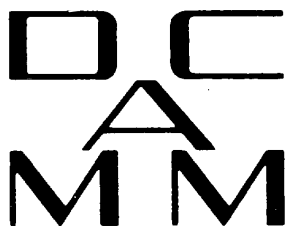


# **DANISH CENTER FOR APPLIED MATHEMATICS AND MECHANICS**

**ANNUAL REPORT  
2007**



**TECHNICAL UNIVERSITY OF DENMARK  
and AALBORG UNIVERSITY**

# DANISH CENTER FOR APPLIED MATHEMATICS AND MECHANICS

## Scientific Council

Martin P. Bendsøe	Dept. of Mathematics, DTU
Morten Brøns	Dept. of Mathematics, DTU
Søren R.K. Nielsen	Department of Civil Engineering, AAU
Steen Krenk	Dept. of Mech. Eng., Coastal, Maritime and Struct. Eng., DTU
Frithiof Niordson	Dept. of Mechanical Eng., Solid Mechanics, DTU
Niels Olhoff	Institute of Mechanical Engineering, AAU
Pauli Pedersen	Dept. of Mechanical Eng., Solid Mechanics, DTU
Ole Sigmund	Dept. of Mechanical Eng., Solid Mechanics, DTU
B. Mutlu Sumer	Dept. of Mech. Eng., Coastal, Maritime and Struct. Eng., DTU
Jens Nørkær Sørensen	Dept. of Mechanical Eng., Fluid Mechanics, DTU
Per Grove Thomsen	Informatics and Mathematical Modelling, DTU
Erik Lund	Institute of Mechanical Engineering, AAU

## Secretary

Ole Sigmund, Professor, dr. techn.

Department of Mechanical Engineering, Solid Mechanics.

Nils Koppels Allé, Building 404

Technical University of Denmark

DK-2800 Kgs. Lyngby, Denmark

sigmund@mek.dtu.dk

## FOREWORD

This annual report about the year 2007 contains information on publications, seminars and guests.

The report serves mainly as reference and documentation for accomplished activities. Information on the actual activities as well as lists of older DCAMM reports and DCAMM S-reports are available on our homepage: [www.dcammm.dk](http://www.dcammm.dk) and on the homepages of the cooperating departments of the center.

The members are reminded that the orange DCAMM reports that earlier have been sent out to members have been substituted by electronic reports that can be downloaded by members of DCAMM from the DCAMM web-site [www.dcammm.dk](http://www.dcammm.dk). The annual report will still be mailed in a paper version.

The DCAMM Research School is a Research School that lives up to the national standards set up by Forskeruddannelsesudvalget (FUU) under the Ministry of Science, Technology and Innovation, and the school now receives funding from FUU for course activities and scholarship programmes for visiting students and postdocs. As of Jan. 1, 2007, more than 60 Ph.D. students are connected to the School. The School organized eight special, intensive courses in 2007, in addition to the standard courses given in the normal semester system for teaching at DTU and AAU. The courses attracted 186 participants, and of these 77 were from abroad. Thus the School continues to maintain its strong international profile. The School also continues to secure a number of special fellowships for full Ph.D. projects from FUU, including international fellowships which will be carried out in close collaboration with industry. Details on the activities of the School and on courses for 2008 can also be found on the DCAMM website.

In 2007, the “DCAMM Annual Speaker” was Professor John W. Hutchinson of Harvard University. John held his two talks entitled “Designing Structures Against Intense Dynamic Loads” and “Bucklewaves” for interested audiences at both Aalborg University and Technical University of Denmark in November and December.

By December 31, 2007, the departments cooperating within DCAMM were:  
from **Technical University of Denmark**:

IMM: Dept. of Informatics and Mathematical Modelling

MAT: Dept. of Mathematics

MEK-ET: Dept. of Mechanical Engineering, Energy Engineering

MEK-FM: Dept. of Mechanical Engineering, Fluid Mechanics

MEK-FAM: Dept. of Mechanical Engineering, Solid Mechanics

from **Aalborg University**:

IBA-AAU: Department of Civil Engineering

IME-AAU: Institute of Mechanical Engineering

I thank our international contacts for their support and inspirations.

Ole Sigmund

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## 1. MEMBERS 2007

37 professors  
71 scientific members            at the five cooperating departments of the Center  
68 Ph.D.-students

40 elected members  
12 foreign members            (listed in section 2)

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

## 2. FOREIGN MEMBERS

Professor Hassan Aref  
College of Engineering & Reynolds Metals  
Virginia Polytechnic Institute and State University  
College of Engineering, 333 Norris Hall  
Blacksburg, VA 24061, USA

Professor G.I. Barenblatt  
Institute of Oceanology  
USSR Academy of Sciences  
23, Ul. Kzasikova  
117218 Moscow, Russia

Professor John P. Breslin, Dr.Sc.  
Calle Dinamarca 7  
03193 San Miguel de Salinas, (Alicante), Spain

Professor Germund Dahlquist  
Kungliga Tekniska Högskolan  
Stockholm, Sweden

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

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  
Division of Engineering  
Brown University  
Providence, RI 02912, USA

Professor S. Nemat-Nasser  
Department of Applied Mechanics  
University of California in San Diego  
La Jolla, CA 92093, USA

Professor D.H. Peregrine  
School of Mathematics  
University Walk  
Bristol BS8 1TW, UK

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

### 3. GUESTS FOR EXTENDED PERIODS IN 2007

Aref, Hassan, Virginia Institute of Technology, USA (Fluid•DTU)  
(July 1 to December 22)

Berthe, Louis-Marie, Ecole des Mines, Nancy, France (FUU) (February 6 to March 6)

Blackmore, Dennis, New Jersey Institute of Technology, USA Villum Kann  
Rasmussen Foundation (VELUX) (April 23 to May 23)

