Abstract Submitted
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Experimental and Computational Investigations of Flow past Spinning Cylinders[1] PASQUALE CARLUCCI, IGBAL MEHMEDAGIC, LIAM BUCKLEY, DONALD CARLUCCI, U.S. Army ARDEC, Picatinny Arsennal, SIVA THANGAM, Stevens Institute of Technology — Experiments are performed in a low speed subsonic wind tunnel to analyze flow past spinning cylinders. The sting-mounted cylinders are oriented such that their axis of rotation is aligned with the mean flow. Data from spinning cylinders with both rear-mounted and fore-mounted stings are presented for a Reynolds numbers of up to 260000 and rotation numbers of up to 1.2 (based on cylinder diameter). 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 results are analyzed and the predictive capability of the model is discussed.

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