Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

Membrane curvature sensing by the actin cytoskeleton GHEE HWEE LAI, ABHIJIT MISHRA, NATHAN SCHMIDT, University of Illinois at Urbana-Champaign, DANIEL KAMEI, TIMOTHY DEMING, University of California, Los Angeles, GERARD C. L. WONG, University of Illinois at Urbana-Champaign — Biological active molecules such as proteins and oligonucleotides can be transduced across cell membranes with high efficiency by cell penetrating peptides. It has been recently demonstrated using synchrotron x-ray diffraction that such peptides induce saddle-splay (negative Gaussian) membrane curvature, which is the topological requirement for pore formation. Here, we show how the actin cytoskeleton 'senses' and responds to negative Gaussian defects on a membrane, by examining the interaction between cell penetrating peptides and an active polymerizing cytoskeleton encapsulated within giant unilamellar vesicles, and compare the results to cell based studies.

Ghee Hwee Lai
University of Illinois at Urbana-Champaign

Date submitted: 21 Nov 2008 Electronic form version 1.4