

Abstract Submitted  
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**Characterization of the Far-Wake of an Inclined 6:1 Prolate Spheroid** JONATHAN PECK, ETHAN LUST, U.S. Naval Academy — The study of flow around prolate spheroids has informed our understanding of fundamental hydrodynamics. For example, they have been used to study boundary layer development, turbulent flow transition, and vortex shedding. Because of the simplicity of the model and the rich hydrodynamic result, prolate spheroid data are often used to validate computational fluid dynamics codes. There are many examples from the literature featuring spheroids in various configurations: aspect ratio (L:D), Reynolds number, and inclination angle. However, there is little consideration of the far-wake, at downstream diameters greater than 6D, particularly at Reynolds numbers in excess of  $4 \times 10^6$ . The focus of the present study was on this region. The experiment was conducted in the large towing tank at the U.S. Naval Academy. The 6:1 prolate spheroid, measuring 54 in. in length and 9 in. in diameter, was sting-mounted at a  $20^\circ$  angle of inclination. An underwater, stereo particle image velocimetry system was attached to a structure fixed at a point approximately half the length of the towing tank. The spheroid was towed through the field of view in a number of configurations. The field of view was oriented laterally, capturing the strength, size, and evolution of the trailing vortex.

Ethan Lust  
U.S. Naval Academy

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