FOREWORD

This annual report about the year 2005 contains information on publications, seminars and guests. A list of DCAMM reports number 1-612 including the final references and also a list of the DCAMM S-reports number SI-S84 is available on request.

The report serves mainly as reference and documentation for accomplished activities. Information on the actual activities are available on our homepage: www.dcamm.dk and on the homepages of the cooperating departments of the center.

An important event of the year was the celebration of the former Secretary Pauli Pedersen's great and important work for DCAMM through several decades. A special session was held in his honor at the 10th internal DCAMM Symposium held at Hotel Kobæk Strand, March 14th – 16th – 2005. Colleagues and former students of Pauli gave talks that covered various aspects of Pauli's research interests through his long career at DTU.

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.dcamm.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 under the Ministry of Science, Technology and Innovation. As of Jan. 1, 2006, Around 60 Ph.D. students are attached to the School. The School organized eight special, intensive courses in 2005, in addition to the standard courses given in the normal semester system for teaching at DTU and AAU. Details on the activities of the school and on courses for 2006 can also be found on the DCAMM website.

As of Jan. 1, 2006, the departments cooperating within DCAMM are:

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
MEK-SKK:	Dept. of Mechanical Engineering, Maritime Engineering

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

CONTENTS

1. MEMBERS 2005

34 professors
53 scientific members at the five coorperating departments at the Center
52 Ph.D.-students

38 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
Inst. 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
Departments of Mathematics and Mechanical Engineering
Stanford University
Stanford, California
USA

Professor Michael S. Longuet-Higgins
Dept. of Applied Mathematics and Theor. Physics
University of Cambridge
Cambridge
United Kingdom

Professor Ole Secher Madsen
Ralph M. Parsons Lab., Dept. of civil Eng.
Massachusetts Institute of Technology
Cambridge, MA 02139
USA

Professor Alan Needleman
Division of Engineering, Box D
Brown University
Providence, RI 02912
USA

Professor S. Nemat-Nasser
University of California in San Diego
La Jolla, CA 92093, 0416
USA

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

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

3. GUESTS FOR EXTENDED PERIODS IN 2005

Alan Needleman, Professor, Brown University, U.S.A. (February 16 – February 22)

Jun Sergio Ono Fonseca, Department of Mechanical Engineering of the Universidade Federal do Rio Grande do Sul - UFRGS, Brasilien (August 1 -

John W. Hutchinson, Professor, Harvard University, U.S.A. (June 1 – December 31)

Guadalupe Vadillo, Ph.D.-student, Carlos III University, Madrid, Spain (September 15 – November 11)

Maciej Krupa, Associate Professor, New Mexico State University, (January 1 – July 31)

Y. Yamada, National Maritime Research Institute, Japan (February 1 - December 31)

Olga Ershova, Assoc. Professor, Ph.D., Department of Engineering Mechanics, Marine Technical University of St. Petersburg, Russia (February 13 – March 6 and August 9-28)

Mikael Langthjem, Assoc. Professor, Ph.D., Dr. Eng., Department of Mechanical Systems Engineering, Yamagata University, Japan (August 17 – September 18)

Figen Hatipoglu, Assistant Professor. Istanbul Technical University, Turkey (August 1 -

Heather Smith, Ph.D. student. Ohio State University, Columbus, OH, USA (May 1 – July 31)

B. Willems, M.Sc., K.U. Leuven, - Faculteit Toegepaste Wetenschappen, Belgium (October 31 – December 15)

4A. SCIENTIFIC PUBLICATIONS IN PROCEEDINGS IN 2005

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Bendsøe, M. P., Gersborg-Hansen, A. & Sigmund, O.: Implementing topology optimization using the finite volume method. Presented at: International Workshop on "Direct and Inverse Field Computations in Mechanics". Linz, Austria, 2005.

Haber, R.B., Norato, J., Tortorelli, D.A. & Bendsøe, M.P.: A Geometry Projection and Optimality Criterion Method for Topology Optimization using the Topological Derivative." (with R.B. Haber, J.Norato and D.A. Tortorelli). Proc. 6th World Congress of Structural and Multidisciplinary Optimization (J. Herskovits, Eds.) May 30- June 3, Rio de Janeiro, Brazil. 8 pp, 2005.

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Bozhevolnaya, E., Lyckegaard, A. & Thomsen, O.T.: Behaviour of Sandwich Beams with Conventional and Modified Core Junctions under Fatigue Loading Conditions. Is Submitted for the 15th International Conference on Composite Materials (ICMM-15). June 27 - July 1, Durban, South Africa, 2005.

Bozhevolnaya, E., Lyckegaard, A. & Thomsen, O.T.: Local Effects Induced by Core Junctions in Sandwich Beams under Various Loading Conditions. In Submitted for the 7th International Conference on Sandwich Structures (ICSS-7), Aalborg University, 29-31 August 2005.

