

Abstract Submitted
for the DFD12 Meeting of
The American Physical Society

PIV Measurement of velocity and acceleration fields using multi-pulse technology¹ LIUYANG DING, RONALD ADRIAN, Arizona State University, SIVARAM GOGINENI, Spectral Energies, LLC — PIV is extended to the measurement of simultaneous acceleration and velocity fields by the addition of a small number of light pulses. We begin by considering triple-pulse and quadruple-pulse systems, and discuss the optimization of the pulse locations for various measurements. Third-order correlation techniques are applied to the triple-pulse images, yielding significantly improved correlation detectability. Results from experiments in steady flows of known acceleration are used to assess the accuracy and performance.

¹This work is supported by NAVSEA under STTR contract

Sivaram Gogineni
Spectral Energies, LLC

Date submitted: 04 Aug 2012

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