

Abstract Submitted
for the MAR12 Meeting of
The American Physical Society

Tether formation on a settling vesicle GWENN BOEDEC, M2P2 UMR 6181 CNRS Aix Marseille University, MARC JAEGER, M2P2 UMR 6181 CNRS Aix Marseille University - Centrale Marseille, MARC LEONETTI, IRPHE UMR 6594 CNRS Aix Marseille University — When submitted to a point-like force, a phospholipid vesicle (a lipid membrane enclosing a drop) is known to develop a narrow tether. This tether formation is reminiscent of drop pinch-off, but the peculiar properties of the vesicle interface prevents the apparition of a finite-time singularity. It is shown that a settling vesicle may develop such tethered shapes, with hydrodynamic stresses acting as the pulling force. These shapes are studied numerically and theoretically, and continuous families of stationary tethered shapes are found, depending on two control parameters. Dynamics of formation is studied and it is shown that changing the initial condition can lead to complex transients, with formation of pearls onto the tether.

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Date submitted: 19 Dec 2011

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