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Bozhevolnaya, E.: See Lyckegaard, A.

Bræstrup, M.W.: Principal Lessons and Innovations from the Construction of the Danish Strait Crossings, Analytical Methods and New Concepts in Concrete and Masonry Structures, 5th International Scientific Conference, Gliwice - Ustron 12 – 14 June 2005, Proc & CD 12 pp.

Bræstrup, M.W.: Danish Strait Crossings: Lillebælt, Storebælt, Øresund and Beyond, Metropolis & Beyond, Structural Engineering Institute (ASCE) 2005 Structures Congress, New York 20 – 24 April 2005, CD 12 pp.

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Lund, E. & Stegmann, J.: Eigenfrequency Optimization of General Composite Shell Structures Using a Discrete Material Optimization Approach. In 12th International Congress on Sound and Vibration. Lisbon, Portugal, 2005.

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Jakobsen, J., Johansen, L.S., Lund, E. & Thomsen, O.T.: Shape Optimisation of Core Interfaces in Sandwich Structures. In 18th Nordic Seminar on Computational Mechanics, 2005.

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Lyckegaard, A.: Stress evaluation in sandwich structures near tri-material wedge. In Journal of Structural Mechanics: Special issue for the 18th nordic seminar on computational mechanics. pp 135-138, 2005.

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Nielsen, J.B.: See Sorokin, S.

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APPENDIX: List of members January 1 2006

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)	Ph.D. student
Albertsen, Niels Chr.	(IMM)	Associate Professor, Ph.D.
Andersen, Poul	(MEK-SKK)	Associate Professor, Ph.D.
Andreasen, Jens H.	(IME-AAU)	Associate Professor, Ph.D.
Back-Pedersen, Andreas		Elected member, Ph.D.
Bendsøe, Martin P.	(MAT)	Professor, dr.techn.
Berggren, Carl Christian	(MEK-SKK)	Assistant Professor, Ph.D.
Bingham, Harry	(MEK)	Associate Professor
Bjørnø, Leif		Elected member, Professor
Borg, Ulrik	(MEK-FAM)	Ph.D. student
Bozhevolnaya, Elena	(IME-AAU)	Associate Professor, Ph.D.
Branner, Kim		Elected member, Ph.D.
Bredmose, Henrik		Elected member
Brincker, Rune	(IBA-AAU)	Associate Professor
Broe, Brian R.	(MEK-ET)	Ph.D. student
Brohus, Henrik	(IBA-AAU)	Associate Professor, Ph.D.
Bræstrup, M.W.		Elected member, Ph.D.
Brøns, Morten	(MAT)	Professor, Ph.D.
Buhl, Thomas		Elected member, Ph.D.
Byskov, E.	(IBA-AAU)	Professor, dr.techn.
Carlsen, Henrik	(MEK-ET)	Professor, Ph.D.
Cavar, Dalibor	(MEK-ET)	Ph.D. student
Cederkvist, Jan		Elected member, Ph.D.
Christensen, Ole	(MAT)	Associate Professor, Ph.D.
Christiansen, Edmund		Elected member, dr.scient.
Dam, Bjarke	(MEK-ET)	Ph.D. student
Damkilde, Lars		Elected Member, Prof., Ph.D.
Ditlevsen, Ove	(MEK-SKK)	Professor, dr.techn.
Dühring, Maria B.	(MEK-FAM)	Ph.D. student
Ebbesen, Morten K.	(IME-AAU)	Ph.D. student
Elmegaard, Brian	(MEK-ET)	Associate Professor, Ph.D.
Engig-Karup, Allan	(MEK-SKK)	Ph.D. student

