Abstract Submitted
for the DFD10 Meeting of
The American Physical Society

Reynolds number effects on the behavior of lipid vesicles[1] DAVID
SALAC, Buffalo SUNY, MICHAEL MIKSIS, Northwestern University — For lipid
vesicles to be of general use, such as drug delivery systems, the behavior of vesicles
in different flow conditions must be understood. Currently most investigations into
lipid vesicles are restricted to the creeping regime. Here a new 4-step Navier-Stokes
solver coupled to a level set scheme is used to numerically investigate the behavior
of lipid vesicles in non-zero Reynolds number flow regimes. Results show that the
behavior of lipid vesicles is highly dependent on the Reynolds number. For example,
we have observed that a vesicle which tumbles in the Stokes regime will revert back
to tank-treading as inertial effects increase. Here the numerical method will be
briefly outlined and the influence of the Reynolds number on the behavior of lipid
vesicles will be presented.

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Date submitted: 06 Aug 2010   Electronic form version 1.4