Abstract Submitted
for the DFD17 Meeting of
The American Physical Society

Flow induced by a femtosecond laser filament[1] SHAHRAM POUYA, MANOOCHEHR KOOCHESFAHANI, Michigan State University — Propagation of femtosecond pulsed lasers is of interest to a variety of applications in science and engineering. These laser sources also provide an attractive tool for molecular tagging velocimetry in air (e.g. FLEET). However, high power density of such short pulse lasers can potentially lead to flow perturbations. In this work we present PIV measurements in air around a high repetition rate (1 KHz) focused femtosecond laser beam and quantify the level of flow disturbances that it introduces in its vicinity. Results are shown for various pulse energy levels and the time scale for generation of flow disturbance. These results provide information about the measurement constraints when using femtosecond lasers in molecular tagging velocimetry.

[1]This work was supported by AFOSR award numbers FA9550-13-1-0034 and FA9550-15-1-0224.

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Date submitted: 31 Jul 2017 Electronic form version 1.4