Abstract Submitted
for the DPP16 Meeting of
The American Physical Society

Schlieren High Speed Imaging on Fluid Flow in Liquid Induced by Plasma-driven Interfacial Forces[1] JANIS LAI, JOHN FOSTER, University of Michigan — Effective plasma-based water purification depends heavily on the transport of plasma-derived reactive species from the plasma into the liquid. Plasma interactions at the liquid-gas boundary are known to drive circulation in the bulk liquid. This forced circulation is not well understood. A 2-D plasma-in-liquid water apparatus is currently being investigated as a means to study the plasma-liquid interface to understand not only reactive species flows but to also understand plasma- driven fluid dynamic effects in the bulk fluid. Using Schlieren high speed imaging, plasma-induced density gradients near the interfacial region and into the bulk solution are measured to investigate the nature of these interfacial forces. Plasma-induced flow was also measured using particle imaging velocimetry.

[1]NSF CBET 1336375 and DOE DE-SC0001939

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Date submitted: 16 Jul 2016 Electronic form version 1.4