

Abstract Submitted  
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**Myelin figures: an Elastic Instability?** LING-NAN ZOU, SIDNEY R. NAGEL, The James Franck Institute, the University of Chicago — Myelin figures form when certain lamellar phase surfactants swell upon exposure to water. The formation of these myelins, which are tubular structures composed of multiple bilayers of surfactant, is puzzling because it represents the formation of a higher bending-energy configuration from a lower bending-energy initial state. We show that single myelins can be produced in isolation and require a driving force to form and grow; they retract into their parent structure when the driving is removed. We present a model, consistent with our experimental observations, where the formation of myelins is due to an elastic instability of the lamellar phase under internal stress. We propose an experiment to test of this model in comparison to other models, such as that of Huang et al.[1]

[1]J.-R. Huang, L.-N. Zou, and T. A. Witten, *Eur. Phys. J. E* (2005). DOI: 10.1140/epje/e2005-00035-8.

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