B. Bochenek. Cracow University of Technology, Poland. (November)

Carcangiu, Carlo E. Università di Cagliari, Sardinia, Italy (August 28, 2006 to March  
31, 2007)

Carlson, Leif A. Florida Atlantic Uni (FAU), USA (May 14 to June 20)

Cheng , Gengdong, Dalian University of Technology, China.(November 11 to  
November 25)

Cho, Seonho, Seoul National University, South Korea (own funding) ( January 1 to  
April 4)

Diaz, Alejandro R., Michigan State University, USA (Otto Mønsted Fond) (May 1 to  
June 30)

Ershova, Olga. State Marine University of St. Petersburg, Russia. (January 18 to  
February 18)

Frostig, Yeoshua. Technion, Israel (March 1 to September 30)

Garcia, Nestor Ramos. Jaume University of Castellon, Spain, (November 12, 2007  
to February 12, 2008)

George, Bill. Chalmers, Sverige (April 1 to June 30)

Kim, Min-Geun, Seoul National University, South Korea (Korea Research  
Foundation) (January 1 to December 18).

Kocvara, Michal, School of Mathematics, The University of Birmingham, United  
Kingdom (Otto Mønsted guest professor) (April 1 to June 30)

Manders, Catherine. School of Engineering Sciences. University of Southampton,  
United Kingdom (May 1 to August 31)

Mazurek, Katarzyna. Lublin University of Technology, Poland. (February 1 to July 1)

Naumov, Igor. Russian Akademi, Novo Sibirsk, Russia (February 14 to April 15)

Palmer, Vicente, Department of Mathematics, Universitat Jaume I, Castellon, Spain (FNU and own funding) (June 1 to August 31 ).

Roura, Miguel. Universidad Politecnica de Madrid, Spanien (October 13 to December 21)

Ruebel, Jan, University of Heidelberg, Germany (October)

Seyranian , Alexander. Institute of Mechanics, Lomonosov Moscow State University, Russia (November 25 to December 9)

Sarah Sullivan, Rutgers University, USA (August 2 to September 1)

Trevers, Andrew Mark. Nottingham University, United Kingdom (August 6 to September 21)

Wahnström, Maja . Chalmers, Sverige (April 02 to June 30)

Wang, Xidong. University of Chongqing, China ( October 03 2007 to September 30 2008)

Vicinanza, Diego. Second University of Napoli, Italy (July 11 to July 31)

Yan, Jun. Dalian University of Technology, China. (March 1 to June 30)

Zakharova, Anastasia. University of Moskow, Russia (October 28 to December 7)

Zixing, Cai. Central South Uni, Changsha, Hunan, China (May 01 to July 31)



#### 4A. SCIENTIFIC PUBLICATIONS IN PROCEEDINGS IN 2007

Achiche, Sofiane; Fan, Zhun; Bolognini, Francesca. 2007. Review of Automated Design and Optimization of MEMS. 2007. IEEE International Symposium on Industrial Electronics. Presented at: IEEE International Symposium on Industrial Electronics

Agwai, A.; Guven, I.; Madenci, E.; Kepler, Jørgen Asbøl 2007. A Combined Experimental and Numerical Analysis of Sandwich Panels Subjected to Ballistic Loads. I: Proceedings of the 8th AIAA/ASME/ASCE/AHS/ASC Structures, Dynamics, and Materials Conference.

Andersen, Lars. 2007. Do Lumped-Parameter Models Provide the Correct Geometrical Damping? I: Proceedings of the 15th UK Conference of the Association of Computational Mechanics in Engineering. Stirlingshire: Civil-Comp Ltd, 2007. 21 s.

Andersen, Lars ; Liingaard, Morten. 2007. Lumped-Parameter Models for Wind-Turbine Footings on Layered Ground. I: Proceedings of the Eleventh International Conference on Civil, Structural and Environmental Engineering Computing. Stirlingshire, Scotland : Civil-Comp Press, 2007. 21 s.

Andersen, Michael Skipper ; Damsgaard, Michael ; Rasmussen, John. 2007. A study of The Effects of Two Different Kinematical Analysis Methods on the Calculated Muscle Activities in an Inverse Dynamics-based Musculoskeletal Model of Gait. Konferencen: 20th Nordic Seminar on Computational Mechanics, Gothenburg, Sverige, November 23. – 24 2007.

Andersen, Michael Skipper; Damsgaard, Michael; Rasmussen, John. 2007. Construction of Smooth Time-varying Weight Functions to Handle Occasionally Occluded Markers in Musculoskeletal Models. Konferencen: XI International Symposium on Computer Simulation in Biomechanics, Tainan, Taiwan, June 28. – 30 2007.

Andersen, Michael Skipper; Damsgaard, Michael ; Rasmussen, John. 2007. Scaling and Local Marker Coordinate Determination of Musculoskeletal Systems. Konferencen: SAE Digital Human Modeling for Design and Engineering Conference and Exhibition, Seattle, USA, June 12 – 14 2007.

Andersen, Søren Mikkel ; Andersen, Lars. 2007. Material-Point Method Analysis of Bending in Elastic Beams. I: Proceedings of the Eleventh International Conference on Civil, Structural and Environmental Engineering Computing. Stirlingshire, Scotland: Civil-Comp Press, 2007. 20 s.

Andersen, Torben Ole; Pedersen, Henrik Clemmensen; Hansen, Michael Rygaard. 2007. Mechatronic System Design Based On An Optimisation Approach. 9 s. Konferencen: International Workshop - Mechatronics Day 2007, København, Danmark, April 18 2007.

Andreasen, Jens H. 2007. Sandwich Core Cracks Approaching the Interface Between the Core and Face Sheets. I: ASME International Mechanical Engineering Congress and Exposition (IMECE2007). New York : ASME international.

