

Abstract Submitted  
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**X-ray reflectivity study of a DPPC floating bilayer: Effect of  $\text{Ca}^{2+}$  ions and temperature** SAMBHUNATH BERA, Northern Illinois University, SAJAL GHOSH, YICONG MA, University of California-San Diego, CURT DECARO, Northern Illinois University, ZHANG JIANG, Advanced Photon Source, LAURENCE LURIO, Northern Illinois University, SUNIL SINHA, University of California-San Diego — We have used a floating bilayer of DPPC (1,2- dipalmitoyl-sn-glycero-3-phosphocholine) to examine the effects on  $\text{Ca}^{++}$  ion concentration on membrane fluctuations. The density profile of the double bilayer system normal to the support was measured via x-ray specular reflectivity. We find an increase in membrane spacing with ion concentration which we attribute to  $\text{Ca}^{++}$  ions preferentially binding to the head group of the bilayer. We also find an increase in interfacial roughness which we attribute to the  $\text{Ca}^{++}$  ions causing a reduction in the layer's bending modulus. These effects are studied as a function of temperature up to the temperature at which the bilayer is found to unbind from the support.

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