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**Computer Simulation of Cytoskeleton-Induced Blebbing of Lipid Membranes**[1] MOHAMED LARADJI, EIRC J. SPANGLER, University of Memphis, CAMERON W. HARVEY, University of Notre Dame, JOEL D. REVALEE, University of Michigan, P.B. SUNIL KUMAR, Indian Institute of Technology Madras, India — Blebs are balloon-shaped membrane protrusions that form during many physiological processes such as cytokinesis, cell motility and apoptosis. Using computer simulation of a particle-based model for self-assembled lipid bilayers coupled to an elastic meshwork, we investigated the phase behavior and kinetics of blebbing. We found that for small values of the mismatch parameter, defined as the ratio between the area of the lipid bilayer divided by the rest area of the cytoskeleton, the equilibrium state is that of a homogeneous vesicle with the cytoskeleton conforming to the bilayer. However, for large values of a mismatch parameter, the equilibrium state is that of a blebbed vesicle. We also found that blebbing can be induced when the cytoskeleton is subject to a localized ablation or a uniform compression. The obtained results are qualitatively in agreement with the experimental evidence and the model opens up the possibility to study the kinetics of bleb formation in detail. For more information see Spangler *et al.*, Phys. Rev. E **84**, 051906 (2011).

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