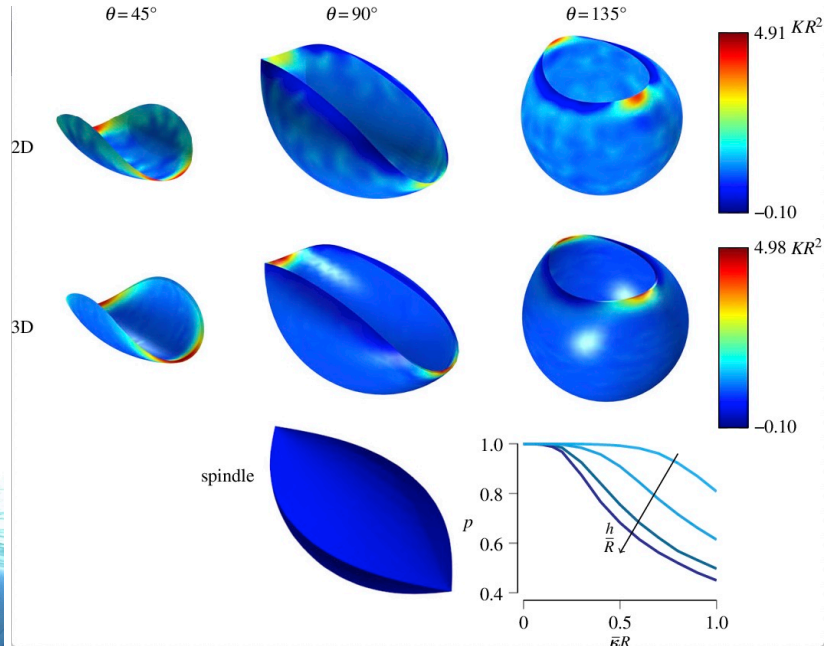




Professor Matteo Pezulla



From: Matteo Pezulla, Norbert Stoop, Xin Jiang and D.P. Holmes, "Curvature-driven morphing of non-Euclidean shells", Proceedings of the Royal Society A, Vol. 473, No. 2201, 31 May 2017

See:

<https://scholar.google.it/citations?user=ERcPwMUAAAAJ&hl=en>

<https://mpezzullablog.wordpress.com/>

Flexible Structures Laboratory (FLEXLAB), Institute of Mechanical Engineering
École Polytechnique Fédérale de Lausanne (EPFL)

Autobiography:

I am a Postdoctoral Associate in the [flexLab](#) at [EPFL](#), working with Prof. Pedro M. Reis. My current research involves aspects of fluid-structure interactions relevant to the understanding of the behavior of porous wings at low Reynolds numbers. I also keep an interest on the theoretical and applied mechanics of thin shells. I work among solid mechanics, fluid mechanics, and differential geometry and I am interested in analytical, numerical, and experimental methods. I am a member of the Italian Research Group in Mathematical Physics (GNFM) and the American Physical Society (APS).

An Earlier Autobiography:

I am a Postdoctoral Associate in the Department of Mechanical Engineering at Boston University. I work in the MOSS lab under the supervision of Prof. Douglas P. Holmes. My current research involves aspects of theoretical and applied mechanics relevant to controlling the shape of thin shells by coupling geometry and swelling. I am interested in studying the behavior of soft active materials such as gels and bio-hybrid systems based on muscular thin films (MTFs) that can have intriguing applications in biomimetics and soft robotics. I work among solid mechanics, differential geometry and swelling and I am interested in developing reduced models to study the morphing of thin structures via analytical, numerical and experimental methods.

Selected Publications:

Lucantonio, A., Nardinocchi, P., Pezulla, M.: Swelling-induced and controlled curving in layered gel beams. Proc. R. Soc. A Math. Phys. Eng. Sci. 470(2171), 1–16 (2014).

A. Lucantonio, P. Nardinocchi, M. Pezulla, and L. Teresi, Smart Materials and Structures 23, 045043 (2014).

Nardinocchi, P., Pezulla, M. and Teresi, L. [2015a] “Anisotropic swelling of thin gel sheets,” *Soft Matter* 11, 1492–1499.

Nardinocchi, P., Pezulla, M. and Teresi, L. [2015b] “Steady and transient analysis of anisotropic swelling in fibered gels,” *Journal of Applied Physics* 118, 244904.

Pezulla, M. , Shillig, S. A. , Nardinocchi, P. , and Holmes, D. P. , 2015, “Morphing of Geometric Composites Via Residual Swelling,” *Soft Matter*, 11(29), pp. 5812–5820.

Matteo Pezulla, Gabriel P. Smith, Paola Nardinocchi and Douglas P. Holmes, “Geometry and mechanics of thin growing bilayers”, *Soft Matter*, Vol. 12, No. 19, pp 4435-4442, 2016

Matteo Pezulla, Norbert Stoop, Xin Jiang and D.P. Holmes, “Curvature-driven morphing of non-Euclidean shells”, *Proceedings of the Royal Society A*, Vol. 473, No. 2201, 31 May 2017

Matteo Pezulla, Norbert Stoop, Mark P. Steranka, Abdikhalaq J. Bade and Douglas P. Holmes, “Curvature-induced instabilities of shells”, *Physical Review Letters*, June 2017, DOI: 10.1103/PhysRevLett.120.048002

Lucia Stein-Montalvo, Paul Costa, Matteo Pezulla and Douglas P. Holmes, “Buckling of geometrically confined shells”, *Soft Matter*, December 2018

Lucia Stein-Montalvo, Paul Costa, Matteo Pezulla and Douglas P. Holmes, “Buckling of geometrically confined shells”, *Soft Matter*, Vol. 15, No. 6, pp 1215-1222, 14 February 2019

Anna Lee, Dong Yan, Matteo Pezulla, Douglas P. Holmes and Pedro M. Reis, “Evolution of critical buckling conditions in imperfect bilayer shells through residual swelling”, *Soft Matter*, Vol. 15, No. 30, pp 6134-6144, 28 June 2019