

CURRICULUM VITAE
PROFESSOR, DR. TECHN., OLE SIGMUND, JANUARY 14, 2025

WORK ADDRESS

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PERSONAL DETAILS

Date of birth: May 28th, 1966
Citizenship: Danish
Civil status: married, 2 children

DEGREES

5/2001 Dr. Techn., Technical University of Denmark
1/1995 Ph.D., Technical University of Denmark
9/1991 M.Sc., Technical University of Denmark

POSITIONS

2025– Elected member of the Executive Board of the Technical University of Denmark (DTU).
2023– Villum Investigator, Villum Foundation.
2022– Elected member of the EUROMECH Council.
2021–2024 Elected member of the Executive Board of the Technical University of Denmark (DTU).
2019–2023 Elected member, ISSMO Executive Committee.
2018–2021 Technical advisor and optionholder in Oqton (acquired by 3D Systems for 140M\$US Fall 2021).
2017–2023 Villum Investigator, Villum Foundation.
2015–2019 Past President, ISSMO Executive Committee.
2011–2015 Elected President of ISSMO (Int. Soc. for Structural and Multidisciplinary Optimization)
2011–2014 Head of Section, Solid Mechanics, Dept. Mech. Eng., Technical University of Denmark
2010– Professor, Dept. Mech. Eng., Technical University of Denmark
2004–2010 Chairman for the Danish Center for Applied Mathematics and Mechanics (www.dcammm.dk)
2001–2010 Professor with special assignments, Dept. Mech. Eng., Technical University of Denmark
1997–2001 Associate Research Professor, Dept. Solid Mechanics, Technical University of Denmark
1995–1996 Postdoc, Princeton Materials Institute, Princeton University
1995–1997 Assistant Research Professor, Dept. Solid Mechanics, Technical University of Denmark
1993–1994 Ph.D.-student, Technical University of Denmark
1991–1992 Research Assistant, University of Essen, Germany

HONOURS AND AWARDS

2023 ICBS, Frontiers of Science Award, Beijing, China.
2022 Highly Cited Researcher, Web of Science, 2022
2020 Knight of the Order of the Dannebrog (Ridder af Dannebrog)
2017 Hyperion Innovation Excellence Award, Super Computing 17, Denver CO, USA, November.
2015 AMS (Acta Mechanica Sinica) 30th Anniversary Special Award
2014 Newmark Distinguished Lecture, U. of Illinois, October
2014 Danish Council for Independent Research, Sapere Aude (Top-forsker): DFF-Advanced Grant
2014 Honorary Visiting Professor, North Western Polytechnical University (NPU), Xi'an, China
2010 Villum Kann Rasmussen Prize (2.5MDkr)
2008 Elite Research Prize of The Danish Ministry of Science 2007 (1 MDkr), Denmark
2005 Annual party speaker at DTU
2004 European Young Investigator Award (EURYI), European Science Foundation
2002 Grundfos-Prize (1 MDkr), Bjerringbro, Denmark
2000 Invited Sectional Lecturer at the 20th International Congress of Theoretical and Applied Mechanics (ICTAM 2000), August, Chicago
2000 STATOIL-prize, Copenhagen
1999 ISSMO/Springer Prize 1999 for Young Scientists
1996 Gorm Pedersens Memorial Prize, Technical University
1995 1st prize in poster competition, Fall Materials Fair, Princeton Materials Inst.

MEMBERSHIPS / BOARDS

- 2022– Associate Editor of Programmable Materials
- 2021– Member of the prize committee for the Grundfos Prize
- 2020– Advisory board of Forces in Mechanics
- 2018– Senior Advisor Journal of Structural and Multidisciplinary Optimization
- 2016– Editorial board of Journal of Optimization Theory and Applications
- 2016-2019 The ESF College of Expert Reviewers
- 2015– Advisory Committee of the State Key Lab, Dalian Univ. of Tech., China
- 2013-2019 DeIC eScience Committee, Danish Research Ministry
- 2011-2014 Member of the Villum Foundation Young Investigator Grant committee
- 2011-2013 Editorial board of Computer Methods in Applied Mechanics
- 2010-2015 Reviewer panel for Danish National Advanced Technology Foundation
- 2010–2019 Member of the Statoil Prize award committee
- 2010– Advisory Board of Computational Mechanics
- 2008–2010 Research Board, Dept. Mech. Eng., DTU
- 2008– Editorial Board of Acta Mechanica Sinica
- 2008-2016 Editorial Board of Archive of Applied Mechanics
- 2008– Royal Danish Academy of Sciences and Letters
- 2006-2009 ESF Pool of Referees
- 2003– Editorial Board of Latin American Journal of Solid and Structures
- 2003– Danish Academy of Technical Sciences (ATV)
- 2003–2005 ”Fagligt Forum”, Danish Technical Research Council
- 2002–2005 Member of board, Department of Mechanical Engineering,
- 2000–2018 Editorial Board of Structural and Multidisciplinary Optimization
- 2000– Advisory board of Int. J. for Num. Methods in Engineering DTU

FURTHER COURSES/EDUCATION

- 2021 Followed ”The Board of Directors’ Training Programme at Niels Brock
- 2014 The DTU Leadership Programme
- 2001 Advanced course in education methods (Kursus i Didaktik og Undervisningspædagogik for Undervisere på DTU), DTU
- 2000 Basic course in education (Grundkursus i Pædagogik), DTU.

RESEARCH INTERESTS

Principal research interests are theoretical extensions and applications of topology optimization methods to the design of extremal materials, smart materials, compliant mechanisms, MicroElectroMechanical Systems, crashworthiness, fluid systems and wave-propagation problems in acoustics, elasticity, optics, antennas and meta-materials as well as in sustainable energy applications.

GRANTS (PERSONAL[/TOTAL])

- 2023-2028 PI, Villum Investigator Project: “ Architected Materials and Structures with Randomness And Defects (AMSTRAD)”, Villum Foundation (30MDKK).
- 2022-2025 CI, Towards extreme heat transfer – combining multiphysics-multi scale modelling, topology optimization as well as superconductive materials, Danish Council for Independent Research, DFF-2 Grant (2/6 MDKK).
- 2021-2025 PI, Topology Optimization for contact problems (TopCon), Danish Council for Independent Research, DFF-2 Grant (6 MDKK).
- 2020-2025 CI, WP-Leader, NanoPhoton, DNRF, Danish National Research Foundation (6/62 MDKK).
- 2018-2019 Principal Investigator, PRACE (Partnership for Advanced Computing in Europe) 17th call for access to super-computing resources. Project: TopBridge 15M CPUh on Joliot-Curie SKL supercomputer.
- 2017-2023 PI, Villum Investigator Project: “Interactive, non-linear,high-resolution Topology Optimization (InnoTop)”, Villum Foundation (28/31MDKK).
- 2016-2017 Affiliated Investigator, Innobooster Project: “Improved implants for mastectomy”, Innovation Fund Denmark, 3D-Print-Huset, Copenhagen (0.45MDKK).
- 2015-2018 Affiliated Investigator, Research Project Suntune, Innovation Fund Denmark, Aarhus University + companies (0.4MDKK).
- 2015-2020 Co-Investigator in a Villum Kann Rasmussen Centre of Excellence: “NAnophotonics for Tera-bit Communications – 2” (NATEC-2) (2.5/25 MDKK)

