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A Time-Resolved PIV with continuous Laser and High Frame Rate Camera AMIR ELZAWAWY, YIANNIS ANDREOPOULOS, City College of New York — Monitoring the evolution of turbulent structure using PIV requires time resolved measurements. Existing time-resolved PIV systems are limited mainly by the pulsed laser repetition rate, which currently is at about 10 KHz. In the present work we explore the possibility of using a continuous laser and a camera with a frame rate in the order of MHz, with limited number of frames. This set-up has been applied to an incompressible turbulent boundary layer flow configured in a low speed wind tunnel. In order to evaluate the technique and particularly investigate the effect of exposure time, several experiments were performed and the results compared with pulsed laser PIV and hot-wire results. Exposure times up to 15 per cent of the time between frames were used. The effect of the exposure time on the turbulence intensity was also investigated.

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