

Abstract Submitted  
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**Structural characterization of a multiple stacked supported bilayer system** CURT DECARO, JUSTIN BERRY, LAURENCE LURIO, Northern Illinois University, YICONG MA, GANG CHEN, SUNIL SINHA, University of California San Diego, LOBAT TAYEBI, ATUL PARIKH, University of California Davis — Supported Lipid Bilayers are a popular model system for cell membranes since their defined orientation allow characterization with probes such as AFM, x-ray and neutron scattering. A significant concern, however, is that strong interactions with the substrate can suppress dynamics within the bilayer. One method that has been successful at overcoming this limitation is to cushion the supported bilayer on a softer material. In the present work, we have stacked up to five successive bilayers of DPPE on top of each other, in effect using the lower bilayers as cushions. X-ray reflectivity shows that each stack preserves the orientation of the first, and that each bilayer exhibits full coverage of the one below. The roughness of each bilayer is found to increase with distance from the substrate as would be expected if thermal fluctuations are increasing with distance from the substrate. We also find that upon heating from the gel to the fluid state that an unbinding transition is observed.

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