

Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Non-equilibrium Lipid Distributions in a Simulated Three-Species Biomembrane ANDREW P. PARADIS, SUSAN R. MCKAY, SAMUEL T. HESS, University of Maine — Cellular biomembranes are in continual states of flux, yet theoretical models of biomembranes have primarily focused on equilibrium behavior, where constituent species interact but are not driven. This study examines the complex phase behavior of a three-species biomembrane driven out of equilibrium through frequent, simulated endo- and exo-cytosis events. The three species, representing unsaturated lipids, saturated lipids, and cholesterol, move and interact on a two-dimensional triangular lattice, simulated using a Metropolis algorithm. Two types of phase behavior are specifically investigated and discussed: cholesterol super-lattice structures and phase separation of saturated and unsaturated lipids, both as functions of cholesterol mole fraction and temperature.

Andrew P. Paradis
University of Maine

Date submitted: 20 Nov 2006

Electronic form version 1.4