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Toward a Realistic Model of Cell Membranes: The Effects of Simulated Endo- and Exo-cytosis on Lateral Organization. ANDREW PAR-ADIS, SUSAN R. MCKAY, SAMUEL T. HESS, University of Maine — Cellular biomembranes are highly dynamic, non-equilibrium structures, yet theoretical and computational models have primarily focused on equilibrium behavior, where constituent species interact but are not driven out of equilibrium. This study examines the effects of simulated endo- and exo-cytosis events on the lateral organization of a three-species model of a biomembrane. The three species, representing unsaturated lipids, saturated lipids, and cholesterol, move and interact on a two-dimensional triangular lattice, simulated using a Metropolis algorithm. A modified Ripley's K-test provides a quantitative measure of clustering and is proposed as a method to connect non-equilibrium simulation results with experiment.

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