- 2015-2016 Principal Investigator, PRACE (Partnership for Advanced Computing in Europe) 10th call for access to super-computing resources. Project: "TopWing – Topology optimization of aircraft wing", 11M CPUh on CURIE supercomputer.
- 2014-2018 Principal Investigator, Research Project TopTEN, Danish Council for Independent Research, Sapere Aude: DFF-Advanced Grant 2014 (11.6 MDKK).
- 2014-2017 Co-Investigator, HTF, Danish National Advanced Technology Foundation: "HYPERCOOL - Passive cooling for LED lamps" (1.4/4.6 MDKK)
- 2011-2015 Co-Investigator, HTF, Danish National Advanced Technology Foundation: "ODASS - Optically designed anodized aluminium surfaces." (1.5/27 MDKK).
- 2011-2013 Co-Investigator, Innovation Consortium F•Mat (3/17.1 MDKK).
- 2011-2015 Principal Investigator, Research Project NextTop, Villum Foundation (14 MDKK).
- 2010-2012 Principal Investigator, Supercomputing facilities at Danish Center for Scientific Computing (0.75 MDKK).
- 2010-2013 Co-Investigator, HTF, Danish National Advanced Technology Foundation: "Nanoplast – Functional nanostructures on injection molded plastic" (1/120 MDKK).
- 2009-2012 Participant in CASE (Catalysis for Sustainable Energy) Center sponsored by the Danish Minister of Science.
- 2008-2015 Co-Investigator in a Villum Kann Rasmussen Centre of Excellence: "NANophotonics for Tera-bit Communications" (NATEC) (2.5/25 MDKK)
- 2008-2010 Principal Investigator, Supercomputing facilities at Danish Center for Scientific Computing (1.5 MDKK).
- 2005-2007 Principal Investigator, Supercomputing facilities at Danish Center for Scientific Computing.
- 2005-2007 Participant in NEDO research project (New Energy and Industrial Technology Research Organization, Japan) in collaboration with Tsukuba and Ghent Universities (0.3 MDKK).
- 2005-2010 Principal Investigator, EURYI project, European Science Foundation: "Synthesis and topology optimization of optomechanical systems" (1.16 MEuro)
- 2005 Rectors Strategic funding, DTU (0.5 MDKK).
- 2003-2005 Principal Investigator, STVF project, Danish Technical Research Council: "Designing bandgap materials and structures with optimized dynamic properties" (2.9 MDKK)
- 2003-2004 Principal Investigator, Toubro Foundation: "Development of 3D interactive topology optimization program" (25 kDKK)
- 2001-2002 Participant STVF, research project, "Phononic band gaps: analysis and optimization of wavepropagation in periodic materials" (0.66 MDKK)
- 1997-2003 Participant Research Project: Danish Center for Integrated Design (CID), Danish Research Agency
- 1997-2002 Principal Investigator, STVF Talent/THOR-programme (Technology for Highly Oriented Research), Danish Technical Research Council: "Design of MicroElectroMechanical Systems (MEMS)" (7.22 MDKK)

EXTENDED VISITS

with Prof. Kurt Maute, University of Colorado, Boulder, January-July, 2012.

with Prof. Alejandro R. Diaz, Michigan State University, MI, USA, April-May, 1994.

with Profs. John E. Taylor and Noboru Kikuchi, University of Michigan, May-June, 1994.

PRESENT AND FORMER INDUSTRY COLLABORATIONS

10i10, Denmark

Comsol, Sweden

DICON A/S, Lystrup, Denmark

FE-Design, 3ds, Germany. Now Simulia/Dassault.

IONAS A/S, Optics company, Birkerød, Denmark

KOHERAS A/S, Optics company, Birkerød, Denmark

MAN B&W Diesel, Copenhagen, Denmark

NIL Technology, Lyngby, Denmark

nTopology, New York, USA.

NOVO A/S, Hillerød, Denmark

Oqton Denmark A/S, Lyngby, Denmark

TOYOTA R&D, Japan

Widex, Denmark

3D-Printhuset

CONFERENCE ORGANIZATIONS

- 2023 Organizer of IUTAM Symposium “Ultralarge-scale Topology Optimization”, Royal Society of Science and Letters, Copenhagen.
- 2015 Overseeing and co-organization of WCSMO-11 in Sydney, Australia, as President of ISSMO.
- 2013 Overseeing and co-organization of WCSMO-10 in Orlando, Florida, as President of ISSMO.
- 2009 Organizer of DCAMM’s 12. Internal Symposium, Ringsted, Denmark, March (106 participants).
- 2007 Organizer of DCAMM’s 11. Internal Symposium, Silkeborg, Denmark, March (81 participants).
- 2005 Organizer of DCAMM’s 10. Internal Symposium, Skælskør, Denmark, March (90 participants).
- 2005 Co-organizer of IUTAM Symposium on Topological Design Optimization of Structures, Machines and Materials - Status and Perspective, Copenhagen.
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PAPERS AND CITATIONS

Total of 298 accepted papers in international journals, 1 monograph (co-authored with M. P. Bendsøe, 1 edited book, 3 patent applications (one granted), 80+ proceedings papers and 3 book chapters.

Number of citations in ISI Science Citation Index is 36,400 (plus 4500 to the monograph and 300 to the ph.d.-thesis). Hirsch h -index is 85 (including monograph and thesis). 10 of the papers are on the ISI Highly cited paper list, c.f. refs. [136, 139, 152, 158, 168, 172, 186, 222, 232, 250] below. Highly Cited Researcher, Web of Science, 2022.

Number of citations in Google Scholar is 71,800 and h -index is 105.

BOOKS

- [2] M. P. Bendsøe, N. Olhoff, and O. Sigmund, eds. *Topological design optimization of structures, machines and materials : Status and perspectives*. Solid Mechanics and its Applications. IUTAM Symposium on Topological Design Optimization of Structures, Machines and Materials. Dordrecht/Berlin: Kluwer/Springer, 2006, p. 608.
- [1] M. P. Bendsøe and O. Sigmund. *Topology Optimization - Theory, Methods and Applications*. Springer, 2003.
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THESES

- [3] O. Sigmund. *Topology Optimization Methods with Applications in Mechanism, MEMS and Material Design*. Thesis for the Danish Dr. Techn. Degree. Technical University of Denmark, 2001.
- [2] O. Sigmund. “Design of material structures using topology optimization”. The Danish Center for Applied Mathematics and Mechanics, DCAMM Special Report No. S69. PhD thesis. Department of Solid Mechanics, Technical University of Denmark, DK-2800 Lyngby, Dec. 1994.
- [1] O. Sigmund. “Dynamically reconfigurable adaptive truss manipulator”. MA thesis. Department of Solid Mechanics, Technical University of Denmark, 1991.
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PAPERS IN INTERNATIONAL JOURNALS

