

1129-82-384

**Maxim O Lavrentovich\*** (lavrentm@gmail.com), 209 S 33rd St, Department of Physics and Astronomy, University of Pennsylvania, Philadelphia, PA 19104. *Putting Patterns on Cholesteric Shells.*

Intricate patterning, reminiscent of the structures observed on the surfaces of pollen grains, occurs on the surface of cholesteric liquid crystal (CLC) shells under the appropriate anchoring conditions. We discuss how to control the CLC shell pattern through anchoring and confinement. When patterns such as stripes or hexagonal tilings form on a spherical surface, topology forces in defects in the patterns. These defects, then, have an interplay with the defects in the orientational order of the CLC as we change the anchoring conditions. We discuss these features and compare experiments to Landau-de Gennes modelling of the CLC shells. We also discuss general features of transitions to phases in which a pattern with a characteristic wavelength (set by the pitch in the CLC) must tile a sphere, and how such a transition may manifest in pollen grain development. (Received March 20, 2017)