Andreasen, Jens H. ; Jakobsen, Johnny ; Lyckegaard, Anders. 2007. Interface to Interface Core Cracks in Sandwich Structures. I: Proceedings of the 16th International Conference on Composite Materials.

Bai, Shaoping; Hansen, Michael Rygaard. 2007. Evaluation of Workspace of a Spherical Robotic Wrist. I: Proceedings of 2007 IEEE/ASME International Conference on Advanced Intelligent Mechatronics. IEEE. s. 1-6

Bai, Shaoping; Hansen, Michael Rygaard. 2007. Modelling of a Spherical Robotic Wrist with Euler Parameter. 2007. Konferencen: The 12th World Congress in Mechanism and Machine Science (IFTOMM2007), Besancon, Frankrig, June 17 – 21 2007.

Bechmann, A. ; Sørensen, Niels ; Johansen, J.. 2007. Atmospheric Flow over Terrain using Hybrid RANS/LES. I: Proceedings of The European Wind Energy Conference and Exhibition, EWEC 2007.

Bendsøe, Martin P.; Sigmund, Ole. 2007. Topology optimization. In: Optimization of Structural and Mechanical Systems, p. 161-194, Singapore: World Scientific 2007. ISBN: 978-981-256-962-2

Berggreen, Christian; Jensen, Christian; Hayman, Brian. 2007. Buckling strength of square composite plates with geometrical imperfections: Preliminary results. Advancements in Marine Structures, 413-420. Presented at: Marstruct International Conference, Advancements in Marine Structures

Berggreen, Christian; Lundsgaard-Larsen, Christian; Karlsen, Kasper; Jenstrup, Claus; Hayman, Brian. 2007. Improving Performance of Polymer Fiber Reinforced Sandwich X-Joints in Naval Vessels : Part I: Design Aspects. Sixteenth International Conference on Composite Materials : A Giant Step towards Environmental Awareness: From Green Composites to Aerospace, 1052.

Berring, Peter; Branner, Kim; Berggreen, Christian; Knudsen, Henrik W.. 2007. Torsional Performance of Wind Turbine Blades : Part I: Experimental Investigation. Sixteenth International Conference on Composite Materials : A Giant Step towards Environmental Awareness: From Green Composites to Aerospace, 1118.

Branner, Kim; Berring, Peter; Berggreen, Christian; Knudsen, Henrik W.. 2007. Torsional Performance of Wind Turbine Blades : Part II: Numerical Validation. Sixteenth International Conference on Composite Materials : A Giant Step towards Environmental Awareness: From Green Composites to Aerospace, 1120

Hayman, Brian; Berggreen, Christian; Tsouvalis, Nicholas G.. 2007. Production defects in marine composite structures : Their causes and their influence on structural performance. Advancements in Marine Structures, 435-449. Presented at: MARSTRUCT International Conference, Advancements in Marine Structures

Hayman, Brian; Berggreen, Christian; Lundsgaard-Larsen, Christian; Jenstrup, Claus; Karlsen, Kasper. 2007. Design of X-joints in Sandwich Structures for Naval Vessels. 10th International Symposium of Practical Design of Ships and Other Floating Structures, 1086-1095.

Bingham, Harry B.; Engsig-Karup, Allan Peter; Lindberg, Ole. 2007. A high-order finite difference method for nonlinear wave-structure interaction. International Workshop on Water Waves and Floating Bodies I.

Bogomolny, Michael and Bendsøe, Martin.P. 2007. Some Optimal Design Aspects of Resistance Welding, 7<sup>th</sup> World Congress of Structural and Multidisciplinary Optimization, COEX Seoul, May 21<sup>st</sup>-25<sup>th</sup>, 2007, Korea.

Kirsch, U. and Bogomolny, Michael. 2007. Efficient Structural Optimization Using Reanalysis and Repeated Sensitivity Analysis. 7<sup>th</sup> World Congress of Structural and Multidisciplinary Optimization, COEX Seoul, 21<sup>st</sup>-25<sup>th</sup> May, 2007, Korea

Boyd, S.W.; Dulieu-Barton, J.M.; Thomsen, Ole Thybo; Gherardi, A. 2007. Stress Analysis of Bonded Joints in Pultruded GRP Components. I: Proceedings of the 16th International Conference on Composite Materials (ICEM-16).

Dulieu-Barton, J.M. ; Boyd, S.W. ; Thomsen, Ole Thybo. 2007. Experimental Analysis of Stresses in Bonded Pultruded Composite Structures. I: Presented at the IOP (Institute of Physics, UK) Conference “Novel Application of Surface Modification”.

Brincker, Rune; Larsen, Jesper Abildgaard; Ventura, Carlos. 2007. A General Purpose Digital System for Field Vibration Testing. I: Conference Proceedings: IMAC-XXIV : A Conference & Exposition on Structural Dynamics. Bethel, CT, USA: Society for Experimental Mechanics, Inc. 2007. 8 s.

Brincker, Rune ; Andersen, Palle ; Jacobsen, Niels-Jørgen. 2007. Automated Frequency Domain Decomposition for Operational Modal Analysis. I: Conference Proceedings : IMAC-XXIV : A Conference & Exposition on Structural Dynamics. Bethel, CT, USA : Society for Experimental Mechanics, Inc., 2007. 7s.

Andersen, Palle ; Brincker, Rune ; Goursat, Maurice ; Mevel, Laurent. 2007. Automated Modal Parameter Estimation for Operational Modal Analysis of Large Systems. I: Proceedings of the 2nd International Operational Modal Analysis Conference. Aalborg : Aalborg University. s. 299-308.

