Professor Paola Nardinocchi

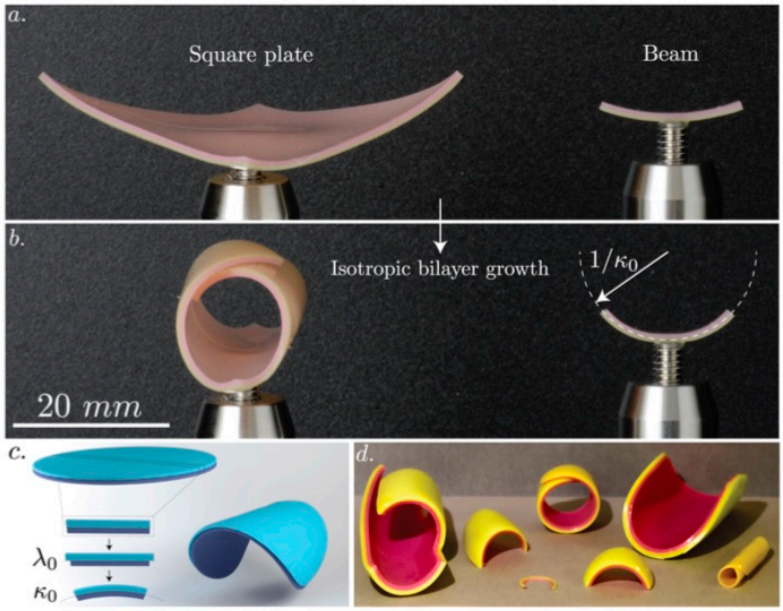

FIG. 1. (a) A bilayer disk and the beam cut from it. (b) Isometric limit. (c) Measuring the natural curvature of the disk as the realized curvature of the beam. (d) Isometric states obtained by residual swelling of disks having different shapes.

From: Matteo Pezzulla, 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

See:
https://sites.google.com/a/uniroma1.it/paolanardinocchi/
https://www.researchgate.net/profile/Paola_Nardinocchi
https://scholar.google.com/citations?user=mrNCqSYAAAAJ&hl=en
http://www.ingaero.uniroma1.it/Documenti/CV/cv%20Nardinocchi.pdf

Department of Structural and Geotechnical Engineering
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Autobiography:
My research interests include nonlinear mechanics of soft active solids and structures, swelling-driven mechanics of polymeric materials, design and control of stimuli-responsive materials, cardiac mechanics and modeling of muscle contraction.

Biography:
Born on December 29, 1962. Graduated in Engineering in 1987. PhD in Structural Mechanics in 1992. Professor of Mechanics of Solids and Structures since 2005 at the Università di Roma "La Sapienza". Member of the Department of Structural Engineering and Geotechnics.
Member of the Italian Research Group in Mathematical Physics (GNFM), the Italian Association of Theoretical and Applied Mechanics (AIMETA), the Italian Society of Applied and Industrial Mathematics (SIMAI), the European Mechanics Society (EUROMECH).
Main research lines (in chronological order): relation between structural mechanics and the three-dimensional theory of elasticity; plates and shells models; direct theory of bodies with affine microstructure; direct theory of

rods as one-dimensional continuua with affine microstructure; procedures for constitutive identification; modeling junctions in elastic multistructures; biomechanics of blood vessels; remodeling of arterial walls; electro-mechanical models of excitable elastic tissues; cardiac mechanics.

Selected Publications:

Antonio DiCarlo and Paola Nardinocchi, "On the torsion of soft cylindrical shells", Proceedings of the Symposium on Trends in Applications of Mathematics to Mechanics, 25-29 May 1998 (STAMM98); paper revised 17 June, 1999

P. Nardinocchi and P. Podio-Guidugli, "Levinson-type benchmarks for slide-clamped and elastically supported plates", Journal of Elasticity, Vol. 73, pp 211-230, 2003

Alessandro Lucantonio, Matthieu Roche, Paola Nardinocchi and Howard A. Stone, "Buckling dynamics of a solvent-stimulated stretched elastomeric sheet", Soft Matter, Vol. 10, No. 16, pp 2800-2804, 2014

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

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

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

Pezzulla, 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 Pezzulla, 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

P. Nardinocchi and E. Puntel, "Swelling-induced wrinkling in layered gel beams", Proceedings of the Royal Society A, Vol. 473, No. 2207, 15 November 2017