- [303] A. Dalklint, R.E. Christiansen, and O. Sigmund. “On performance bounds for topology optimization”. In: *Submitted* (2024). eprint: [arXiv:2410.20375](https://arxiv.org/abs/2410.20375).
- [302] B.M.A. Jokish, R.E. Christiansen, and O. Sigmund. “Engineering optical forces through Maxwell stress tensor inverse design”. In: *Submitted* (2024). eprint: [arXiv:2410.20009](https://arxiv.org/abs/2410.20009).
- [301] G. Isiklar, R.E. Christiansen, and O. Sigmund. “Topology Optimization of Thermal Initial Value Problems Exploiting Efficient Harmonic Analysis”. In: *Submitted* (2024).
- [300] Z. Zhao, R.D. Kundu, O. Sigmund, and X.S. Zhang. “Extreme nonlinearity by layered materials through inverse design”. In: *Submitted* (2024).
- [299] C.F. Christensen, J. Engqvist, F. Wang, O. Sigmund, and M. Wallin. “Extremal Structures with Embedded Pre-Failure Indicators”. In: *Proceedings of the National Academy of Sciences (PNAS)* (2024). accepted.
- [298] V. Cool, O. Sigmund, and N. Aage. “Metamaterial design with vibroacoustic bandgaps through topology optimization”. In: *Computer Methods in Applied Mechanics and Engineering* (2025). Accepted.
- [297] A. Dalklint, J. Alexandersen, A.H. Frederiksen, K. Poullos, and O. Sigmund. “Topology optimization of contact-aided thermo-mechanical regulators”. In: *International Journal for Numerical Methods in Engineering* (2024). accepted. [arXiv: 2406.00865](https://arxiv.org/abs/2406.00865).
- [296] A.H. Frederiksen, A. Dalklint, O. Sigmund, and K. Poullos. “Improved Third Medium Formulation for 3D TopologyOptimization with Contact”. In: *Computer Methods in Applied Mechanics and Engineering* 436 (2025), p. 117595.
- [295] V. Cool, O. Sigmund, N. Aage, F. Naets, and E. Deckers. “Vibroacoustic topology optimization for sound transmission minimization through sandwich structures”. In: *Journal of Sound and Vibration* 568 (2024), p. 117959.

- [294] A.H. Frederiksen, O. Rokos, K. Poullos, O. Sigmund, and M.G.D. Geers. “Adding friction to Third Medium Contact: A crystal plasticity inspired approach”. In: *Computer Methods in Applied Mechanics and Engineering* 432 (2024), p. 117412.
- [293] AH Frederiksen, O Sigmund, and K Poullos. “Topology Optimization of self-contacting structures”. In: *Computational Mechanics* 73 (2024), pp. 967–981. eprint: [arXiv:2305.06750](https://arxiv.org/abs/2305.06750).
- [292] L. Herrmann, O-Sigmund, V.M. Li, C. Vogl, and S. Kollmannsberger. “On Neural Networks for Generating Better Local Optima in Topology Optimization”. In: *Structural and Multidisciplinary Optimization* 67.11 (2024), p. 192. eprint: [arXiv:2407.17957](https://arxiv.org/abs/2407.17957).
- [291] A. Homayouni-Amlashi, O. Sigmund, T. Schlinquer, M. Rakotondrabe, and A. Mohand-Ousaid. “Matlab codes for 3D topology optimization of multi-material piezoelectric actuators and energy harvesters”. In: *Structural and Multidisciplinary Optimization* 67.9 (2024), p. 165.
- [290] P.D.L. Jensen, T.F. Olsen, J.A. Bærentzen, N. Aage, and O. Sigmund. “Efficient Inverse-designed Structural Infill for Complex Engineering Structures”. In: *Thin-Walled Structures* 195 (2024), p. 111427. eprint: [arXiv:2307.09518](https://arxiv.org/abs/2307.09518).
- [289] B.M.A. Jokish, R.E. Christiansen, and O. Sigmund. “Topology Optimization framework for designing efficient Thermo-Optical Phase Shifters”. In: *Journal of the Optical Society of America.,: B* 41.2 (2023), A18–A31.
- [288] B. Martinez de Aguirre Jokisch, B. Götzsche, P. Kristensen, M. Wubs, O. Sigmund, and R.E. Christiansen. “Omnidirectional Gradient Force Optical Trapping in Dielectric Nanocavities by Inverse Design”. In: *ACS Photonics* 11.12 (2024), pp. 5118–5127.
- [287] W. Li, O. Sigmund, and X.S. Zhang. “Analytical realization of complex thermal meta-devices”. In: *Nature Communications* 15 (2024), p. 5527.
- [286] C. Mommeyer, G. Lombaert, M. Schevenels, and O. Sigmund. “Taylor Series Approximations for Faster Robust Topology Optimization”. In: *Structural and Multidisciplinary Optimization* 67 (2024), p. 181.
- [285] Y. Wang and O. Sigmund. “Topology optimization of multi-material active structures to reduce energy consumption and carbon footprint”. In: *Structural and Multidisciplinary Optimization* 67.1 (2024), p. 5.
- [284] R.V. Woldseth, J.A. Bærentzen, and O. Sigmund. “Phasor noise for dehomogenisation in 2D multi-scale topology optimisation”. In: *Computer Methods in Applied Mechanics and Engineering* 418 (2024), p. 116551. eprint: arxiv.org/abs/2310.04881.
- [283] R.V. Woldseth, O. Sigmund, and P.D.L. Jensen. “An 808 Line Phasor-Based Dehomogenisation Matlab Code For Multi-Scale Topology Optimisation”. In: *Structural and Multidisciplinary Optimization* 67 (2024), p. 205. [arXiv:2405.14321](https://arxiv.org/abs/2405.14321).
- [282] M. Xiong, R.E. Christiansen, F. Schröder, Y. Yu, L.N. Casses, E. Semenova, K. Yvind, N. Stenger, O. Sigmund, and J. Mørk. “Experimental realization of deep sub-wavelength confinement of light in a topology-optimized InP nanocavity”. In: *Optics Express* 14.2 (2024), pp. 397–406.
- [281] M. Bayat et al. “Holistic computational design within additive manufacturing through topology optimization combined with multiphysics multi-scale materials and process modelling”. In: *Progress in Materials Science* (2023), p. 101129.
- [280] LG Bluhm, O Sigmund, and K Poullos. “Inverse design of mechanical springs with tailored nonlinear elastic response utilizing internal contact”. In: *International Journal of Non-Linear Mechanics* 157 (2023), p. 104552.
- [279] R.E. Christiansen, P.T. Kristensen, J. Mørk, and O. Sigmund. “Impact of the Figure of Merit for Optimizing Light-Matter Interaction in Photonic Inverse Design”. In: *Optics Express* 31.5 (2023), p. 8363.
- [278] C.F. Christensen, F. Wang, and O. Sigmund. “Topology Optimization of Multiscale Structures Considering Local and Global Buckling Response”. In: *Computer Methods in Applied Mechanics and Engineering* 408 (2023), p. 115969. eprint: [arXiv:2210.11477](https://arxiv.org/abs/2210.11477).
- [277] F. Ferrari and O. Sigmund. “A strategy for avoiding spurious localized buckling modes in topology optimization”. In: *International Journal for Numerical Methods in Engineering* 124.18 (2023), pp. 4118–4140.
- [276] A.C. Hayes, E.A. Träff, C.V. Sørensen, S.V. Willems, N. Aage, O. Sigmund, and G.L. Whiting. “Topology Optimization For Structural Mass Reduction of Direct Drive Electric Machines”. In: *Sustainable Energy Technologies and Assessments* 57 (2023), p. 103254.
- [275] L.C. Høghøj, C. Conlan-Smith, O-Sigmund, and CS Andreasen. “Coupled aeroelastic shape and topology optimization of wings”. In: *Structural and Multidisciplinary Optimization* 66 (2023), p. 116. eprint: [arXiv:2209.09330](https://arxiv.org/abs/2209.09330).
- [274] W. Li, Y. Jia, F. Wang, O. Sigmund, and X.S. Zhang. “Programming and physical realization of extreme three-dimensional responses of metastructures under large deformations”. In: *International Journal of Engineering Science* 191 (2023), p. 103881.
- [273] E.A. Träff, A. Rydahl, S. Karlsson, O. Sigmund, and N. Aage. “Simple and Efficient GPU accelerated Topology Optimisation: codes and applications”. In: *Computer Methods in Applied Mechanics and Engineering* 410 (2023), p. 116043.
- [272] J. Tucek, M. Capek, L. Jelinek, and O. Sigmund. “Density-Based Topology Optimization in Method of Moments: Q-factor Minimization”. In: *IEEE Transactions on Antenna and Propagation* 71.12 (2023). online, pp. 9738–9751. eprint: [arXiv:2303.15290](https://arxiv.org/abs/2303.15290).