Andersen, Palle ; Brincker, Rune ; Goursat, Maurice ; Mevel, Laurent. 2007. Automated Modal Parameter Estimation of Civil Engineering Structures. 2007. 10 s. Konferencen: The International Conference of Experimental Vibration Analysis for Civil Engineering Structures, Porto, Portugal, October 24 – 26 2007.

Andersen, Palle ; Brincker, Rune ; Goursat, Maurice ; Mevel, Laurent. 2007. Automated Modal Parameter Estimation of Civil Engineering Structures. 2007. 2 s. Konferencen: The International Conference of Experimental Vibration Analysis for Civil Engineering Structures, Porto, Portugal. October 24 – 26 2007.

Magalhães, Filipe ; Brincker, Rune ; Cunha, Álvaro. 2007. Damping Estimation Using Free Decays and Ambient Vibration Tests. I: Proceedings of the 2nd International Operational Modal Analysis Conference. Aalborg : Aalborg University. s. 513-521.

Pedersen, Lars ; Brincker, Rune. 2007. Detection of Damage in a Lattice Mast Excited by Wind by Dynamic Measurements. I: Proceedings of the 2nd International Operational Modal Analysis Conference. Aalborg : Aalborg University. s. 659-667.

Jacobsen, Niels-Jørgen ; Andersen, Palle ; Brincker, Rune. 2007. Eliminating the Influence of Harmonic Components in Operational Modal Analysis. I: Conference Proceedings : IMAC-XXIV : A Conference & Exposition on Structural Dynamics. Society for Experimental Mechanics. 11 s.

Andersen, Palle ; Brincker, Rune ; Ventura, Carlos ; Cantieni, Reto. 2007. Estimating Modal Parameters of Civil Engineering Structures subject to Ambient and Harmonic Excitation. 2007. Konferencen: The International Conference of Experimental Vibration Analysis for Civil Engineering Structures, Porto, Portugal, October 24 – 26 2007.

Pedersen, Ivar Chr. Bjerg ; Hansen, Søren Mosegaard ; Brincker, Rune ; Aenlle, Manuel López. 2007. Load Estimation by Frequency Domain Decomposition. I: Proceedings of the 2nd International Operational Modal Analysis Conference. Aalborg : Aalborg University. s. 669-676.

Aenlle, Manuel López ; Brincker, Rune ; Fernández, Pelayo Fernández ; Canteli, Alfonso Fernández. 2007. Load Estimation from Modal Parameters. I: Proceedings of the 2nd International Operational Modal Analysis Conference. Aalborg, Denmark : Aalborg University. s. 39-50.

Brincker, Rune. 2007. Modal Parameter Estimation in Operational Modal Analysis : Panel discussion. 2007. Konferencen: International Operational Modal Analysis - IMAC-XXV, nr. 25, Orlando, Florida, USA, February 19 – 22 2007.

Brincker, Rune ; Larsen, Jesper Abildgaard. 2007. Obtaining and Estimating Low Noise Floors in Vibration Sensors. I: Conference Proceedings : IMAC-XXIV : A Conference & Exposition on Structural Dynamics. Bethel, CT, USA : Society for Experimental Mechanics Inc. 7 s.

Brincker, Rune ; Andersen, Palle. 2007. Operational Modal Analysis Tutorial. 2007. 11 s. Konferencen: Measurement and Analysis of Vibration Symposium, Hälsingborg, Sverige, May 8 – 10 2007.

Aenlle, Manuel López ; Fernández, Pelayo Fernández ; Brincker, Rune ; Canteli, Alfonso Fernández. 2007. Scaling Factor Estimation Using an Optimized Mass Change Strategy, Part 1: Theory. I: Proceedings of the 2nd International Operational Modal Analysis Conference. Aalborg : Aalborg University. s. 421-428.

Fernández, Pelayo Fernández ; Aenlle, Manuel López ; Garcia, Luis M. Villa ; Brincker, Rune. 2007. Scaling Factor Estimation Using Optimized Mass Change Strategy, Part 2: Experimental Results. I: Proceedings of the 2nd International Operational Modal Analysis Conference. Aalborg : Aalborg University. s. 429-436.

Jacobsen, Niels-Jørgen ; Andersen, Palle ; Brincker, Rune. 2007. Using EFDD as a Robust Technique for Deterministic Excitation in Operational Modal Analysis. I: Proceedings of the 2nd International Operational Modal Analysis Conference. Aalborg : Aalborg Universitet. s. 193-200

Brix, Wiebke; Jakobsen, Arne; Rasmussen, Bjarne Dindler; Carlsen, Henrik. 2007. Analysis of Airflow Distribution in Refrigeration System. Proceedings of The 22nd International Congress of Refrigeration. Presented at: The 22nd International Congress of Refrigeration

Bro, Marie. 2007. Reorienting a Quasi-Rigid Body Using Shape Changes. Presented at: RoboMat, 2007. In: Proceedings of RoboMat 2007, 2008

Heiselberg, Per ; Brohus, Henrik ; Hesselholt, Allan Tind ; Rasmussen, Henrik Erreboe Schou ; Seinre, Erkki ; Thomas, Sara. 2007. Application of Sensitivity Analysis in Design of Sustainable Buildings. I: SDBE: Sustainable Development of Building and Environment. Chongqing : Chongqing University. 8 s.

Heiselberg, Per; Brohus, Henrik; Hesselholt, Allan Tind; Rasmussen, Henrik Erreboe Schou; Seinre, Erkki; Thomas, Sara. 2007. Application of Sensitivity Analysis in Design of Integrated Building Concepts. I: The 7th International Energy Agency Annex 44 Forum: October 24 2007 The University of Hong Kong: Integrating Environmentally Responsive Elements in Buildings. Hong Kong: The University of Hong Kong. s. 8

Nilsson, Håkan O.; Brohus, Henrik; Nielsen, Peter V.. 2007. CFD Modeling of Thermal Manikin Heat Loss in a Comfort Evaluation Benchmark Test. I: Proceedings of Roomvent 2007 : Helsinki June 13-15 2007. Finland : FINVAC. 7 s.

