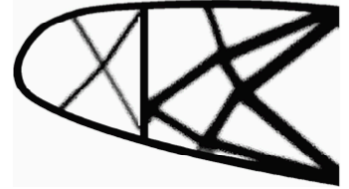
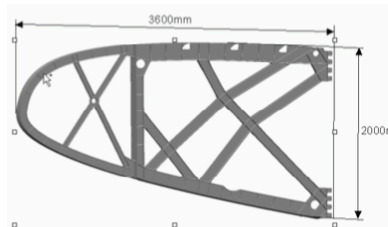


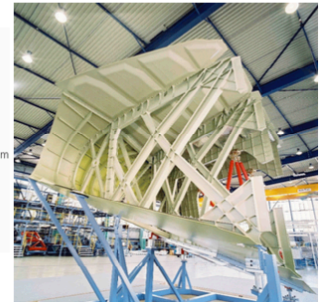
Design domain



Optimized topology



Actual structure



Manufactured wing structure

## Professor Martin P. Bendsøe

**The right-most image above is from:** Martin P. Bendsøe and Mathias Stolpe, "PLATO-N: Developing specialized methods for aeronautics structural design applications", International Conference on Engineering Optimization (EngOpt 2008), Rio de Janeiro, Brazil, 1-5 June 2008

See:

<http://www2.mat.dtu.dk/people/oldusers/M.P.Bendsoe/>  
<https://orbit.dtu.dk/en/persons/martin-p-bends%C3%B8e>  
<https://scholar.google.com/citations?user=YM7mTkwAAAAJ&hl=en>  
[https://www.researchgate.net/profile/Martin\\_Bendsoe](https://www.researchgate.net/profile/Martin_Bendsoe)

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### Summary:

Background: Research work in the area of design optimization (PDE constrained optimization), where computer based methods are developed for the rational optimization of structures and devices. A recent example project is PLATO-N, which is a FP6 European collaboration, which includes Airbus and EADS as partners. Here specialized algorithms are developed for the optimization of composite structures for aeronautics applications.

### Selected Publications:

#### Books:

"Topological design optimization of structures, machines and materials - status and perspectives." (Niels Olhoff and Ole Sigmund, co-editors), Kluwer/Springer, Dordrecht/Berlin, 2006. xiii+608 pp.

"Topology Optimization - Theory, Methods, and Applications." (with Ole Sigmund) Springer Verlag, Berlin Heidelberg, 2003, xiv+370 pp. (revised printing 2004)

"Synthesis in Bio Solid Mechanics." (Pauli Pedersen, co-editor), Kluwer Academic Publishers, Dordrecht, x+410 pp., 1999.

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J.E. Taylor and M.P. Bendsøe, “A mutual energy formulation for optimal structural design”, *Struct. Multidisc. Optim.*, Vol. 22, pp 95-101, 2001

Jakob S. Jensen, Ole Sigmund, Jon J. Thomsen and Martin P. Bendsøe, “Design of multi-phase structures with optimized vibrational and wave-transmitting properties”, 15th Nordic Seminar on Computational Mechanics, Aalborg, Denmark, 18-19 October, 2002

Martin P. Bendsøe, “Recent developments in topology design of materials and mechanisms”, *CANUM 2000: 32nd National Congress of Numerical Analysis, ESAIM Proceedings*, Vol. 11, pp 41-60, 2002

Neves MM, Sigmund O, Bendsøe MP (2002) Topology optimization of periodic microstructures with a penalization of highly localized buckling modes. *Int J Numer Meth Eng* 54:809–834

M.P. Bendsøe, J.M. Guedes, M.M. Neves, H.C. Rodrigues and O. Sigmund, “Aspects of the design of microstructures by computational means”, *GAKUTO International Series, Mathematical Sciences and Applications*, Vol. 18, 2003

S. Chellappa, A.R. Diaz and M.P. Bendsøe, “Layout optimization of structures with finite-size features using multiresolution analysis”, *Structural and Multi-disciplinary Optimization*, October 2004

Martin P. Bendsøe, Erik Lund, Niels Olhoff and Ole Sigmund, “Topology optimization – Broadening the areas of application”, *Control and Cybernetics*, Vol. 34, No. 1, 2005

M.P. Bendsøe, M. Kocvara, E. Lund, M. Stingl, M. Stolpe and J. Stegmann, “Optimal structural design with composites: Free material and laminate design”, 6<sup>th</sup> European Solid Mechanics Conference (ESMC 2006), Budapest, Hungary, 28 August – 1 September, 2006

Martin P. Bendsøe and Mathias Stolpe, “PLATO-N: Developing specialized methods for aeronautics structural design applications”, *International Conference on Engineering Optimization (EngOpt 2008)*, Rio de Janeiro, Brazil, 1-5 June 2008