- [271] F. Wang, M. Brøns, and O. Sigmund. “Non-hierarchical architected materials with extreme stiffness and strength”. In: *Advanced Functional Materials* (2023), p. 2211561.
- [270] F. Wang and O. Sigmund. “Architecting materials for extremal stiffness, yield and buckling strength”. In: *Programmable Materials 1* (2023), e6. eprint: [arXiv:2210.00003](https://arxiv.org/abs/2210.00003).
- [269] Y. Wang and O. Sigmund. “Multi-material Topology Optimization for Maximizing Structural Stability under Thermo-Mechanical Loading”. In: *Computer Methods in Applied Mechanics and Engineering* 407 (2023), p. 115938.
- [268] M. Albrechtsen et al. “Nanometer-scale photon confinement inside dielectrics”. In: *Nature Communications* 13 (2022), p. 6281. eprint: [arXiv:2108.01681](https://arxiv.org/abs/2108.01681).
- [267] M.N. Andersen, Y. Wang, F. Wang, and O. Sigmund. “Buckling and yield strength estimation of architected materials under arbitrary loads”. In: *International Journal of Solids and Structures* 254-255 (2022), p. 111842.
- [266] T. Barbier, E. Shakour, O. Sigmund, G. Lombaert, and M. Scheveels. “Topology optimization of damage-resistant structures with a predefined load-bearing capacity”. In: *International Journal for Numerical Methods in Engineering* 123.4 (2022), pp. 1114–1145.
- [265] G.L. Bluhm, K. Christensen, K. Poullos, O. Sigmund, and F. Wang. “Experimental verification of a novel hierarchical lattice material with superior buckling strength”. In: *APL Materials* 10.9 (2022), p. 090701.
- [264] M.O. Elingaard, N. Aage, J.A. Bærentzen, and O. Sigmund. “De-homogenization using Convolutional Neural Networks”. In: *Computer Methods in Applied Mechanics and Engineering* 388 (2022), p. 114197. eprint: arxiv.org/abs/2105.04232.
- [263] Göktuğ Işıklar, Philip Trøst Kristensen, Jesper Mørk, Ole Sigmund, and Rasmus Ellebæk Christiansen. “On the trade-off between mode volume and quality factor in dielectric nanocavities optimized for Purcell enhancement”. In: *Optics Express* 30.26 (2022), pp. 47304–47314.
- [262] P.D.L. Jensen, O. Sigmund, and J.P. Groen. “De-homogenization of Optimal 2D Topologies for Multiple Loading Cases”. In: *Computer Methods in Applied Mechanics and Engineering* 399 (2022), p. 115426.
- [261] W. Li, F. Wang, O. Sigmund, and X.S. Zhang. “Digital synthesis of free-form multimaterial structures for realization of arbitrary programmed mechanical responses”. In: *Proceedings of the National Academy of Sciences* 119.10 (2022), e2120563119.
- [260] Y. Luo, O. Sigmund, Q. Li, and S. Liu. “Topology optimization of structures with infill-supported enclosed voids for additive manufacturing”. In: *Additive Manufacturing* 55 (2022), p. 102795.
- [259] T. Navez, M.-P. Schmidt, O. Sigmund, and C.B.W. Pedersen. “Topology optimization guided by a geometrical pattern library”. In: *Structural and Multidisciplinary Optimization* 65.4 (2022), p. 108.
- [258] O. Sigmund. “On benchmarking and good scientific practise in topology optimization”. In: *Structural and Multidisciplinary Optimization* 65 (2022), p. 315.
- [257] G.A. da Silva, A.T. Bech, and O. Sigmund. “Structural topology optimization with predetermined breaking points”. In: *Computer Methods in Applied Mechanics and Engineering* 400 (2022), p. 115610.
- [256] F.C. Stutz, T.F. Olsen, J.P. Groen, N. Aage, O. Sigmund, J. Solomon, and J.A. Bærentzen. “Synthesis of Frame Field-Aligned Multi-Laminar Structures”. In: *ACM Transactions on Graphics* 41.5 (2022).
- [255] B. Telgen, O. Sigmund, and D. Kochmann. “Topology optimization of graded truss lattices based on on-the-fly homogenization”. In: *Journal of Applied Mechanics* 89.6 (Apr. 2022), p. 061006.
- [254] R.V. Woldseth, N. Aage, J.A. Bærentzen, and O. Sigmund. “On the use of artificial neural networks in topology optimisation”. In: *Structural and Multidisciplinary Optimization* 65 (2022), p. 294. eprint: arxiv.org/abs/2208.02563.
- [253] J. Zhang, F. Wang, O. Sigmund, L. Gao, and R.E. Christiansen. “Ultra-broadband edge-state pair for zigzag-interfaced valley Hall insulators”. In: *Science China Physics, Mechanics & Astronomy* 65.5 (2022), p. 257011.
- [252] M.N. Andersen, F. Wang, and O. Sigmund. “On the competition for ultimately stiff and strong architected materials”. In: *Materials & Design* 198 (2021), p. 109356.
- [251] G.L. Bluhm, O. Sigmund, and K. Poullos. “Internal contact modeling for finite strain topology optimization”. In: *Computational Mechanics* 67 (2021), pp. 1099–1114. eprint: [Arxiv:2010.14277v1](https://arxiv.org/abs/2010.14277v1).
- [250] R.E. Christiansen and O. Sigmund. “Inverse design in photonics by topology optimization: tutorial”. In: *Journal of the Optical Society of America B* 38.2 (2021), pp. 496–509. eprint: [arXiv:2008.11816v1](https://arxiv.org/abs/2008.11816v1).
- [249] R.E. Christiansen and O. Sigmund. “Compact 200 line MATLAB code for inverse design in photonics by topology optimization: tutorial”. In: *Journal of the Optical Society of America B* 38.2 (2021), pp. 510–520. eprint: arxiv.org/abs/2009.14276.
- [248] F. Ferrari, O. Sigmund, and J.K. Guest. “Topology Optimization with linearized buckling criteria in 250 lines of Matlab”. In: *Structural and Multidisciplinary Optimization* 63 (2021), pp. 3045–3066. eprint: [arXiv.org/2101.02973](https://arxiv.org/abs/2101.02973).
- [247] R. Giele, J. Groen, N. Aage, C.A. Andreasen, and O. Sigmund. “On approaches for avoiding low stiffness regions in variable thickness sheet and homogenization-based topology optimization”. In: *Structural and Multidisciplinary Optimization* 64 (2021), pp. 39–52.
- [246] J.P. Groen, C. Thomsen, and O. Sigmund. “Multi-scale topology optimization and de-homogenization using implicit geometry modeling”. In: *Structural and Multidisciplinary Optimization* 63 (2021), pp. 2919–2934.

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- [8] O. Sigmund. “Design of material structures using topology optimization”. In: *First World Congress on Structural and Multidisciplinary Optimization, Goslar, Germany, May 28 - June 2*. Ed. by G. I. N. Rozvany and N. Olhoff. Oxford: Pergamon, 1995.
- [7] U. D. Larsen, O. Sigmund, and S. Bouwstra. “Design and fabrication of compliant mechanisms and material structures with negative Poisson’s ratio”. In: *IEEE, International Workshop on Micro Electro Mechanical Systems, MEMS-96*. 1996.

