



Professor Bruno Cochelin

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Materials and Structures

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Research Areas:

Structural mechanics, Numerical methods for mechanics, buckling and post-buckling, nonlinear vibrations, Instabilities

Selected Publications:

BOOK

Méthode Asymptotique Numérique (in french) by B. Cochelin, N. Damil and M. Potier-Ferry. Hermès Sciences, Lavoisier 2007.

B. Cochelin and M. Potier-Ferry, "A numerical model for buckling and growth of delaminations in composite laminates", Computer Methods in Applied Mechanics and Engineering, Vol. 89, Nos. 1-3, August 1991, pp. 361-380, Special Issue: Second World Congress on Computational Mechanics

- B. Cochelin, N. Damil and M. Potier-Ferry. "Asymptotic-Numerical Methods and Padé approximants for non-linear elastic structures" *Int. J. Numer. Methods Engng*, Vol 37, p 1187-1213, 1994.
- B. Cochelin. "A path following technique via an Asymptotic-Numerical method" *Computers & Structures*, Vol 53, N° 5, p 1181-1192, 1994.
- A. Najah, B. Cochelin, N. Damil and M. Potier-Ferry. "A critical review of Asymptotic-Numerical Method" *Archives of Computational Methods in Engineering*, Vol 5, 31-50, 1998
- H. Zarouni, B. Cochelin and M. Potier-Ferry. "Asymptotic-numerical methods for shells with finite rotations" *Computer Methods in Applied Mechanics and Engineering*, Vol 175, 71-85, 1999.
- J.M. Cadou, M. Potier-Ferry, B. Cochelin and N. Damil "Asymptotic Numerical Method for stationary Navier-Stokes equation and with Petrov-Galerkin formulation", *Int. J. Numer. Methods Engng*, Vol 50, p 825-845, 2001
- Sébastien Baguet and Bruno Cochelin, "Stability of thin-shell structures and imperfection sensitivity analysis with the asymptotic numerical method", *Revue Européenne des Eléments Finis*, Hermès, 2002, 11/2-3-4, pp.493-509.
- S. Baguet B. Cochelin. "On the behaviour of the ANM continuation in the presence of bifurcations", *Comm. In Numer. Meth. in Engng*, Vol 19, N° 6, p459-471, 2003.
- R. Arquier and B. Cochelin, "Numerical computation of non linear modes of elastic structures", *Third European Conference on Computational Mechanics*, edited by Carlos A. Mota Soares, et al, Springer, 2006
- B. Cochelin C. Vergez. "A high order purely frequency-based harmonic balance formulation for continuation of periodic solutions" To appear in *Journal Of Sound and Vibrations*. 2009
- Karkar Sami, Cochelin Bruno, Christophe Vergez, "[A comparative study of the harmonic balance method and the orthogonal collocation method is stiff nonlinear systems](#)", *Journal of Sound and Vibration*, 2014, vol. 333, issue 12, pp. 2554-2567
- Simon Clement, Sergio Bellizzi, Cochelin Bruno Ricciardi Guillaume, "[Sliding window proper orthogonal decomposition: Application to linear and nonlinear modal identification](#)", *Journal of Sound and Vibration*, 2014, vol. 333, issue 21, pp. 5312-5323
- Picault Elia, Marone-Hitz Pernelle, Stéphane Bourgeois, Cochelin Bruno, François Guinot, "A planar model with flexible rod cross-section for the folding and the dynamic deployment of tape springs: improvements and comparisons with experiments", *International Journal of Solids and Structures*, 2014, vol. 51, issue 18, pp. 3226-3238
- Karkar Sami, Cochelin Bruno, Christophe Vergez, "A high-order, Purely frequency harmonic balance based formulation for continuation of periodic solutions: The case of non-polynomial nonlinearities", *Journal of Sound and Vibration*, 2013, vol. 332, Issue 4, pp. 968-977

Stéphane Bourgeois, Cochelin Bruno, François Guinot, Picault Elia, “Buckling analysis of tape-spring rod using a flexible model with cross-sections”, *European Journal of Computational Mechanics*, 2012, Vol. 21, issue 3-6, pp. 184-194