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Coarse-grain Modeling of Lipid Membrane Adsorption on Nanopatterned Surfaces MATTHEW HOOPES, MARJORIE LONGO, ROLAND FALLER, rfaller@ucdavis.edu — Substrate interactions with adsorbed membranes modify the intrinsic mechanics of supported lipid bilayers. Coarse-graining of the membrane lipids and surface allow for the larger system size necessary for membrane shape studies. Supported lipid bilayers (SLB) continue to be an important means of measuring the thermodynamic and mechanical properties of phospholipid membranes, which are the basis of compartmentalization in living cells. Understanding SLB systems with respect to their substrates enhances the understanding of the measurements taken thereon and promotes design of new substrates to expand the usefulness of these systems. We present data for the interaction of coarse-grained lipid membranes with nanopatterned surfaces, showing the effect of the balance between bending energy and adsorption energy on membrane topology.

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