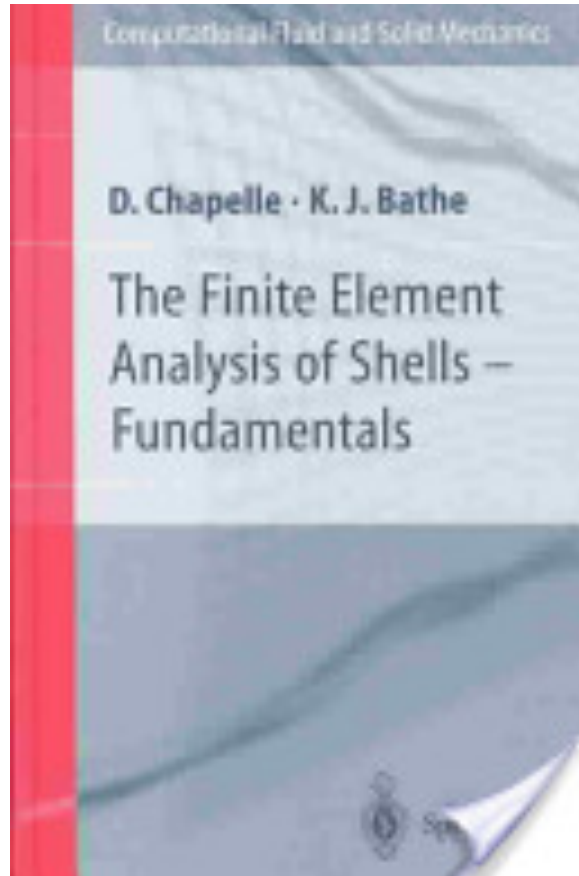




Professor Dominique Chapelle



Dominique Chapelle and K. J. Bathe, “The Finite Element Analysis of Shells – Fundamentals (2nd Edition), Springer, 2011, 410 pages, 978-3-642-16407-1

See:

<https://m3disim.saclay.inria.fr/people/dominique-chapelle/>

<https://www.inria.fr/en/centre/saclay/news/dominique-chapelle-appointed-head-of-science>

https://www.researchgate.net/profile/Dominique_Chapelle

<https://scholar.google.fr/citations?user=UIXQESEAAA&hl=en>

Mathematical and Mechanical Modeling with Data Interaction in SIMulations for Medicine (M3DISIM)
Inria Saclay Ile-de-France Research Center, École Polytechnique

Biography:

Dominique Chapelle graduated from the École Polytechnique before studying engineering with the Corps des Ponts et Chaussées . He then went on to do his Masters at MIT (Massachusetts Institute of Technology), where he first became interested in research. He undertook his PhD at the Laboratoire Central des Ponts et Chaussées , in Applied Mathematics for mechanical and civil engineering. That was when he first worked with researchers at Inria. After completing his thesis in 1997, he joined the Inria Rocquencourt Research Centre where he began his career as a young researcher. In 2000, Dominique Chapelle formed the MACS team, involved in every stage of its set up and thereafter in its three assessment reviews. In 2004, he decided to leave the Corps des Ponts et Chaussées to become an Inria Research Director. From 2004 to 2009, Dominique Chapelle also held the post of Deputy Head of Science at Inria Rocquencourt. Over the years, the MACS team focused more and more on

modelling for medicine, particularly in developing models of the heart. At the same time, plans were underway to open the Inria Saclay – Île-de-France Research Centre. Convinced that the scientific ecosystem of the Plateau de Saclay held immense advantages for French research, Dominique Chapelle wanted to be involved in the adventure and he and his team moved to Saclay in 2012. Their arrival at the Inria Saclay – Île-de-France Research Centre opened up new collaborations relating to the new subjects studied by the MACS team, which came to the end of its run soon after. It was succeeded by the M3DISIM team, a joint team with the Laboratoire de Mécanique des Solides (Ecole Polytechnique, CNRS) .

Research Interests:

Numerical methods and mathematical analysis for structural mechanics (shells, in particular); Biomechanical modelling, with major focus on the cardiovascular system; Inverse problems: estimation, data assimilation for above models.

