Abstract Submitted
for the DFD06 Meeting of
The American Physical Society

Modification of vortex ring formation using dilute polymer solution DANIEL JORDAN, MICHAEL KRANE, JOEL PELTIER, ERIC PATTERSON, ARNOLD FONTAINE, Penn State University, APPLIED RESEARCH LABORATORY TEAM — This talk will present the results of an experimental study to determine the effect of dilute polymer solution on the formation of a vortex ring. Experiments were conducted in a large, glass tank, filled with water. Vortex rings were produced by injecting a slug of dilute polymer solution into the tank through a nozzle. The injection was controlled by a prescribed piston motion in the nozzle. For the same piston motion, vortex rings were produced for 3 concentrations of the polymer solution, including one with no polymer. The vortex ring flowfield was measured using DPIV. Differences between the 3 cases of polymer concentration in vortex ring formation time, circulation, size, and convection speed are presented.

Michael Krane
Penn State University

Date submitted: 28 Jul 2006 Electronic form version 1.4