

Properties of Stratum Corneum Membranes

Peter Olmsted

Polymers & Complex Fluids Group, School of Physics & Astronomy, University of Leeds, Leeds UK
p.d.olmsted@leeds.ac.uk

Abstract

The Stratum Corneum (SC) is the outermost layer of skin, which has the important function of helping maintain hydration, keeping undesirables out, and providing mechanical stability. It comprises keratin embedded in a matrix of lipid membranes composed of ceramides, fatty acids, and cholesterol. These lipid membranes are thus very different from the more familiar phospholipid membranes found in most cells. In this talk I will present some of the properties of these membranes as calculated by computer simulations and via some experiments, including permeability, mechanical properties, and some phase behavior. If time permits I will also present a newly-devised method for using AFM measurement to extract the local bilayer compressibility modulus of supported membranes.