Brohus, Henrik. 2007. Optimised Building Energy Performance : Combined Evaluation of Energy Consumption and Indoor Environment. I: e-nova Internationaler Kongress 2007. Fachhochschulstudiengänge Burgenland. s. 27-34

Brohus, Henrik ; Nielsen, Peter V. ; Petersen, Arnkell J. ; Sommerlund-Larsen, Kim. 2007. Sensitivity Analysis of Fire Dynamics Simulation. I: Proceedings of Roomvent 2007 : Helsinki June 13-15 2007. Finland : FINVAC. 10 s.

Bræstrup, M W. 2007. 17th International Conference on Pipeline Protection, Edinburgh 17 – 19 October 2007. BHR Group, Proceedings, 256 pp

Bræstrup, M W. 2007. Yield Line Theory and Concrete Plasticity Morley Symposium on Concrete Plasticity and its Application, Cambridge 23 July, 2007. Proceedings pp 43 - 48

Brøns, Morten; Jensen, Bjarne Sloth. 2007. Hopf Bifurcation, Trends, Cycles, Square Waves, and Chaos in Economic Growth Models with Time Delays. In: Stochastic Economic Dynamics, p. 247-268; Palokangas, Tapio - 1sted. - Copenhagen: Copenhagen Business School Press. ISBN: 978-87-630-0185-4

Bull, Peter H. ; Kepler, Jørgen Asbøl. 2007. Ballistic impact facility - considerations and experiences. I: Proceedings of the 13th International Conference on Experimental Mechanics. Dordrecht : Springer.

Bull, Peter H. ; Kepler, Jørgen Asbøl. 2007. Multiple layer composite plates in ballistic applications - a parametric study. I: Proceedings of the 16th international Conference on Composite Materials. Japan Society for Composite Materials.

Canh, Nam Nguyen, Tao, P.D and Hoai, An, L.T. 2007. A combined DCA and Branch and Bound with new bounding techniques for globally solving Nonconvex quadratic programs. International conference on Non-convex programming: Local and Global approaches. Theory, Algorithms and Applications, INSA, Rouen, December 17<sup>th</sup>–21<sup>st</sup> 2007, France

Carcangiu, Carlo Enrico; Sørensen, Jens Nørkær; Cambuli, Francesco; Mandas, Natalino. 2007. CFD-RANS analysis of the rotational effects on the boundary layer of wind turbine blades. Journal of Physics : Conference Series, 75(012031), 1-9. Presented at: The Science of Making Torque from Wind

Carlsen, Henrik; Bovin, Jonas Kabell. 2007. Analytical expression for an optimised link bar mechanism for a beta-type Stirling engine. Proceedings of The 13th International Stirling Engine Conference, 91-95. Presented at: The 13th International Stirling Engine Conference.

Saric, Sanjin; Kniesner, Bjørn; Altenhöfer, Paul; Jakirlic, Suad; Tropea, Cameron; Cavar, Dalibor; Basara, B.. 2007. Swirl Intensity Influence on Interaction between Non-Swirling and Swirling Co-Axial Jets in a Combustor Configuration: LES and Modelling Study. Proceedings of the 5th International Symposium on Turbulence and Shear Flow Phenomena.

Christiansen, Jens; Klit, Peder; Vølund, Anders; Hyun-Hwang, Jong. 2007. Calculation of Oil Film Thickness from Damping Coefficients for a Piston Ring in an Internal Combustion Engine. BaltTrib'2007, 162-167. Presented at: BaltTrib'2007, International Conference in Tribology

Christiansen, Jens; Klit, Peder; Vølund, Anders; Hwang, Jong-Hyun. 2007. Experimental Investigation of Piston Rings for Internal Combustion Engines. International Tribology Conference : BaltTrib'2007, 16-21.

Clausen, Johan ; Damkilde, Lars ; Krabbenhøft, K.. 2007. Efficient Finite Element Calculation of Ngamma. I: Proceedings of the Eleventh International Conference on Civil, Structural and Environmental Engineering Computing. Stirlingshire, Scotland: Civil-Comp Press. 1 s.

Clausen, Johan; Damkilde, Lars; Krabbenhøft, K.. 2007. Efficient Finite Element Calculation of N $\gamma$ . I: Proceedings of the Eleventh International Conference on Civil, Structural and Environmental Engineering Computing. Stirlingshire, Scotland: Civil-Comp Press. 19 s.

Damkilde, L. 2007. Numerical Limit Analysis: An Engineering Tool for Both Ultimate Limit Load Analysis and Optimal Material Layout, Invited Lecture, In Proceedings of The Eleventh International Conference on Civil, Structural and Environmental Engineering Computing, St. Julians, Malta, September. pp. 199-216.

Damkilde, L. and Lund, B.2007. A simplified analysis of the Brazier effect in composite beams. In Proceedings of 20th Nordic Seminar on Computational mechanics, pp. 4.

Lund, B., Damkilde, L. and Kristensen, A. S. 2007. Numerical simulation of failure in composite structures with cohesive elements. In Proceedings of 20th Nordic Seminar on Computational mechanics, pp. 4.

Kristensen, A.S., Damkilde, L. 2007. Topology optimization – a tool for reducing material costs, In Proceedings of 4th NAFEMS Nordic Seminar on Materials Modeling, pp. 7.

Dühring, Maria Bayard. 2007. Simulation and Optimization of Surface Acoustic Wave Devices. 7th World Congress on Structural and Multidisciplinary Optimization, proceedings, 921-930. Presented at: 7th World Congress on Structural and Multidisciplinary Optimization.