Felter, Christian L.	(MEK-FAM)	Ph.D. student
Foley, Christina	(IBA-AAU)	Assistant Professor, Ph.D.
Frandsen, Henrik L.	(IBA-AAU)	Ph.D. student
Frier, Christian	(IBA-AAU)	Assistant Professor, Ph.D.
Friis-Hansen, Peter	(MEK-SKK)	Professor, Ph.D.
Fuhrman, David	(MEK-SKK)	Ph.D. student
Gersborg-Hansen, Allan	(MAT)	Ph.D. student
Goltermann, Per		Elected member, Ph.D.
Gravesen, Jens	(MAT)	Associate Professor, Dr.phil.
Gunneskov, Ole		Elected member, Ph.D.
Halkjær, Søren		Elected member, Ph.D.
Hammer, Velaja B.		Elected member, Ph.D.
Hansen, Andreas	(MEK-ET)	Ph.D. student
Hansen, Martin O.L.	(MEK-ET)	Associate Professor, Ph.D.
Hansen, Michael R.	(IME-AAU)	Associate Professor, Ph.D.
Hansen, Mikael S.	(MAT)	Ph.D. student
Hansen, Morten Hartvig		Elected member, Ph.D.
Hansen, Per Chr.	(IMM)	Professor, dr.techn.
Hansen, Vagn Lundsgaard	(MAT)	Professor, Ph.D.
Hassing, Henrik		Elected member, Ph.D.
Heilskov, Nicolai	(MEK-ET)	Ph.D. student
Heinrichson, Niels	(MEK-FAM)	Ph.D. student
Henriksen, Christian	(MAT)	Assistant Professor, Ph.D.
Henriksen, Ulrik B.	(MEK-ET)	Associate Professor, Ph.D.
Hernández, Gabriel G.M.	(MEK-ET)	Ph.D. student
Hindsgaul, Claus	(MEK-ET)	Ph.D. student
Hjorth, Poul	(MAT)	Associate Professor, Ph.D.
Hoffman, Mark	(IMM)	Ph.D. student
Houbak, Niels	(MEK-ET)	Associate Professor, Ph.D.
Hougaard, Kristian G.	(MEK-FAM)	Postdoc
Hougaard, Peter		Elected member, Ph.D.
Høgsberg, Jan	(MEK-SKK)	Ph.D. student
Ivarsson, Anders	(MEK-ET)	Ph.D. student
Jacobsen, Christian B.		Elected member, Ph.D.
Jacobsen, Johnny	(IME-AAU)	Ph.D. student
Jensen, Daniel K.	(IME-AAU)	Ph.D. student
Jensen, Henrik Myhre	(IBA-AAU)	Professor, dr. techn.
Jensen, Jacob F.	(MEK-SKK)	Ph.D. student
Jensen, Jakob S.	(MEK-FAM)	Associate Professor, Ph.D.
Jensen, Jarl	(MEK-FAM)	Associate Professor, HD
Jensen, Jørgen Juncher	(MEK-SKK)	Professor, dr.techn.
Jensen, Lars R.	(IME-AAU)	Ph.D. student
Johannes, Martin	(IME-AAU)	Ph.D. student
Johansen, Leon	(IME-AAU)	Ph.D. student
Kallesøe, Bjarne S.	(MEK-FAM)	Ph.D. student
Karamehmedovic, Miza	(MAT)	Ph.D. student
Kepler, Jørgen A.	(IME-AAU)	Associate Professor, Ph.D.
Kjølhede, Klaus	(MEK-FAM)	Ph.D. student
Kliem, Wolfhard	(MAT)	Associate Professor
Klit, Peder	(MEK-FAM)	Associate Professor, Ph.D.

Knudsen, Thomas S.		Elected member, Ph.D.
Kokkendorff, Simon L.	(MAT)	Ph.D. student
Krenk, Steen	(MEK-SKK)	Professor, dr. techn.
Lade, Poul V.		Elected member, Professor
Larsen, Mikael	(IME-AAU)	Associate Professor, Ph.D.
Larsen, Peter V.	(MAT)	Ph.D. student
Larsen, P. Scheel	(MEK-ET)	Professor, Ph.D.
Legarth, Brian N.	(MEK-FAM)	Assistant Professor, Ph.D.
Lemvig, Jakob	(MAT)	Ph.D. student
Lindgreen, Britta	(MEK-FAM)	Ph.D. student
Lind-Nielsen, Birger		Elected member, Ph.D.
Lucht, Tore	(MEK-FAM)	Ph.D. student
Lund, Erik	(IME-AAU)	Associate Professor, Ph.D.
Lundsgaard-Larsen, C.	(MEK-SKK)	Ph.D. student
Lyckegaard, Anders	(IME-AAU)	Assistant Professor, Ph.D.
Madsen, Kaj	(IMM)	Professor, dr.techn.
Madsen, Per	(MEK-SKK)	Professor, dr.techn.
Markvorsen, Steen	(MAT)	Professor, Ph.D.
Melnik, Roderick V.N.		Elected member, Professor
Meyer, Knud Erik	(MEK-ET)	Associate Professor, Ph.D.
Mikkelsen, Lars P.		Elected member, Ph.D.
Mikkelsen, Robert	(MEK-ET)	Assistant Professor, Ph.D.
Mohr, Gunnar	(MAT)	Professor
Mouritsen, Ole Ø.	(IME-AAU)	Associate Professor
Mørch, K.A.		Elected member, Ph.D.
Nielsen, H. Bruun	(IMM)	Associate Professor, Ph.D.
Nielsen, Jan B.		Elected member, Ph.D.
Nielsen, Leif Otto		Elected member, Asso. Prof. Ph.D.
Nielsen, N.-J. Rishøj		Elected member, Ph.D.
Nielsen, Peter V.	(IBA-AAU)	Professor, Ph.D.
Nielsen, Rasmus G.	(MEK-ET)	Ph.D. student
Nielsen, Søren R.K.	(IBA-AAU)	Professor, dr.techn.
Nielsen, Ulrik D.	(MEK-SKK)	Ph.D. student
Niordson, Christian	(MEK-FAM)	Associate Professor, Ph.D.
Niordson, Frithiof I.	(MEK-FAM)	Emeritus Professor, Ph.D.
Nordkvist, Nikolaj	(MAT)	Ph.D. student
Olhoff, Niels	(IME-AAU)	Professor, dr.techn.
Ottosen, Niels Saabye		Elected member, Professor
Overgaard, Lars C.T.	(IME-AAU)	Ph.D. student
Pedersen, Michael	(MAT)	Associate Professor, Ph.D.
Pedersen, Morten G.	(MAT)	Ph.D. student
Pedersen, Niels L.	(MEK-FAM)	Associate Professor, Ph.D.
Pedersen, Ole Bøcker		Elected member, dr.techn.
Pedersen, Pauli	(MEK-FAM)	Professor, dr.techn., HD
Pedersen, Preben T.	(MEK-SKK)	Professor, Ph.D.
Pedersen, Thomas Ørts		Elected member, Ph.D.
Perram, John W.		Elected member, Professor
Petersen, Thomas		Elected member, Ph.D.
Pommer, Christian	(MAT)	Professor
Pyrz, Ryszard W.	(IME-AAU)	Professor, dr.techn.