- [6] O. Sigmund. “Some inverse problems in topology design of materials and mechanisms”. In: *Symposium on optimization of mechanical systems*. Ed. by D. Bestle and W. Schielen. IUTAM. Netherlands: Kluwer, 1996, pp. 277–284.
- [5] G. I. N. Rozvany, O. Sigmund, and T. Birker. “Optimal design of composite and fibre-reinforced plates”. In: *Optimization with Advanced Materials*. Ed. by P. Pedersen. Amsterdam: Elsevier, 1993, pp. 293–309.
- [4] G. I. N. Rozvany, O. Sigmund, M. Zhou, and T. Birker. “Iterative discretized methods for layout optimization and generalized shape optimization”. In: *Structural Optimization 1993, Rio de Janeiro, Brazil*. Ed. by J. Herskovits. 1993, pp. 139–151.
- [3] G. I. N. Rozvany, O. Sigmund, and T. Birker. “Optimal Design of Composite and Fibre-reinforced Plates”. In: *Optimal Design with Advanced Materials*. Ed. by P. Pedersen. Elsevier, 1993, pp. 293–309.
- [2] G. I. N. Rozvany, O. Sigmund, M. Zhou, and T. Birker. “Iterative Discretized Methods for Layout Optimization and Generalized Shape Optimization.” In: *Structural Optimization 1993, The World Congress on Optimal Design of Structural Systems. Proceedings VOL. X*. Ed. by J. Herskovits. Mech. Engng. Program, COPPE/Federal University of Rio de Janeiro, Rio de Janeiro, Brazil., 1993, pp. 139–151.
- [1] G. I. N. Rozvany, M. Zhou, T. Birker, and O. Sigmund. “Topology optimization using iterative continuum-type optimality criteria (OC) methods for discretized systems”. In: *Topology optimization of structures*. Ed. by M. P. Bendsøe and C. A. Mota Soares. Dordrecht: Kluwer, 1993, pp. 273–286.

MISCELLANEOUS PUBLICATIONS

- [4] O. Sigmund. “PDE-interpolations in Topology Optimization”. In: *IACM Expressions*. Vol. 23. International Association for Computational Mechanics, 2008, pp. 16–20. URL: <http://www.cimne.upc.es/iacm/News/Expressions23.pdf>.
- [3] O. Sigmund. *Hvor skal hullerne være og hvilken facon skal de have*. Web-article appeared January 2001 on Orbitalen, the Danish Radio (DR) natural science web-page: <http://www.dr.dk/videnskab/artikler/dtu/topolog.asp>. (In Danish). 2001.
- [2] O. Sigmund. *Notes and Exercises for the Course: FEM-Heavy (41525), fall semester*. Tech. rep. Department of Mechanical Engineering, DTU, 2001–2010.
- [1] O. Sigmund. *Exercises with “A 99-line topology optimization code written in Matlab”*. Tech. rep. Department of Solid Mechanics, Technical University of Denmark, 2000.

INVITED TALKS AT CONFERENCES

- [47] Invited talk, CMCS conference in Eindhoven, Netherlands, October 2023.
- [46] Plenary talk, EUSPEN conference on Precision Engineering, Copenhagen, August 2023
- [45] Plenary talk, Korean National Congress of Mechanical Engineering, South Korea, April, 2023
- [44] Invited Talk, Gordon Research Conference (GRC) August 2022, *Additive Manufacturing of Soft Materials*, Ventura, California.
- [43] KTH KEYNOTE seminar, November 12, 2020. play.kth.se/media/01e_Sigmund_talk/0_mffsjo3h
- [42] EML Webinar, June 17, 2020. See recording at YouTube www.youtube.com/watch?v=aPzGEGFdfqk.
- [41] Keynote Speaker and Panelist, Workshop on Exploiting Advanced Manufacturing Capabilities: Topology Optimization in Design, National Academy of Sciences, Washington, November 2019.
- [40] Invited Speaker, ECCOMAS Thematic Conference on Computational Modeling of Complex Materials across the Scales (CMCS 2019), Glasgow, October 2019.
- [39] Invited Talk, 2nd ECCOMAS Thematic Conference on Simulation for Additive Manufacturing (Sim-AM), Padua, Italy, September, 2019.
- [38] Invited Speaker, META 2019, Lisbon, Portugal, August 2019.
- [37] Keynote Speaker at the Symposium for Computational Fabrication, Simulia World Conference, Boston, June 2018.
- [36] Invited Speaker, IUTAM Symposium on Acoustic/elastic metamaterials, their design and applications, Beijing, June 2018.
- [35] Plenary Talk, International Congress Engineering of Advanced Materials ICEAM2017, October 2017.
- [34] Plenary Talk, 1st ECCOMAS Thematic Conference on Simulation for Additive Manufacturing (Sim-AM), October, 2017.
- [33] Plenary Speaker 4M/IWMF2016 Conference, Lyngby, Denmark, September 2016.
- [32] Plenary Lecturer ECCOMAS Congress, Crete, Greece, June 2016. 2500 Participants.
- [31] Invited speaker, ICTAM, MS on Topology Optimization, Montreal, August, 2016.
- [30] Invited speaker, IUTAM Symposium on Filling gaps in material property space, Cambridge, UK, March, 2016.
- [29] Plenary Lecturer COUPLED PROBLEMS 2015, Venice, June, 2015 (see presentation at www.youtube.com/watch?v=HH9RBQVzSg&list=PLiy1-VE6-1ovBrjsfNCvGmuQig21DdZ2&index=4).
- [28] Invited speaker, DCAMM 15th Symposium, Horsens, Denmark.
- [27] Keynote speaker, Opt-I 2014, Kos, Greece, June.

- [26] Eurogen 2013, Las Palmas de Gran Canaria, Spain, October (plenary speaker)
- [25] ECCOMAS 2012, Vienna, Austria, September (semi-plenary speaker)
- [24] NanoMeta 2011, Seefeldt, Austria, January (Invited speaker)
- [23] Invited Participant, TalkShop Roundtable at Smart Geometry, Copenhagen 2011 (see interview at www.youtube.com/watch?v=g8mJix3KmK4)
- [22] ECCM 2010, Paris, May (Semi Plenary Speaker)
- [21] CJK-OSM 6, Kyoto, Japan, June 2010, (Keynote speaker)
- [20] Netherlands MicroNano Conference '10, Twente, November (Keynote speaker)
- [19] 9th World Congress on Structural and Multidisciplinary Optimization 2009, Lisbon, May (Panel speaker)
- [18] Tacoma Photonics, Bad Honnef, 2009 (Invited Speaker)
- [17] Photonics West 2007, San Jose, January (Invited speaker).
- [16] Coupled Problems 2007, Ibiza, May (Plenary speaker).
- [15] GAMM Annual Meeting 2006, Berlin, March (Plenary speaker).
- [14] COMSOL User Conference 2006, Lyngby, November (Keynote speaker).
- [13] Danish Physical Society, Annual Meeting 2004, Nyborg, Denmark (plenary after dinner speech).
- [12] Congress for Computational Methods in Engineering, Lisbon, May-June, 2004 (keynote speaker).
- [11] DTIP2003, Cote D'Azur, France, May, 2003 (plenary speaker).
- [10] USNCCM, Albuquerque, New Mexico, August, 2003 (keynote lecturer).
 - [9] 6th Engineering Mechanics Symposium, Rolduc, Holland, November, 2003 (keynote speaker).
 - [8] Plasticity '02, Aruba, January, 2002.
 - [7] Workshop on Industrial Computational Mathematics, Uppsala December, 2001 (Keynote Speaker).
 - [6] 2nd ASMO/ISSMO Conference on Engineering Design Optimization, Swansea, UK, July, 2000 (keynote lecture).
 - [5] ICTAM 2000, Chicago August, 2000 (Sectional Lecturer).
 - [4] SPIE's 5th Annual International Symposium on Smart Structures and Materials, San Diego, USA, March, 1998
 - [3] Rencontre Mathematiques de Rouen, Homogeneisation, Solution Renormalisees et Solutions de Viscosite, Mont Saint Aignan, France, April, 1997.
 - [2] MMC/MIC, Joint Japan/Denmark Seminar on Micromachines, Lyngby, Denmark, June, 1997.
 - [1] 3rd International Conference on Intelligent Materials, Lyon, France, June 1996.

