

Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

Unbinding Dynamics of weakly adhered vesicle on a substrate

SUNITA CHATKAEW, MARC GEORGELIN, MARC LEONETTI — Unbinding dynamics of a vesicle adhering weakly on a substrate by hydrodynamic force is characterized in our works. Vesicle shapes on a substrate are governed by adhesion energy, gravity and curvature energy. Several regimes of unbinding dynamics are observed from inflated vesicles until the deflated ones. Water film growth between the membrane and the substrate and the reduction of contact area are monitored. In the case of inflated vesicle, the unbinding dynamics shows the growth of water film with the same contact area. After this lag time, the radius of the contact area decreases strongly following a $1/2$ power law. When the vesicles are more deflated, the unbinding is then just a strong reduction of the contact area at a constant thickness of water film. Lipidic tube can be found in the case of a strong applied hydrodynamic force on a deflated vesicle occupying a large contact area.

Sunita Chatkaew

Date submitted: 28 Dec 2008

Electronic form version 1.4