Laude, Vincent; Dühring, Maria Bayard; Moubchir, Hanane; Khelfaoui, Naima; Khelif, Abdelkrim. 2007. Dispersion and Polarization of Surface Waves Trapped in High Aspect Ratio Electrode Arrays. IEEE Ultrasonics Symposium Proceedings. Presented at: IEEE International Ultrasonics Symposium

Poel, Mike van der; Beck, M.; Dühring, Maria Bayard; de Lima, M.M.; Frandsen, Lars Hagedorn; Peucheret, Christophe; Sigmund, Ole; Jahn, U.; Hvam, Jørn Märcher; Santos, P.. 2007. Surface acoustic wave driven light modulation. Proceedings ECIO Presented at: European Conference on Integrated Optics, April 25-27 2007.

Ebbesen, Morten Kjeld ; Hansen, Michael Rygaard ; Andersen, Torben Ole. 2007. Optimal Velocity Control of Hydraulically Actuated Flexible Loader Crane. I: Proceedings of the 20th Nordic Seminar on Computational Mechanics. Chalmers University of Technology.

Erentok, Aycan; Sigmund, Ole. 2007. Topology optimization of metamaterial-based electrically small antennas. Pages 219 - 223, Bursa, Turkey, 2007. EMO. Presented at: ELECO ; 291 : Bursa, Turkey.

Fan, Zhun; Achiche, Sofiane. 2007. Robust layout synthesis of a mem crab-leg resonator using a constrained genetic algorithm. In ASME 2007 International Design Engineering Technical Conference Computers and Information in Engineering Conference, pages CD version 1- 9. ASME IDETC/CIE 2007: Las Vegas, Nevada, USA.

Frier, Christian; Sørensen, John Dalsgaard. 2007. Stochastic analysis of the multi-dimensional effect of chloride ingress into reinforced concrete. I: Applications of Statistics and Probability in Civil Engineering : Proceedings of the 10th International Conference, Held in Tokyo, Japan, July 31 – August 3 2007. London : Taylor & Francis Group. s. 191-199.

Almegaard, Henrik; Bagger, Anne; Gravesen, Jens; Jüttler, Bert; Šír, Zbyněk. 2007. Surfaces with Piecewise Linear Support Functions over Spherical Triangulations. Presented at: Mathematics of Surfaces. Sheffield, England, 2007. In: Mathematics of Surfaces XII, p. 42-63; Sabin, Malcolm; Winkler, Joab, Springer-Verlag, 2007 ISBN: 978-3-540-73842-8

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## 8. DCAMM SEMINARS GIVEN IN 2007

Geers, M.G.D.: Multi-scale Analysis of Delamination in Polymer-Coated Sheet Metal.  
12 April 2007.

(Professor at Eindhoven University of Technology, The Netherlands)

Vladimirov, Vladimir A.: Vibrodynamics of ‘Solid+Fluid’.  
26 April 2007.

(Professor at University of York, UK)

Schreyer, Howard L.: Modelling Surface Orientation and Stress at Failure of Concrete and Geological Materials.

10 May 2007.

(The University of New Mexico, Albuquerque, USA)

Kaminski, Marcin: A unified approach to sensitivity and randomness in homogenization of periodic fiber-reinforced composites.

31 May 2007.

(Technical University of Lodz, Poland)

Naess, Arvid: A Monte Carlo approach for efficient and accurate estimation of extreme structural response.

1 June 2007.

(Professor at Norwegian University of Science and Technology, Trondheim, Norway)

Haber, Robert B.: Adaptive Spacetime Discontinuous Galerkin Methods for Problems with Shocks and Evolving Discontinuities.

3 September 2007.

(Professor at University of Illinois at Urbana-Champaign, USA)

Lahaye, Domenico: Manifold-Mapping Optimization for PDE Constrained Optimization Problems.

31 October 2007.

(Technical University Delft, The Netherlands)

Hutchinson, John W.: Designing Structures Against Intense Dynamic Loads.

19 November and 18 December 2007.

(Professor at Harvard University, USA)

Hutchinson, John W.: Bucklewaves.

20 November and 18 December 2007.

(Professor at Harvard University, USA)

Cheng, Gengdong: Multi-scale Design Optimization Challenge in Structural Topology Optimization.

23 November 2007.

(Professor at Dalian University of Technology, China)

Seyranian, Alexander P.: Bimodal Critical Points: Postbuckling Behaviour and Structural Optimization.

23 November 2007.

(Professor at Moscow State Lomonosov University, Russia)

### APPENDIX: List of members December 31 2007

#### Abbreviations:

from Technical University of Denmark

IMM: Dept. of Informatics and Mathematical Modelling  
 MAT: Department of Mathematics  
 MEK-ET: Dept. of Mechanical Engineering, Fluid Mechanics and Energy Engng.  
 MEK-FAM: Dept. of Mechanical Engineering, Solid Mechanics  
 MEK-K&P: Dept. of Mechanical Engineering, Engineering Design  
 MEK-SKK: Dept. of Mechanical Engineering, Maritime Engineering

from Aalborg University

IBA-AAU: Department of Civil Engineering  
 IME-AAU: Institute of Mechanical Engineering

