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The formation and growth of myelin figures. LING-NAN ZOU, James Frank Institute and Department of Physics, University of Chicago — Myelin figures are μm-sized cylindrical structures which develop at the interface between water and the concentrated lamellar phase of certain surfactants, such as phosphatidylcholines (PC). Here, we describe an experiment to observe the onset and growth of single myelin figures originating from the water/surfactant interface at the contact line of a sessile drop. We find that *isolated* myelin figures grow in length linearly with time $L \propto t$, in contrast to the $L \propto \sqrt{t}$ growth previously observed in dense myelin bundles [1]. Using fluorescence microscopy to image material transport, we find that growth is primarily due to the addition of surfactant into the myelin figure at its point of attachment to the concentrated phase. A simple model, based on differential hydration of the surfactant, gives both the $L \propto t$ and $L \propto \sqrt{t}$ behaviors. As expected from this model, the application of external osmotic pressure strongly suppresses myelin figure growth.

[1] M. Buchanan *et al.* *Langmuir*, **16**, 3718. (2000)

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