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Investigation of the elastic properties of a lipid bilayer by fluorescence interferometry DONG GUI, HSIANG-KU LIN, EHSAN NORUZIFAR, LEONID PRYADKO, ROYA ZANDI, UMAR MOHIDEEN, University of California, Riverside — Freestanding curved lipid bilayers were formed on micron diameter wells fabricated on a silicon chip. The height profile of the lipid bilayers was measured using fluorescence interference contrast microscopy. Dark and bright rings resulted from the interference of emission from the fluorophores in the lipid bilayers with the same light reflected from the bottom surface of the well. By changing the osmotic pressure difference across the bilayers, the relationship between the pressure and the membrane curvature was studied. By using Helfrich theory, the surface tension of the bilayer was extracted. The influence of detergents and antibiotics on the elastic property of lipid bilayers was also investigated.

Dong Gui
University of California, Riverside

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