

Abstract Submitted
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Membrane Geometry and Forces ERIC PETERSON, ROB PHILLIPS, PAUL WIGGINS, California Institute of Technology, FENG FENG, WILLIAM KLUG, UCLA — Recent advances in cryo-electron microscopy have enabled biologists to reconstruct detailed three-dimensional structures of cellular-scale biological systems via tomography. In particular, tomography can be exploited to capture lipid bilayer membrane conformations of membrane bound organelles and membrane-mediated cellular functions such as transport, mobility and viral budding. We propose to exploit the observed membrane geometry to measure the forces applied on submicron length scales by the protein machines responsible for cellular function. We discuss the computational technique and present preliminary in vitro experimental results for liposomes.

Eric Peterson
California Institute of Technology

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