TALKS AT CONFERENCES (REGULAR SPEAKER)

+60 conference talks at international conferences.

SEMINARS

+70 seminars held at different institutions.

PH.D. EVALUATION COMMITTEES

- [23] Chintankumar Jansari, U of Luxembourg, January 2024.
- [22] Timo Gahlmann, Chalmers, November 2023.
- [21] Stijn Koppen, TU Delft, Septemeber 2022.
- [20] Bastian Telgen, ETH Zurich, July 2022.
- [19] Zhijun Wang, University of Eindhoven, Netherlands, Fall 2020.
- [18] Haojie Lian, University of Cardiff, UK, November 2014.
- [17] Etienne Lemaire, University of Liege, Belgium, August 2013.
- [16] Nico van Dijk, Delft University of Technology, Netherlands, November, 2012.
- [15] Christian Frier Hvejsel, Aalborg University, Denmark, June, 2011.
- [14] Michael Scherer, University of Erlangen-Nuremberg, Germany, January, 2011.
- [13] Jukka I. Toivanen, University of Jyvaskyla, Finland, June 2010.
- [12] Junji Kato, University of Stuttgart, Germany, November 2009.
- [11] Vivien Challis, School of Mathematics and Physics, University of Queensland, Australia, May 2009.
- [10] Ilkka Laitinen, Information Technology, Tampere University of Technology, Finland, May 2009.
- [9] Niklas Wiker, Mekaniksystemer, Linkopings Universitet, Sweden , September 2008.
- [8] Søren Dohn, Institut for Mikro og Nanoteknologi (MIC), DTU, Lyngby, March 2007.
- [7] Roman Kemmler, University of Stuttgart, Germany, January 2004.
- [6] Zachary Davis, Mikroelektronik Centret (MIC), DTU, Denmark, May 2003.
- [5] Matthias Stolpe, Kungliga Tekniska Hogskolan (KTH), Sweeden, March 2003.
- [4] Torben H. Lisby, Mikroelektronik Centret (MIC), DTU, Denmark, October 2002.
- [3] Thomas Borrvall, Mekaniksystemer, Linkopings Universitet. Linkoping, Sweeden, June 2002.
- [2] Jacob Thaysen, Mikroelektronik Centret (MIC), DTU, Denmark, September 2001.
- [1] Jan Tue Ravnkilde, Mikroelektronik Centret (MIC), DTU, Denmark, April 2001.

TEACHING EXPERIENCE

Lecturer and course responsible for 10 point graduate course "Finite Element (FEM) Heavy", Fall semesters 2001–, MEK, DTU.

Lecturer and shared course responsible for 5 point undergraduate course "Styrkelære 1", Spring semester 2016–, MEK, DTU.

Organizer and Lecturer in Ph.D.-course on Topology Optimization - Theory, methods and applications, June 2003, 2005, 2007, 2009, 2011, 2013, 2015, 2017, 2019, 2021, MEK, DTU.

Lecturer and course responsible for 5 point undergraduate course "Dimensioning and Strength 1", Spring semester 2015, MEK, DTU.

Lecturer at CISM Summer school: "Computational Micromechanics of Material Science", Udine, Italy, June 2014.

Lecturer and partly course responsible for 10 point undergraduate course "Mechanics&Materials", Fall semesters 2003-2004, 2013, Dept. of Mechanical Engineering, DTU.

Lecturer and partly course responsible for 5 point undergraduate course "Dimensioning and Strength 1", Spring semester 2010, MEK, DTU.

Lecturer at NKT-Academy Fall School, Mols, Denmark, October 2004.

Lecturer at CISM Summer school: "Computational Micromechanics of Material Science", Udine, Italy, September 2002.

Co-Organizer and Lecturer in Ph.D.-course on Optimal Designs: Size, Shape and Topology, DCAMM, June 20-28, 2002, MEK, DTU.

Lecturer and course responsible for under-graduate course "Elasticity", Spring 2000-2001, Dept. of Solid Mechanics, DTU.

Three lectures during the Danish Science Festival (Dansk Naturvidenskabsfestival) at Danish high-schools, October, 2000.

Organizer and Lecturer in Ph.D.-course on Advanced Topics in Structural Optimization: Topology Optimization - Theory and Practice, June 22-30, 2000, Dept. of Solid Mechanics, DTU.

Lecturer at "Graduate Course: Structural Optimization and Reliability", Eindhoven University of Technology, Netherlands, November 1999.

Ph.D.-course on Advanced Topics in Structural Optimization. June 25-July 3. 1998, Dept. of Solid Mechanics, DTU.

Assistant lecturing and assistantship in undergraduate course "Elasticity" held at Dept. of Solid Mechanics, spring 1997 and 1998. Responsible for exams spring 1998.

Lecturer at "Summer school on mathematical methods of material science and engineering", Coimbra, Portugal, August 1997.

Lecturer at Ph.D.-course on Advanced Topics in Structural Optimization: Materials and Algorithms, Oct. 8-10, 1996 and Jan. 21-23. 1997, Dept. of Mathematics, DTU.

Teaching assistantships in courses: Strength of materials I and II, Thermodynamics, Fortran programming, CAD/CAM, 1986-1990, DTU.

PHD-STUDENTS

(Statements in parentheses indicate present position and work place - when known)

- [47] 2024-2027: Victor Pisinger, *Topology Optimization of Quantum-Opto-Mechanical Systems*
- [46] 2023-2026: Philip Elbek, *Perturbation approaches and uncertainties in topology optimization*
- [45] 2023-2026: Markus Tandrup Holm, *Maximizing energy absorption by inverse design*
- [44] 2022-2025: Benat Martinex de Aguirre, *Inverse design of photonic devices for exploitation of transient and non-linear phenomena.*
- [43] 2021-2024: Gøktug Isiklar, *Topology Optimization in Nano Photonics.*
- [42] 2021-2024: Andreas Henrik Frederiksen, *Topology Optimization for Contact Problems.*
- [41] 2021-2024: Rebekka Vaarum Woldseth, *Emerging methods for topology optimization.*
- [39] 2021-2024: Peter Dørffler Ladegaard Jensen, *De-homogenization approaches for large scale topology optimization with non-linearities.*
- [38] 2021-2024: Christoffer Fyllgraf Christensen, *Extremal microstructures for non-linear multi-scale topology optimization.*
- [37] 2020-2023: (CA) Lukas Christian Høghøj, *Topology and Shape Optimization of Advanced Flow Problems..*
- [36] 2020-2023: Erik Träff, *Efficient Solution Methods for Large Scale Topology Optimization Problems.*
- [35] 2019-2022: (CA) Tim Felle Olsen, *Topology Optimization using Computer Graphics Techniques*
- [34] 2018-2021: (CA) Gore Lukas Bluhm, *Non-linear material design.* (Postdoc at DTU)
- [33] 2018-2021: Morten N. Andersen, *Material design for buckling.* (Modelling Specialist at Resolvent)

