

Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

Critical swelling of fluctuating capsules HAIM DIAMANT, EMIR HALEVA, Tel Aviv University — In many natural transport processes the solute molecules to be transported are encapsulated in semipermeable, flexible membrane vesicles of micron size. We study the swelling of such fluctuating capsules, as the number of encapsulated particles is increased, or the concentration of the outer solution is decreased. The approach to the maximum volume-to-area ratio and the associated buildup of membrane tension involve a continuous phase transition and follow universal scaling laws. The criticality and its features are model-independent, arising solely from the interplay between volume and surface degrees of freedom.¹

¹E. Haleva and H. Diamant, Phys. Rev. Lett. **101**, 078104 (2008).

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Date submitted: 10 Nov 2008

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