Ahrenfeldt, Jesper	(MEK-ET)	PhD student
Amir, Oded	(MAT)	PhD student
Andersen, Lars	(IBA-AAU)	Associate Professor, PhD
Andersen, Michael Skipper	(ME-AAU)	PhD student
Andersen, Nina Marianne	(MAT)	PhD student
Andersen, Poul	(MEK-SKK)	Associate Professor, PhD
Andersen, Søren Mikkel	(IBA-AAU)	PhD student
Andreasen, Jens H.	(ME-AAU)	Associate Professor, PhD
Augustesen, Anders	(IBA-AAU)	Research Assistant
Bai, Shaoping	(ME-AAU)	Assistant Professor
Bakmar, Christian LeBlanc	(IBA-AAU)	PhD student
Bang-Møller, Christian	(MEK-ET)	PhD student
Bendsøe, Martin P.	(MAT)	Professor, dr.techn.
Berggren, Carl Christian	(MEK-SKK)	Associate Professor, PhD
Berkemer, Rainer	(MAT)	Postdoc
Bingham, Harry	(MEK-SKK)	Associate Professor
Bogomolny, Michael	(MAT)	Postdoc, PhD
Bozhevolnaya, Elena	(ME-AAU)	Associate Professor, PhD
Branner, Bodil	(MAT)	Associate Professor

Brincker, Rune	(IBA-AAU)	Assistant Professor
Brix, Wiebke	(MEK-ET)	PhD student
Bro, Marie	(MAT)	PhD student
Brohus, Henrik	(IBA-AAU)	Associate Professor, PhD
Brøns, Morten	(MAT)	Professor, PhD
Bull, Peter	(ME-AAU)	Postdoc
Byskov, Esben	(IBA-AAU)	Emeritus Professor, dr.techn.
Canh, Nam Nguyen	(MAT)	Postdoc
Carlsen, Henrik	(MEK-ET)	Professor
Cavar, Dalibor	(MEK-ET)	Postdoc
Christensen, Ole	(MAT)	Associate Professor, dr.scient.
Christiansen, Caspar Ask	(MEK-ET)	PhD student
Clausen, Johan Christian	(IBA-AAU)	Postdoc
Clausen, Lasse Røngaard	(MEK-ET)	PhD student
Dahl, Jonas	(MEK-FAM)	PhD student
Dammann, Bernd	(IMM)	Associate Professor
Deschamps, Soizic	(MEK-SKK)	PhD student
Dias, Kealey	(MAT)	PhD student
Ditlevsen, Ove	(MEK-SKK)	Professor, dr.techn.
Dupuis, Jean-Francois	(MEK-FAM)	Associate Professor, PhD
Dühring, Maria B.	(MEK-FAM)	PhD student
Ebbesen, Morten K.	(ME-AAU)	PhD student
Elmegaard, Brian	(MEK-ET)	Associate Professor
Engig-Karup, Allan	(MEK-SKK)	PhD student
Enz, Stephanie	(MEK-FAM)	PhD student
Erentok, Aycan	(MEK-FAM)	Postdoc
Fan, Zhun	(MEK-K&P)	Associate Professor, PhD
Frier, Christian	(IBA-AAU)	Assistant Professor, PhD
Friis-Hansen, Peter	(MEK-SKK)	Professor, PhD
Fuhrman, David	(MEK-SKK)	PhD student
Gersborg, Allan Roulund	(MEK-FAM)	Assistant Professor, PhD
Gravesen, Jens	(MAT)	Associate Professor, dr.phil.
Haider, Sajjad	(MEK-ET)	PhD student
Hansen, Anders L.	(ME-AAU)	PhD student
Hansen, Kim René	(MEK-ET)	PhD student
Hansen, Martin O.L.	(MEK-ET)	Associate Professor, PhD
Hansen, Michael R.	(ME-AAU)	Associate Professor, PhD
Hansen, Per Chr.	(IMM)	Professor, dr.techn.
Hansen, Søren Kold	(MAT)	Associate Professor, PhD
Hansen, Vagn Lundsgaard	(MAT)	Professor, PhD
Haugaard, Martin Asger	(MEK-FAM)	PhD student

Henriksen, Christian	(MAT)	Associate Professor, PhD
Henriksen, Ulrik B.	(MEK-ET)	Associate Professor
Hernández, Gabriel G.M.	(MEK-ET)	PhD student
Hilmarsson, Kristjan P.	(ME-AAU)	Research Assistant
Hjorth, Poul	(MAT)	Associate Professor, PhD
Holm-Jørgensen, Kristian	(IBA-AAU)	PhD student
Houbak, Niels	(MEK-ET)	Associate Professor
Høgsberg, Jan	(MEK-SKK)	PhD student
Ibsen, Lars Bo	(IBA-AAU)	Professor MSO, PhD
Ivarsson, Anders	(MEK-ET)	PhD student
Jacobsen, Johnny	(ME-AAU)	PhD student
Jensen, Jakob S.	(MEK-FAM)	Associate Professor, PhD
Jensen, Jarl	(MEK-FAM)	Associate Professor, HD
Jensen, Jørgen Juncher	(MEK-SKK)	Professor, dr.techn.
Jensen, Lars R.	(ME-AAU)	Assistant Professor
Jensen, Michael Vincent	(MEK-ET)	PhD student
Johannes, Martin	(ME-AAU)	PhD student
Johansen, Leon	(ME-AAU)	PhD student
Jørgensen, John Bagterp	(IMM)	Assistant Professor
Kepler, Jørgen A.	(ME-AAU)	Associate Professor, PhD
Kjærsgaard-Rasmussen, Jimmy	(MEK-ET)	PhD student
Kliem, Wolfhard	(MAT)	Associate Professor Emeritus
Klit, Peder	(MEK-FAM)	Associate Professor, PhD
Kokkendorff, Simon Lyngby	(MAT)	Postdoc
Kratmann, Kasper	(ME-AAU)	PhD student
Krenk, Steen	(MEK-SKK)	Professor, dr.techn.
Kwan, Maxine M.S.	(ME-AAU)	PhD student
Larsen, Anders Astrup	(MAT)	PhD student
Larsen, Mikael	(ME-AAU)	Associate Professor, PhD
Larsen, P. Scheel	(MEK-ET)	Professor, PhD
Lazarov, Boyan Stefanov	(MEK-FAM)	Postdoc, PhD
Legarth, Brian N.	(MEK-FAM)	Associate Professor, PhD
Lemvig, Jakob	(MAT)	PhD student
Lindgreen, Britta	(MEK-FAM)	PhD student
Lucht, Tore	(MEK-FAM)	PhD student
Lund, Erik	(ME-AAU)	Professor MSO, PhD
Lundsgaard-Larsen, C.	(MEK-SKK)	PhD student
Madsen, Kaj	(IMM)	Professor, dr.techn.
Madsen, Per	(MEK-SKK)	Professor, dr.techn.



