

Abstract Submitted
for the DFD20 Meeting of
The American Physical Society

Effects of surface shear viscosity on the dynamics of bilayer membranes¹ HAMMAD FAIZI, CODY REEVES, PETIA VLAHOVSKA, Northwestern University, RUMIANA DIMOVA, Max Planck Institute of Colloids and Interfaces — Membrane viscosity is a key mechanical property of cell membranes that controls time-dependent processes such as membrane deformations and the diffusion of embedded proteins. Yet, it has proven to be an elusive property to quantify. Here we present two methods to measure shear surface viscosity of bilayer membranes. The first one analyzes the transient deformation of a giant unilamellar vesicle (GUV) induced by AC uniform electric field. The second approach analyzes the thermally driven membrane undulations of a GUV. The two methods are non-invasive, easy to implement, and probe-independent.

¹supported by NSF awards 1748049 and 1740011

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Date submitted: 03 Aug 2020

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