

Abstract Submitted  
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**PIV estimates of dissipation: their accuracy and uncertainty** EDWIN COWEN, Cornell University — Particle image velocimetry (PIV) allows the determination of the rate of dissipation of turbulent kinetic energy,  $\epsilon$ , over a two-dimensional region in space. As  $\epsilon$  ranges over orders-of-magnitude its uncertainty is relatively high and we often consider a factor of 2 to be acceptable. Researchers have approached the determination of  $\epsilon$  in many ways, including spectra-based estimates, structure function-based estimates, and the direct calculation from the available fluctuating gradients. In this presentation the accuracy and uncertainty of each of these approaches is reviewed and optimal methods for the accurate determination of  $\epsilon$  with the narrowest uncertainty bounds are presented.

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