Abstract Submitted
for the DFD16 Meeting of
The American Physical Society

Fluid dynamics of two-dimensional pollination in Ruppia maritima[1] NAGA MUSUNURI, DANIEL BUNKER, New Jersey Institute of Technology, SUSAN PELL, United States Botanic Garden, FISCHER PELL, PUSHPENDRA SINGH, New Jersey Institute of Technology — The aim of this work is to understand the physics underlying the mechanisms of two-dimensional aquatic pollen dispersal, known as hydrophily. We observed two mechanisms by which the pollen released from male inflorescences of *Ruppia maritima* is adsorbed on a water surface: (i) inflorescences rise above the surface and after they mature their pollen mass falls onto the surface as clumps and disperses on the surface; (ii) inflorescences remain below the surface and produce air bubbles which carry their pollen mass to the surface where it disperses. In both cases dispersed pollen masses combined under the action of capillary forces to form pollen rafts. This increases the probability of pollination since the capillary force on a pollen raft towards a stigma is much larger than on a single pollen grain. The presence of a trace amount of surfactant can disrupt the pollination process so that the pollen is not transported or captured on the water surface.

[1]National Science Foundation

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Date submitted: 03 Aug 2016 Electronic form version 1.4