- [32] 2018–2021: (CA) Florian Cyril Stutz, *TopOpt and Computer Graphics*. (Business Analyst at Baloise Group Actuarial)
- [31] 2018–2021: (CA) Cian Conlan-Smith, *Aeroelastic shape optimization*. (Developer for Flight Physics Capabilities, Airbus, Germany)
- [30] 2017–2021: (CA) Hansotto Kristiansen, *Reduced order methods*. (Numerical modelling and Simulation Specialist at Howden)
- [29] 2017–2020: (CA) Mads Jacob Baandrup, *Long span bridge design*, MEK/BYG/COWI. (Structural Engineer/Specialist at COWI Bridges International)
- [28] 2016–2018: Jeroen Groen, *Multiscale and projection-based TopOpt*. (Senior Engineer, Oqton Inc)
- [27] 2015–2018: (CA) Joakim Vester Petersen, *Topopt for photovoltaics*, MEK/Aarhus University. (Asset Portfolio Lean in System Design at Vattenfall Wind Power)
- [26] 2015–2018: Christian Lundgaard, *Topopt for TEGs (thermoelectric generators)*. (Partner and CSO in Trebo)
- [25] 2015–2018: (CA) Jan H.K. Haertel, *Topopt for heat exchange*. (Technology Expert at Covestro)
- [24] 2014–2017: Sebastian Arlund Nørgaard, *TopOpt for thermofluidics*. (Software Developer at Canon Medical Informatics)
- [23] 2013–2016: Anders Clausen, *TopOpt for additive manufacturing*. (Principal Engineer, Oqton Inc)
- [22] 2013–2016: Rasmus Ellebæk Christiansen, *TopOpt for wave propagation problems*. (Associate Professor at Technical University of Denmark)
- [21] 2012–2015: Joe Alexandersen, *Multiscale and thermofluidic TopOpt*. (Associate Professor at University of Southern Denmark)
- [20] 2011–2014: Villads Egede Johansen, *Structural color generation*. MEK/Fotonik/B&O. (Optical Design Engineer at NIL Technology)
- [19] 2012–2015: (CA) Morten Nobel-Jørgensen, *TopOpt on portable devices*. (Software Engineer at Apple)
- [18] 2011–2014: (CA), Erik Andreassen, *TopOpt for damping materials*. (Principal Engineer, Oqton Inc)
- [17] 2011–2014: (CA), Asger Nyman Christiansen, *TopOpt using deformable simplicial complexes*, MEK/Compute. (Senior Graphics Engineer, Cylindo)
- [16] 2009–2013: Jacob Anders Andkjær, *Metamaterial Design*, MEK/EE/Fotonik. (Optical design engineer at Ibsen Photonics)
- [15] 2009–2012: Fengwen Wang, *TopOpt of Photonic Crystals*, MEK/Fotonik. (Senior Researcher at Technical University of Denmark)
- [14] 2008–2011: Niels Aage, *TopOpt of radio frequency and microwave structures*. (Associate Professor at Technical University of Denmark)
- [13] 2008–2011: Rene Matzen, *Transient TopOpt in optoelasticity*. (Lead Data Scientist at ECCO Advanced Analytics)
- [12] 2008–2011: Casper S. Andreasen, *Multiscale Optimization of Materials Subjected to Impact Loading*. (Associate Professor at Technical University of Denmark)
- [11] 2007–2010: (CA) Oded Amir, *Reanalysis and TopOpt*, Mathematics/MEK. (Associate Professor at Technion - Israel Institute of Technology)
- [10] 2006–2010: (CA) Lirong Yang, *TopOpt of Photonic Crystal Wave Guides*, Fotonik/MEK. (Principal Consultant, Decisioneers)
- [9] 2006–2009: (CA) Özlem Sardan, *Micromechanical grippers*, Nanotech/MEK. (Technical Project Leader MEMS at Philips Innovation Services)
- [8] 2006–2009: Maria Bayard Duhring, *TopoOpt for SAW devices*. (Structural Engineer, Rambøll, Department for Bridges)
- [7] 2004–2006: Allan Gersborg-Hansen, *TopOpt of Fluid Flows*, MAT/MEK. (Formerly Senior Manager at LM Wind Power)
- [6] 2002–2004: (CA) Atsushi Kawamoto, *Design of articulated mechanism by TopOpt*, MAT/MEK, DTU. (Program Manager, Toyota Central Research Development Laboratory Inc)
- [5] 2001–2004: Lars Voxen Hansen, *Smart Packaging of Fibre Lasers*, MEK / KOHERAS A/S. (Partner, VL Dynamics)
- [4] 1999–2002: Thomas Buhl, *Non-linear TopOpt in Combination with MEMS*. (Head of Center for Industrial Mechanics, Head of Mechatronics at Syddansk Universitet - University of Southern Denmark)
- [3] 1999–2002: Claus B. W. Pedersen, *TopOpt of Non-Linear Structures*. (Technology Director at CTO Office R&D SIMULIA - Dassault Systemes)
- [2] 1998–2001: (CA) Thomas A. Poulsen, *Multi-scale Representations in Optimal Design*.
- [1] 1996–1999: (CA) Jacques Jonsmann, *Technology Development for Microactuators*, MIC/MEK. (Manager at Joninn ApS)

POSTDOCS

(Statements in parentheses indicate present position and work place - when known)

- [31] 2024-: Christian Kern
- [30] 2024-: Christoffer F. Christensen
- [29] 2024-: Sukhminder Singh
- [28] 2023-2024: Anna Dalklint
- [23] 2022-: Federico Ferrari, *Buckling*.
- [27] 2021-2023: Yafeng Wang, *Adaptive structures*
- [26] 2021: Maria Brøns, *AM and TO*
- [25] 2021-2023: Gore Lukas Bluhm, *TO with contact*
- [24] 2018-2019: Nicolo Pollini, *Thermo-fluidics*. (Assistant Professor, Technion, Israel)
- [23] 2018-2019: Federico Ferrari, *Buckling*. (Postdoctoral Researcher at Johns Hopkins University)
- [22] 2018-2019: Yiqiang Wang, DTU Ørsted Postdoc, *Material design*. (Assistant Professor at Dalian University of Technology)
- [21] 2016-2020: Rasmus Ellebæk Christiansen, *Nano-optics*. (Associate Professor at Technical University of Denmark)
- [20] 2017: Jun Wu, DTU Ørsted Postdoc, *TopOpt for 3D print*. (Associate Professor at TU Delft)
- [19] 2014-2015: Haojie Lian, *Shape optimization*. (Lecturer at Taiyuan University of Technology)
- [18] 2013-2016: Mingdong Zhou, DTU Ørsted Postdoc, *Design for manufacturing tolerant structures*. (Associate Professor at Shanghai Jiao Tong University)
- [17] 2013: Jacob Anders Andkjær, *Structural Colours*. (Optical design engineer at Ibsen Photonics)
- [16] 2012-2014: Yuriy Elesin, *Nano-photonics*. (Senior Software Engineer at Haldor Topsøe A/S)
- [15] 2011-2014: Niels Aage, *Large scale TopOpt*. (Associate Professor at Technical University of Denmark)
- [14] 2011: Oded Amir, *Reanalysis methods*. (Associate Professor at Technion - Israel Institute of Technology)
- [13] 2010-2011: Maria Bayard Düring, *Surface Engineering*. (Structural Engineer, Rambøll, Department for Bridges)
- [12] 2007-2010: Allan Roulund Gersborg, *Optoelasticity*. (Formerly Senior Manager at LM Wind Power)
- [11] 2007-2008: Aycan Erentok, *Antenna design and Meta-materials*. (Antenna Design @ Tesla)
- [10] 2006: Roman Stainko, *Optoelasticity*. (RISC Software GmbH)
- [9] 2005-2006: Jesper Riishede, *Optoelasticity*. (Team Leader - Pipe System Design, National Oilwell Varco)
- [8] 2005-2007: Kristian G. Hougaard, *Photonic band gaps*. (Machine Learning Engineer at Dataanalyse i SKAT)
- [7] 2004-2007: Gil-Ho Yoon, *Structural acoustics and electromechanics*. (Professor at Hanyang University)
- [6] 2003-2005: Søren Halvkjær, *Phononic band gaps*. (Development Engineer at National Oilwell Varco Denmark)
- [5] 2002: Claus B.W. Pedersen, *MEMS-design*. (Technology Director at CTO Office R&D SIMULIA - Dassault Systemes)
- [4] 2002-2005: Jakob S. Jensen, *Phononic band gaps*. (Professor at Technical University of Denmark)
- [3] 2000-2002: Tyler Bruns, *MEMS-design*. (Simulation, Optimization, and Analytics for Digital Twin Solutions, ANSYS Inc)
- [2] 1998-1999: Dmitri Tcherniak, *MEMS-design*. (Research engineer at Bruel and Kjaer SVM)
- [1] 1998-2002: Niels L. Pedersen, *MEMS-design*. (Associate Professor at Technical University of Denmark)