Various Responsibilities:

VP Research for Inria Saclay Île-de-France Research Center
Member of the editorial boards of Computers & Structures and ESAIM:M2AN
Member of the board of directors of the VPH Institute

Selected Publications:

Book:

Dominique Chapelle and K. J. Bathe, “The Finite Element Analysis of Shells – Fundamentals (2nd Edition), Springer, 2011, 410 pages, 978-3-642-16407-1

Journal Articles:

Dominique Chapelle and Annabelle Collin, “Strong convergence results for the asymptotic behavior of the 3D-shell model”, Journal of Elasticity, Vol. 115, No. 2, pp 173-192, 2014
Cyril Touze, Marina Vidrascu and Dominique Chapelle, “Direct finite element computation of non-linear modal coupling coefficients for reduced-order shell models”, Computational Mechanics, Vol. 54, pp 567-580, 2014
Daniele Trimarchi, Marina Vidrascu, Dominic Taunton, Stephen Turnock, Dominique Chapelle, “Wrinkle development analysis in thin sail-like structures using MITC shell finite elements”, Finite Elements in Analysis and Design, Vol. 64, pp 48-64, 2013
Dominique Chapelle and Iria Paris, “Detailed reliability assessment of triangular MITC elements for thin shells”, Computers & Structures, Vol. 85, pp 2192-2202, 2008
Lourenco Beirao da Veiga, Dominique Chapelle, Iria Paris, “Towards improving the MITC6 triangular shell element”, Computers & Structures, Vol. 85, pp 1589-1610, 2007
Dominique Chapelle, Cristinel Mardare, Arnaud Münch, “Asymptotic considerations shedding light on incompressible shell models”, Journal of Elasticity, Vol. 76, pp 199-246, 2004
Dominique Chapelle, Anca Ferent, K.J. Bathe, “3D-shell elements and their underlying mathematical model”, Mathematical Models and Methods in Applied Sciences, Vol. 14, No. 1, pp 105-142, 2004
Dominique Chapelle, Anca Ferent, Patrick Le Tallec, “The treatment of 'pinching locking' in 3D-shell elements”, ESAIM: Mathematical Modelling and Numerical Analysis, Vol. 37, No. 1, pp 143-158, 2003
P.S. Lee, Klaus-Jürgen Bathe, Dominique Chapelle, “A shell problem 'highly sensitive' to thickness changes”, International Journal for Numerical Methods in Engineering, Vol. 57, No. 8, pp 1039-1052, 2003
Dominique Chapelle, D.L. Oliveira, M.L. Bucalem, “MITC elements for a classical shell model”, Computers & Structures, Vol. 81, pp 523-533, 2003

Dominique Chapelle, "Some new results and current challenges in the finite element analysis of shells", *Acta Numerica*, Vol. 10, pp 215-250, 2001

Klaus-Jürgen Bathe, Alexander Iosilevich, Dominique Chapelle, "An inf-sup test for shell finite elements", *Computers & Structures*, Vol. 75, No. 5, pp 439-456, 2000

Klaus-Jürgen Bathe, Alexander Iosilevich, Dominique Chapelle, "An evaluation of the MITC shell elements", *Computers & Structures*, Vol. 75, No. 1, pp 1-30, 2000

Dominique Chapelle, Klaus-Jürgen Bathe, "The mathematical shell model underlying general shell elements", *International Journal for Numerical Methods in Engineering*, Vol. 48, No. 2, pp 289-313, 2000

Dominique Chapelle, Rolf Stenberg, "An optimal low-order locking-free finite element method for Reissner-Mindlin plates", *Mathematical Models and Methods in Applied Sciences*, Vol. 8, No. 3, pp 407-430, 1998

Dominique Chapelle, Rolf Stenberg, "Stabilized finite element formulations for shells in a bending dominated state", *SIAM Journal of Numerical Analysis*, Vol. 36, No. 1, pp 32-73, 1998

Dominique Chapelle, Klaus-Jürgen Bathe, "Fundamental considerations for the finite element analysis of shell structures", *Computers & Structures*, Vol. 66, pp 19-36, 1998