Rasmussen, Anders R.	(MAT)	Ph.D. student
Rasmussen, Jesper	(MAT)	Ph.D. student
Rasmussen, John	(IME-AAU)	Associate Professor, Ph.D.
Rasmussen, Marie-Louise H.	(MAT)	Ph.D. student
Rauhe, Jens Chr.	(IME-AAU)	Ph.D. student
Ravn, Erik S.	(MEK-SKK)	Assistant Professor
Ravn-Jensen, Kim		Elected member, Ph.D.
Richelsen, Ann Bettina	(MEK-FAM)	Associate Professor, Ph.D.
Riishede, Jesper	(MEK-FAM)	Postdoc
Rosbjerg, Dan		Elected member, Professor, dr.techn.
Røgen, Peter	(MAT)	Assistant Professor, Ph.D.
Santos, Ilmar Ferreira	(MEK-FAM)	Associate Professor, Dr.-Ing.
Schjødt-Thomsen, Jan	(IME-AAU)	Associate Professor, Ph.D.
Schramm, Jesper	(MEK-ET)	Associate Professor, Ph.D.
Schultz, Jacob P.	(MEK-SKK)	Ph.D. student
Shen, Wen Zhong	(MEK-ET)	Associate Professor
Sigmund, Ole	(MEK-FAM)	Professor, dr.techn.
Skovgaard, Ove	(MAT)	Professor, Ph.D.
Sorenson, Spencer C.	(MEK-ET)	Professor, Ph.D.
Sorokin, Sergey	(IME-AAU)	Professor, Ph.D.
Stang, Henrik		Elected member, Asso. Prof. Ph.D.
Starke, Jens	(MAT)	Associate Professor, dr.rer.nat.
Stegmann, Jan	(IME-AAU)	Assistant Professor, Ph.D.
Sterndorff, Martin J.		Elected member, Ph.D.
Stolpe, Mathias	(MAT)	Assistant Professor, tech. dr.
Stoustrup, Jakob		Elected member, Professor
Sumer, B. Mutlu	(MEK-SKK)	Professor
Svensson, E.		Elected member, Ph.D.
Svensson, Staffan	(IBA-AAU)	Associate Professor, Ph.D.
Søborg, Anders V.	(MEK-SKK)	Ph.D. student
Søndergaard, Peter	(MAT)	Ph.D. student
Sørensen, Jens Nørkær	(MEK-ET)	Professor, Ph.D.
Sørensen, John D.	(IBA-AAU)	Associate Professor, Ph.D.
Sørensen, Kim D.	(IBA-AAU)	Ph.D. student
Sørensen, Mads P.	(MAT)	Associate Professor, Ph.D.
Sørensen, Niels Jakob		Elected member, Ph.D.
Thoft-Christensen, Palle	(IBA-AAU)	Emeritus Professor, dr.techn.
Thomsen, Jon Juel	(MEK-FAM)	Associate Professor, dr.techn.
Thomsen, Ole Thybo	(IME-AAU)	Professor, Ph.D.
Thomsen, P. Grove	(IMM)	Professor
Troldborg, Niels	(MEK-ET)	Ph.D. student
True, Hans	(IMM)	Associate Professor, Ph.D.
Tvergaard, Viggo	(MEK-FAM)	Professor, dr.techn.
Westarp, Filip	(IBA-AAU)	Ph.D. student
Zhu, Wei J.	(MEK-ET)	Ph.D. student
Østergaard, Rasmus C.	(MEK-FAM)	Ph.D. student