



Professor Basile Audoly



Boundary of a torn membrane



Shape of a loose knot

See:

<http://www.lmm.jussieu.fr/~audoly/>

<http://scholar.google.com/citations?user=gpwtlogAAAAJ&hl=en>

<http://ukcatalogue.oup.com/product/9780198506256.do>

<http://dblp.uni-trier.de/pers/hd/a/Audoly:Basile>

http://imechanica.org/profile/profile_6/Basile+Audoly

Short biography:

I am a researcher at the CNRS (directeur de recherches), working at the Institut de mécanique d'Alembert (University Paris 6). I am also teaching as a Professeur chargé de cours à temps partiel à l'Ecole polytechnique

Research interests:

My research interests are mainly nonlinear mechanics, buckling, rods, plates and shells theories

Miscellaneous:

Our book Elasticity and Geometry is available (B.A. and Y. Pomeau, Oxford University Press, 2010): Discrete Elastic Rods, which has been licensed to Adobe, serves as the foundation for the Bristle Tips feature (Adobe Illustrator and Adobe Photoshop (Versions CS5 and later).

Teaching:

Slender Structures (MEC 553), Ecole Polytechnique

Petites classes de Fluides-structures (MEC 561), Ecole Polytechnique

Petites classes de Mécanique des milieux continus (MEC 431), Ecole Polytechnique

Tutorats de mécanique, EPSCI

Award:

2006 Ig-Nobel Prize in physics:

Basile Audoly and Sebastien Neukirch of the Université Pierre et Marie Curie, in Paris, for their insights into why, when you bend dry spaghetti, it often breaks into more than two pieces.

Selected Publications:

M. A. Dias and B. Audoly, ““Wunderlich, meet Kirchhoff”: A general and unified description of elastic ribbons and thin rods”, Journal of Elasticity, to appear, 2014

H. Turlier, B. Audoly, J. Prost, and J.-F. Joanny, “Furrow constriction in animal cell cytokinesis”, *Biophysical Journal*, 106(1):114-123, 2014

J. T. Miller, A. Lazarus, B. Audoly, and P. M. Reis, “Shapes of a suspended curly hair”, *Physical Review Letters*, 112:068103, 2014

M. A. Dias and B. Audoly, “A non-linear rod model for folded elastic strips”, *Journal of the Mechanics and Physics of Solids*, 62:57-80, 2014

B. Audoly, N. Clauvelin, P.-T. Brun, M. Bergou, E. Grinspun, and M. Wardetzky, “A discrete geometric approach for simulating the dynamics of thin viscous threads”, *Journal of Computational Physics*, 253:18-49, 2013.

J. Hure, and B. Audoly, “Capillary buckling of a thin film adhering to a sphere”, *Journal of the Mechanics and Physics of Solids*, 61:450-471, 2013

A. C. Callan-Jones, P.-T. Brun, and B. Audoly, “Self-similar curling of a naturally curved Elastica”, *Physical Review Letters*, 108(17):174302, 2012

A. Antkowiak, B. Audoly, C. Josserand, S. Neukirch, and M. Rivetti, “Instant fabrication and selection of folded structures using drop impact”, *Proceedings of the National Academy of Sciences*, 108(26):10400-10404, 2011

G. Pfingstag, B. Audoly, and A. Boudaoud, “Linear and non-linear stability of floating viscous sheets”, *Journal of Fluid Mechanics*, 683:112-148, 2011

B. Audoly, “Localized buckling of a floating Elastica”, *Physical Review E (Statistical, Nonlinear, and Soft Matter Physics)*, 84(1), 2011

N. Clauvelin, B. Audoly, and S. Neukirch, “Matched asymptotic expansions for twisted elastic knots: a self-contact problem with non-trivial contact topology”, *J. Mech. Phys. Sol.* 57:1623-1656, 2009

B. Audoly and A. Boudaoud, “Buckling of a thin film bound to a compliant substrate”, *Journal of the Mechanics and Physics of Solids*, 56(7):2401–2458, 2008

(part 1). Formulation, linear stability of cylindrical patterns, secondary bifurcations

(part 2). A global scenario for the formation of herringbone pattern

(part 3). Herringbone solutions at large buckling parameter

B. Audoly, N. Clauvelin, and S. Neukirch, “Elastic knots”, *Physical Review Letters*, 99(16):164301, 2007

B. Audoly and S. Neukirch, “Fragmentation of rods by cascading cracks: Why spaghetti does not break in half”, *Physical Review Letters*, 95(9):095505, 2005

B. Audoly and A. Boudaoud, “Self-similar structures near boundaries in strained systems”, *Phys. Rev. Lett.*, 91(8):086105, Aug 2003

B. Audoly, B. Roman, and A. Pocheau, “Secondary buckling patterns of a thin plate under in-plane compression”, *The European Physical Journal B*, 27:7–10, 2002

B. Audoly, “Mode-dependent toughness and the delamination of compressed thin films”, *Journal of the Mechanics and Physics of Solids*, 48(11):2315–2332, 2000

B. Audoly, “Stability of straight delamination blisters”, *Physical Review Letters*, 83(20):4124–4127, Nov 1999