-MTU)	PhD student
Kepler, Jørgen Asbøl	(M-TECH, AAU)	Associate Professor
Kimiaefar, Amin	(M-TECH, AAU)	PhD student
Kirca Özgür	(MEK-SKK)	Postdoc
Kirkegaard, Poul Henning	(CIVIL, AAU)	Associate Professor
Klit, Peder	(MEK-FAM)	Professor, PhD
Knudsen, Kim	(MAT)	Associate professor

Knudsen, Lars Ramkilde	(MAT)	Professor
Knudsen, Thomas S.		Elected member, PhD.
Kotas, Petr	(MEK-MPP)	PhD student
Krenk, Steen	(MEK-SKK)	Professor
Kristensen, Anders Schmidt	(CIVIL, AAU)	Associate Professor
Kristensen, Hans O. H.	(MEK-SKK)	Senior Researcher
Kristensen, Sten Esbjørn	(MEK-SKK)	PhD student
Kærgaard, Kasper Hauberg	(MEK-SKK)	PhD student
Lahriri, Said	(MEK-FAM)	PhD student
Larsen, Mikael	(M-TECH, AAU)	Associate professor
Larsen, Poul Scheel	(MEK-FM)	Emeritus Professor
Lazarov, Boyan Stefanov	(MEK-FAM)	Postdoc., PhD
Leander, Gregor	(MAT)	Assistant Professor
Lee, Seunghwan	(MEK-MTU)	Associate Professor
Legarth, Brian N.	(MEK-FAM)	Associate Professor, PhD
Lindberg, Ole	(MEK-SKK)	PhD student
Lindgaard, Esben	(M-TECH, AAU)	Assistant Professor
Lind-Nielsen, Birger		Elected member, PhD.
Lomholt, Trine Colding	(MEK-MTU)	PhD student
Lund, Erik	(M-TECH, AAU)	Professor
Lund, Morten Enemark	(M-TECH, AAU)	PhD student
Ma, Jing	(M-TECH, AAU)	PhD student
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Madsen, Kaj	(IMM)	Professor, dr. techn.
Madsen, Per A.	(MEK-SKK)	Professor
Marhadi, Kun	(MAT)	Postdoc
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Matzen, René	(MEK-FAM)	PhD student
Meyer, Knud Erik	(MEK-FM)	Assistant Professor
Mikkelsen, Lars Pilgaard	RISØ	Senior Researcher
Mikkelsen, Robert Flemming	(MEK-FM)	Assistant Professor
Minzari, Daniel	(MEK-MTU)	PhD student
Mishnaevsky, Leon	RISØ	Senior Resercher, Dr.-Ing.
Møller, Per	(MEK-MTU)	Professor
Montgomery, Melanie	(MEK-MTU)	Associate Professor
Morosi, Stefano	(MEK-FAM)	PhD student
Mortensen, Erling Dam	(MEK-MPP)	Engineer
Mosca, Allesandra	(MEK-MTU)	Postdoc
Moslemian, Ramin	(MEK-SKK)	PhD student
Moumeni, Elham	(MEK-MPP)	PhD student
Mouritsen, Ole Ø.	(M-TECH, AAU)	Associate Professor
Müller, Pavel	(MEK-MPP)	PhD student
Néstor, Ramos García	(MEK-FM)	PhD student
Nezhentseva, Anastasia	(CIVIL, AAU)	PhD student
Nguyen, Dang Manh	(MAT)	PhD student
Nielsen, Anders Vedel	(MEK-SKK)	PhD student
Nielsen, Claus Suldrup	(MEK-FM)	Research Assistant
Nielsen, H. Bruun	(IMM)	Associate Professor, PhD
Nielsen, Jan Balle		Elected member, PhD.
Nielsen, Johan S. Rosenkilde	(MAT)	PhD student
Nielsen, Kasper Kirstein	(MEK-MPP)	PhD student
Nielsen, Kim Lau	(MEK-FAM)	PhD student
Nielsen, Leif Otto		Elected member, Associate Prof.
Nielsen, Martin Bjerre	(MEK-SKK)	Research Assistant
Nielsen, Michael Wenani	(MEK-MPP)	PhD student
Nielsen, Niels-Jørgen Rishøj		Elected member, PhD.
Nielsen, Peter Nørtoft	(MAT)	PhD student