SENIOR RESEARCHERS

- [3] 2018-2020: Anton Evgrafov.
- [2] 2016-: Fengwen Wang.
- [1] 2008-2017: Boyan Lazarov. (Research Staff Member at Lawrence Livermore National Laboratory)

M.SC./B.SC. STUDENTS (TOTAL OF 84)

- [2023] Ho Yuen Suen, Gustav Hofman Bang, Christian K. Jensen
- [2022] Liisu Miller, Johannes Lindegaard Lildholdt, Niels Christian Henriksen
- [2021] Peter Dørffler Ladegaard Jensen, Sebastian Vedsø Willems, Christian Vestergaard Sørensen, Martin Elingaard, Tanguy Navez
- [2020] Lars Morten Sørensen (B.Sc.), Manuel Jimenez Abarca,
- [2019] Christian Tyrrestrup and Thomas Alexander Vestergaard Sørensen, Hans Christian Christiansen, Keld Christensen, Søren Kjær Larsen, Lukas Christian Høghøj and Daniel Rugbjerg Nørhave, Erik Träff.

- [2018] Peter Bager Beuschau, Andy Mattulat Filipovic (B.Sc.), Nicolas Kjær Højfeldt, Nicolai Obitsø Trolldoft Jensen, Erik Träff (B.Sc.)
- [2017] Simon Dyring, Thomas Knudsen Lindberg and Lars Pallisgaard Hansen, Morten Jakobsen, Janus Asmussen, Daniel Gert Nielsen and Søren Damgaard Pedersen, Morten Nederlund, Christian Rye Thomsen, Simon Dyhring Larsen
- [2016] David Jens Svane Brøgger, Cetin Batur Dilgen and Sumer Bartug Dilgen, Louis Moe Morbitzer Christoffersen
- [2015] Morten Mengel Kaastrup, Samuel David Carlstedt (with Volvo busses), Jaafar Maher Taglass, Jeroen Groen, Paul Thedens, Mads Jacob Baandrup, Nina Høgh Jensen (B.Sc.), Daniel Vestergaard Nielsen
- [2014] Mark Munthe, Søren Madsen and Nis Peter Lange, Sebastian Arlund Nørgaard, Hlin Vala Adalsteinsdottir, Daniel Vestergaard Nielsen, Thomas Agger (B.Sc.), Christian Ejlersen, Daniel Øland Vonboe
- [2013] Joe Alexandersen
- [2012] Michael Cucarella Petersen and Søren Caspersen, Paw Møller and Henrik Juul Spietz (B.Sc.)
- [2011] Stine Skov Madsen, Joe Alexandersen (B.Eng.), Villads Egede Johansen
- [2010] Erik Andreassen and Anders Clausen
- [2007] Jonas Dahl, Kristoffer Eriksen and Daniel Kamyno Rasmussen, Rene Matzen and Thomas Harpsøe Poulsen
- [2006] Maria Bayard Düring, Morten Pedersen and Mads Peter Christiansen
- [2005] Peter Michael Clausen, Brian Rømer, Bogi Laxafoss and Anders Astrup-Larsen
- [2004] Andreas H. Nielsen
- [2003] Allan Gersborg-Hansen, Christian L. Felter, Charlotte Larsen and Joen Sindholt (B.Sc.)
- [1999] Claus B.W. Pedersen and Thomas Buhl, Jeppe Koefoed
- [1997] Martin Andersen
- [1996] Vinothan Manoharan (B.Sc., Princeton)

GUEST STUDENTS (TOTAL OF 24)

- 2023 Ph.D.-Student, Numan Khan (Italy).
- 2022 Ph.D.-Student, Vanessa Cool (Belgium).
- 2021 Ph.D.-Student, Tobias Barbier (Belgium).
- 2020 Postdoc, Gustavo Assis da Silva (Brazil).
- 2019-2020 Postdoc, Quhao Li (Taiwan).
- 2019-2020 Ph.D.-Student, Yu Hsin Kuo (Taiwan).
- 2019-2020 Ph.D.-Student, Yunfeng Luo (Tsinghua China).
- 2019 Ph.D.-Student, Kai Wu (Tsinghua. China).
- 2018 Ph.D.-Student, Gustavo Assis da Silva (Brazil).
- 2017 Ph.D.-Student, Federico Ferrari (Italy).
- 2016-2018 Ph.D.-Student, Yu Li (Xi'an, China).
- 2016-2018 Ph.D.-Student, Suna Yan (Xi'an, China).
- 2016 Ph.D.-Student, Xi Zhao (Dalian, China).
- 2015 Ph.D.-Student, David Ruiz Gracia (Spain).
- 2014 Ph.D.-Student, Daniel de Leon (Brazil).
- 2012 Ph.D.-Student, Byoung-Ug Park (Korea).
- 2009 Ph.D.-Student, Mathias Schevenels (Belgium).
- 2009 Ph.D.-Student, Ming Qing Wang (China).
- 2007 M.Sc.-Student, Benjamin Hessenauer (Germany).
- 2003 Ph.D.-student, Alberto Donoso (Spain), Topology Optimization
- 2002 Ph.D.-student, Michael Tellner (Sweden), Topology Optimization
- 2001–2002 Ph.D.-student, Gil-Ho Yoon (Korea), Wavelets in Topology Optimization.
- 1999, 2000 Ph.D.-student, Mathias Stolpe (Sweden), Topology optimization.
- 1999 Ph.D.-student, Thomas Borrvall (Sweden), Topology Optimization.
- 1998-1999 Ph.D.-student, Miguel Neves (Portugal), Buckling in microstructures.

RESEARCH ASSISTANTS (INCOMPLETE)

- 1999 Thomas Buhl, *MEMS-design*, MEK, DTU.
- 1999 Jeppe Koefoed, *MEMS-design*, DTU 1999.
- 1995 Ulrik Darling Larsen, *Manufacturing Methods for MEMS*, MEK/MIC.