

Abstract Submitted  
for the DFD11 Meeting of  
The American Physical Society

**Selection and Testing of Pressure and Temperature Sensitive Dyes for 2-D Flow Characterization via Synthesized Microbeads<sup>1</sup>** ALEX PEREZ, University of Washington, CUN ZHU, YOUNAN XIA, Washington University in St. Louis, GAMAL KHALIL, DANA DABIRI, University of Washington — Airborne temperature and pressure sensitive microbeads provide a vehicle with which to conduct two-dimensional flow characterization. An array of temperature and pressure sensitive dyes have been synthesized with microbeads (of silica, polystyrene, and polydimethylsiloxane) for this purpose. These microbeads were evaluated based on emission spectra, pressure response (0-760 torr), temperature response (5-45 °C), and response time. Work will be presented showing the various combinations of dyes and microbead materials, as well as the testing process and examples of future application.

<sup>1</sup>This material is based upon work supported by the National Science Foundation Graduate Research Fellowship under Grant No. #DEG-0718124, as well as National Science Foundation Grant No. NSF/CBET-IDR- 0929864.

Kristina Wang  
University of Washington

Date submitted: 12 Oct 2011

Electronic form version 1.4