

Abstract Submitted
for the DFD05 Meeting of
The American Physical Society

Experimental and Computational Studies of Wake flows¹ SIVA THANGAM, IGBAL MEHMEDAGIC, Stevens Institute of Technology, DONALD CARLUCCI, U. S. Army ARDEC — Experiments are performed in low-speed wind tunnels to analyze flow past sting-mounted cylinders. Rear-mounted and fore-mounted stings are utilized to perform experiments. Computations are performed using a two-equation turbulence model that is capable of capturing the effects of swirl and curvature. The model performance was validated with benchmark experimental flows and implemented for analyzing the flow configuration used in the experimental study. The Reynolds number range of 260000 and rotation numbers of up to 1.2 (based on cylinder diameter) are considered for both stationary cylinders and those with a rotating base. The results are analyzed and the predictive capability of the model for flows with swirl is discussed.

¹This work was funded in part by the grant DAAE30-02-M-1233 from U.S. Army TACOM-ARDEC

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Date submitted: 15 Aug 2005

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