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Flexible lipid bilayers in implicit solvent GRACE BRANNIGAN, PETER PHILLIPS, FRANK BROWN, University of California-Santa Barbara — A minimalist simulation model for lipid bilayers is presented. Each lipid is represented by a flexible chain of beads in implicit solvent. The hydrophobic effect is mimicked through an intermolecular pair potential localized at the "water"/hydrocarbon tail interface. This potential guarantees realistic interfacial tensions for lipids in a bilayer geometry. Lipids self assemble into bilayer structures that display fluidity and elastic properties consistent with experimental model membrane systems. Varying molecular flexibility allows for tuning of elastic moduli and area/molecule over a range of values seen in experimental systems.

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