Dr. Christopher M. Stafford

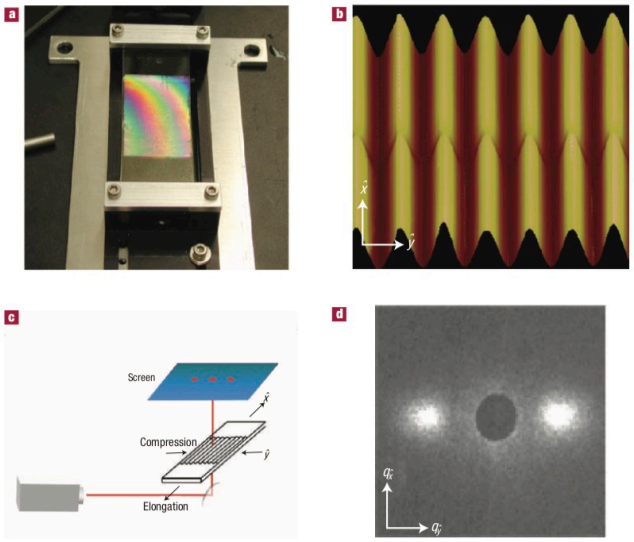

Figure 1 Experimental protocol and representative images illustrating the buckling instability of a thin polymeric film on a soft silicone sheet. **a**, A strained polymer film supported on a PDMS sheet clamped between two supports. The iridescent colour is a result of diffraction from micrometre-scale periodic ridges. **b**, Atomic force microscopy image of buckled film with amplitude 0.3 μm and wavelength 8 μm. **c**, Schematic of the custom-built small-angle light scattering apparatus. The diffraction pattern from the buckled film is projected onto a screen, and this pattern is acquired by CCD camera (not shown). **d**, Representative diffraction pattern centred on the beam-stop showing a positive and a negative order. The dominant wavenumber, q_0, is measured from the location of the diffraction peaks and the periodicity of the wrinkles, d, is given by $2\pi/q_0$.

From: Stafford, C.M., Harrison, C., Beers, K.L., Karim, A., Amis, E.J., Vanlandingham, M.R., Kim, H.-C., Volksen, W., Miller, R.D., Simonyi, E.E., 2004. A buckling-based metrology for measuring the elastic moduli of polymeric thin films. Nat. Mater. 3, 545–550.

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Education:
2001 PhD University of Massachusetts Amherst
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Awards:
U.S. Department of Commerce Silver Medal Award (2005)
Congratulations to Chris Stafford (Functional Polymers Group) for being selected as a Fellow of the American Physical Society for 2017. He is being recognized for "developing innovative techniques to enhance physical understanding of polymer thin films, including combinatorial arrays with controlled gradients, buckling methods to quantify modulus, and layer-by-layer methods to deduce structure-property relationships in polymer membranes."
Fellow of the ACS PMSE Division (2018)

Research Interests:
Polymer thin films and membranes; Thin film mechanics; Surface wrinkling and patterning

Selected Papers:
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