

Abstract Submitted
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Electroformation of Phospholipid Vesicles Monitored by Quartz Crystal Microbalance and Optical Microscopy VADOUD HASSANZADEH NIRI, JAMES FORREST, University of Waterloo — Quartz Crystal Microbalance with dissipation monitoring (QCM-D) and Optical Microscope were used in combination to investigate the electroformation of giant vesicles from 1,2-Dimyristoyl-sn-Glycero-3-Phosphocholine (DMPC). The gold-coated quartz crystal coated by lipid film and the ITO-coated glass slide were used as electrodes for electroformation. Immediately upon voltage application (1V, 10Hz) between the two electrodes increases in the frequency and decreases in the dissipation were observed indicating the loss of lipid from the QCM surface. Concurrently, we observed vesicles on the QCM electrode surface. By fitting the frequency shift (ΔF), and dissipation change (ΔD), to a viscoelastic model, we were able to find the time evolution of the lipid film thickness. By counting the vesicles in the active QCM area, and comparing it to the thickness of lost lipid, we are able to provide an upper bound for the average vesicle thickness.

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