Markvorsen, Steen	(MAT)	Professor, PhD
Meyer, Knud Erik	(MEK-ET)	Associate Professor, PhD
Mikkelsen, Robert	(MEK-ET)	Associate Professor
Mouritsen, Ole Ø.	(ME-AAU)	Associate Professor
Munoz, Eduardo	(MAT)	PhD student
Nielsen, H. Bruun	(IMM)	Associate Professor, PhD
Nielsen, Kim Lau	(MEK-FAM)	PhD student
Nielsen, Rasmus Glar	(MEK-ET)	PhD student
Nielsen, Søren R.K.	(IBA-AAU)	Professor, dr.techn.
Nielsen, Ulrik D.	(MEK-SKK)	PhD student
Niordson, Christian	(MEK-FAM)	Associate Professor, PhD
Niordson, Frithiof I.	(MEK-FAM)	Emeritus Professor, PhD
Okulov, Valery	(MEK-ET)	Professor
Olesen, Esben L.	(ME-AAU)	PhD student
Olhoff, Niels	(ME-AAU)	Professor, dr.techn.
Overgaard, Lars C.T.	(ME-AAU)	Assistant Professor
Pedersen, Michael	(MAT)	Associate Professor, PhD
Pedersen, Mikkel M.	(ME-AAU)	PhD student
Pedersen, Niels L.	(MEK-FAM)	Associate Professor, dr.techn.
Pedersen, P. Terndrup	(MEK-SKK)	Professor, PhD
Pedersen, Pauli	(MEK-FAM)	Emeritus Professor, dr.techn.
Pedersen, Thomas Schmidt	(IBA-AAU)	PhD student
Pedersen, Troels Dyhr	(MEK-ET)	PhD student
Pommer, Christian	(MAT)	Professor Emeritus
Pulido, Edgar Estupinan	(MEK-FAM)	PhD student
Pyrz, Ryszard W.	(ME-AAU)	Professor, dr.techn.
Ramirez, José G. Rangel	(IBA-AAU)	PhD student
Rasmussen, Anders Rønne	(MAT)	PhD student
Rasmussen, Jesper	(MAT)	PhD student
Rasmussen, John	(ME-AAU)	Professor MSO, PhD
Rasmussen, Marie-Louise Højlund	(MAT)	PhD student
Rauhe, Jens Chr.	(ME-AAU)	Assistant Professor
Ravn, Erik S.	(MEK-SKK)	Assistant Professor
Richelsen, Ann Bettina	(MEK-FAM)	Associate Professor, PhD
Rodrigues, Harvey A.Z.	(MEK-ET)	PhD student
Rojas, Marielba	(IMM)	Associate Professor
Rokin, Masoud	(MEK-ET)	Associate Professor
Røgen, Peter	(MAT)	Associate Professor, PhD
Santos, Ilmar F.	(MEK-FAM)	Associate Professor, Dr.-Ing.
Schjødt-Thomsen, Jan	(ME-AAU)	Associate Professor, PhD

Schramm, Jesper	(MEK-ET)	Associate Professor
Shen, Wen Zhong	(MEK-ET)	Associate Professor
Sigmund, Ole	(MEK-FAM)	Professor, dr.techn.
Skovgaard, Ove	(MAT)	Professor, PhD
Sorensen, Spencer C.	(MEK-ET)	Professor
Sorokin, Sergey	(ME-AAU)	Professor, PhD
Starke, Jens	(MAT)	Associate Professor, dr.rer.nat.
Stolpe, Mathias	(MAT)	Assistant Professor, techn.dr.
Stærdahl, Jesper Winther	(IBA-AAU)	Assistant Professor
Sumer, B. Mutlu	(MEK-SKK)	Professor
Søe-Knudsen, Alf	(ME-AAU)	PhD student
Sørensen, Jens Nørkær	(MEK-ET)	Professor, PhD
Sørensen, John Dalsgaard	(IBA-AAU)	Professor MSO, PhD
Sørensen, Kim Dalsten	(IBA-AAU)	PhD student
Sørensen, Mads P.	(MAT)	Associate Professor, PhD
Sørensen, Niels N.	(IBA-AAU)	Professor MSO, PhD
Thoft-Christensen, Palle	(IBA-AAU)	Emeritus Professor, dr.techn.
Thomsen, Jon Juel	(MEK-FAM)	Associate Professor, dr.techn.
Thomsen, Ole Thybo	(ME-AAU)	Professor, PhD
Thomsen, P. Grove	(IMM)	Professor
Toft, Henrik Stensgaard	(IBA-AAU)	PhD student
Troldborg, Niels	(MEK-ET)	PhD student
Tvergaard, Viggo	(MEK-FAM)	Professor, dr.techn.
Velte, Clara	(MEK-ET)	PhD student
Vidic-Perunovic, Jelena	(MEK-SKK)	PhD student
Völcher, Carsten	(IMM)	PhD student
Walther, Jens Honoré	(MEK-ET)	Associate Professor
Westarp, Filip	(IBA-AAU)	PhD student
Winther, Michael	(ME-AAU)	PhD student
Zhu, Wei Jun	(MEK-ET)	PhD student
Østergaard, Rasmus C.	(MEK-FAM)	PhD student



