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Application of separated flow control over a cylindrical turret MARLYN ANDINO, MOIRA DENATALE, JONATHAN MIHALY, MARK GLAUSER, Syracuse University — Our research group is working in the development of real time closed loop separation control for aero-optical applications. It is been demonstrated (Jumper et al., 2001) that turbulence causes a reduction in the performance of the optical system. Our approach involves the application of 22 zero net-mass flux actuators created by a 50 mm piezoelectric disks uniformly distributed upstream over a cylindrical turret. Particle Image Velocimetry, PIV, is being used as a tool to capture the velocity field and simultaneously sampled surface pressure around the turret. Low dimensional tools like Proper Orthogonal Decomposition, POD, and Linear Stochastic Estimation, LSE, are also being utilized for the development of real time closed loop control in a similar fashion as Pinier et al. (to appear AIAA Journal) applied these tools to the NACA 4412.

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