

Abstract Submitted  
for the MAR14 Meeting of  
The American Physical Society

**Myelin structures formed by thermotropic smectic liquid crystals**

KARTHIK REDDY PEDDIREDDY, Max Planck Institute for Dynamics and Self Organization, PRAMODA KUMAR, Harvard School of Engineering and Applied Science, SHASHI THUTUPALLI, Princeton University, STEPHAN HERMINGHAUS, CHRISTIAN BAHR, Max Planck Institute for Dynamics and Self Organization — We report on transient structures, formed by thermotropic smectic-A liquid crystals, resembling the myelin figures of lyotropic lamellar liquid crystals. The thermotropic myelin structures form during the solubilization of a smectic-A droplet in an aqueous phase containing a cationic surfactant at concentrations above the critical micelle concentration. Similar to the lyotropic myelin figures, the thermotropic myelins appear in an optical microscope as flexible tube-like structures growing at the smectic/aqueous interface. Polarizing microscopy and confocal fluorescence microscopy show that the smectic layers are parallel to the tube surface and form a cylindrically bent arrangement around a central line defect in the tube. We study the growth behavior of this new type of myelins and discuss similarities and differences to the classical lyotropic myelin figures.

Karthik Reddy Peddireddy  
Max Planck Institute for Dynamics and Self Organization

Date submitted: 11 Nov 2013

Electronic form version 1.4