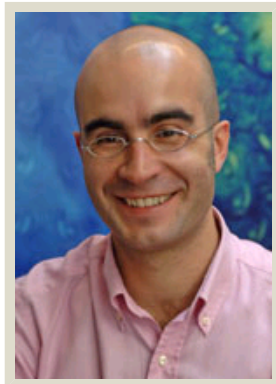


## Faculty - Pedro Miguel Reis

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[View a short video](#) about Pedro Reis' work on the mechanics of thin structures.

### [View Publications](#)

### Education

- B.Sc. in Physics, University of Manchester, UK, 1999
- Certificate of Advanced Studies in Mathematics (Part III), University of Cambridge, UK, 2000
- Ph.D. in Physics, University of Manchester, UK, 2004

### Research Interests

Pedro Reis' research interests lie in the general area of deformation of thin elastic objects; including rods, plates and shells. The large displacements permissible in such configurations can give rise to non-negligible geometric nonlinearities, even if its material properties remain linear. Of interest is also the coupling of the elasticity of thin objects with other phenomena such as fracture, adhesion, fluid forces at liquid interfaces and flow.

Practical examples of these mechanisms are often found in both the natural world and in technological applications.

### Teaching Interests

- 1.101 - Introduction to Civil Engineering Design
- 18.384 - Undergraduate Seminar in Physical Applied Mathematics
- 18.354 - Nonlinear Dynamics II: Continuum Systems

### Selected Publications

1. J. Shim, C. Perdigou, E.R. Chen, K. Bertoldi and P.M. Reis, "Buckling induced encapsulation of structured elastic shells under pressure" *Proc. Natl. Acad. Sci. U.S.A.* 109, 16 (2012).

2. H. Vandeparre, M. Pineirua, F. Brau, B. Roman, J. Bico, C. Gay, W. Bao, C.N. Lau, P.M. Reis and P. Damman "Wrinkling Hierarchy in Constrained Thin Sheets from Suspended Graphene to Curtains" *Phys. Rev. Lett.*, 106 224301 (2011).
3. A-T. Akono, P.M. Reis, and F-J. Ulm "Scratching as a Fracture Process: From Butter to Steel" *Phys. Rev. Lett.*, 106 204302 (2011)
4. P.M. Reis, S. Jung, J. Aristoff and R. Stocker "How Cats Lap: Water uptake by *Felis catus*" *Science* 330 , 1231 (2010).
5. P.M. Reis, J. Hure, S. Jung, J.W.M. Bush and C. Clanet, "Grabbing Water" *Soft Matter* 6, 5705 (2010).
6. Buchak, C. Eloy and P.M. Reis, "The Clapping Book: wind-driven oscillations in a stack of elastic sheets" *Phys. Rev. Lett.* 105, 194301 (2010).
7. D. Sen, K. Novoselov, P. M. Reis and M.J. Buehler, "Tearing of graphene sheets from adhesive substrates produces tapered nanoribbons", *Small* 6 1108 (2010).
8. D. Vella, J. Bico, A. Boudadoud, B. Roman and P.M. Reis, "Delamination of thin elastic sheets adhered to an elastic substrate", *Proc. Natl. Acad. Sci. U.S.A.* 106, 10901 (2009).
9. P.M. Reis, F. Corson, A. Boudaoud and B. Roman, "Localization through surface folding in solid foams under compression", *Phys. Rev. Lett.*, 103, 045501 (2009).

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