Nielsen, Søren R.K.	(CIVIL, AAU)	Professor, dr.techn.
Nielsen, Ulrik Dam	(MEK-SKK)	Assistant Professor
Niordson, Christian	(MEK-FAM)	Associate Professor, PhD
Niu, Bin	(M-TECH, AAU)	Postdoc
Nwaogu, Ugochukwu Chivuzoh	(MEK-MPP)	PhD student
Obeidat, Anas	(MEK-FM)	PhD student
Okulov, Valery	(MEK-FM)	Professor
Olesen, Christian Gammelgaard	(M-TECH, AAU)	PhD student
Olhoff, Niels	(M-TECH, AAU)	Professor
Oshkovr, Simin A.	(M-TECH, AAU)	PhD student
Ottosen, Niels Saabye		Elected member, Professor
Paletti, Hara Naga K. T.	(M-TECH, AAU)	PhD student
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Pedersen, Benjamin Pjedsted	(MEK-SKK)	PhD student
Pedersen, David Bue	(MEK-MPP)	PhD student
Pedersen, Johan Rønby	(MAT)	PhD student
Pedersen, Louis	(MAT)	PhD student
Pedersen, Michael	(MAT)	Professor
Pedersen, Niels L.	(MEK-FAM)	Associate Professor, dr.techn.
Pedersen, Pauli	(MEK-FAM)	Emeritus Professor, dr.techn., HD
Pedersen, Preben Terndrup	(MEK-SKK)	Professor, PhD
Pedersen, Thomas Ørts		Elected member, PhD.
Pedersen, Troels Dyhr	(MEK-FM)	PhD student
Perram, John W.		Elected member, Professor
Perunovic, Jelena Vidic	(MEK-SKK)	PhD student
Petersen, Thomas		Elected member, PhD
Pillai, Saju	(M-TECH, AAU)	Postdoc
Poulios, Konstantinos	(MEK-FAM)	PhD student
Pyrz, Ryszard	(M-TECH, AAU)	Professor
Quispitupa, Amilcar	(MEK-SKK)	Postdoc.
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Ramachandran, Gireesh K.V. R.	(MEK-FM)	PhD student
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Rasmussen, Johannes Tophøj	(MEK-FM)	PhD student
Rasmussen, John	(M-TECH, AAU)	Professor
Rathinavelu, Umadevi	(MEK-MTU)	PhD student
Rauhe, Jens Christian M	(M-TECH, AAU)	Associate Professor
Ravn-Jensen, Kim		Elected members, PhD.
Read, Robert	(MEK-SKK)	Postdoc
Richelsen, Ann Bettina	(MEK-FAM)	Professor, PhD
Røgen, Peter	(MAT)	Associate Professor
Rokni, Masoud	(MEK-TES)	Associate Professor
Rootzén, Helle	(IMM)	Professor, Head of Department
Rosbjerg, Dan		Elected members, Professor
Sanderhoff, Peter	(MEK-MPP)	Laboratory Engineer
Santos, Ilmar F.	(MEK-FAM)	Associate Professor, Dr.-Ing.
Sarhadi, Ali	(MEK-MPP)	PhD student
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Schjødt-Thomsen, Jan	(M-TECH, AAU)	Associate Professor
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Schramm, Jesper	(MEK-FM)	Assistant Professor
Seng, Sopheak	(MEK-SKK)	PhD student
Shen, Wen Zhong	(MEK-FM)	Assistant Professor
Shin, Keun Woo	(MEK-SKK)	PhD student
Sichani, Mahdi Teimouri	(CIVIL, AAU)	PhD student
Sigmund, Ole	(MEK-FAM)	Professor, dr.techn.
Sivebæk, Ion Marius	(MEK-MPP)	Assistant professor

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Sørensen, John Dalsgaard	(CIVIL, AAU)	Professor MSO, ph.d.
Sørensen, Mads Peter	(MAT)	Associate Professor
Sørensen, Niels Jakob		Elected member, PhD
Sørensen, Søren Nørgaard	(M-TECH, AAU)	PhD student
Sorokin, Sergey	(M-TECH, AAU)	Professor, PhD
Soyama, Juliano	(MEK-MTU)	PhD student
Spangenberg, Jon	(MEK-MPP)	PhD student
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Starke, Jens	(MAT)	Associate Professor
Sterndorff, Martin J.		Elected member, PhD.
Stolpe, Mathias	(MAT)	Associate Professor
Sumer, B. Mutlu	(MEK-SKK)	Professor
Svendsen, Martin Nymann	(MEK-SKK)	PhD student
Svensson, Eilif		Elected member, Manager
Søe-Knudsen, Alf	(M-TECH, AAU)	PhD student
Taher, Siavash Talebi	(M-TECH, AAU)	PhD student
Thoft-Christensen, Palle	(CIVIL, AAU)	Emeritus Professor, ph.d.
Thomassen, Carsten	(MAT)	Professor
Thomsen, Jon Juel	(MEK-FAM)	Associate Professor, dr.techn.
Thomsen, Kim	(MEK-FAM)	PhD student
Thomsen, Ole Thybo	(M-TECH, AAU)	Professor
Thomsen, P. Grove	(IMM)	Emeritus Professor
Thomsen, Søren Steffen	(MAT)	PhD student
Thorborg, Jesper	(MEK-MPP)	Assistant Professor
Tiedje, Niels Skat	(MEK-MPP)	Associate Professor
Toft, Henrik Stensgaard	(CIVIL, AAU)	PhD student
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Velte, Clara Marika	(MEK-FM)	PhD student
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Villa, Matteo	(MEK-MTU)	PhD student
Vinther, Frank	(MAT)	PhD student
Völcker, Carsten	(IMM)	PhD student
Walther, Jens Honore	(MEK-FM)	Associate Professor
Wang, Fengwen	(MEK-FAM)	PhD student
Wu, Guanglei	(M-TECH, AAU)	PhD student
Yu, Kajjia	(MEK-MPP)	PhD student
Zafar, Ashar	(M-TECH, AAU)	PhD student
Zambrano, Harvey A	(MEK-FM)	PhD student
Zenner, Erik	(MAT)	Assistant Professor
Zermeno, Victor Manuel R.	(MAT)	PhD student
Zhang, Lai	(MAT)	PhD student
Zhang, Yang	(MEK-MPP)	PhD student
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Zhu, Wei Jun	(MEK-FM)	Postdoc.
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