

Abstract Submitted
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Study of Cavitation in Wakes of Circular Cylinders and Symmetric Wedges Using X-ray Densitometry¹ JOACHIM KOOT, University of Twente, JULIANA WU, HARISH GANESH, STEVEN CECCIO, University of Michigan — Cavitation in wakes behind canonical objects can exhibit variation in Strouhal number with a reduction in cavitation number. Circular cylinders of two diameters and symmetric wedges with a wedge angle of 15, 30, and 60 degrees are used to study cavitation in their wakes using X-ray densitometry. Using high speed video and X-ray densitometry, the nature of cavitation is studied in near-wake and a part of the far-wake region. In addition, acoustic measurements are also carried out to understand the spectral content of such wake cavities. Based on void fraction flow field and high-speed video measurements, the effect of cavitation on the Kármán vortex street spacing in the far wake region is studied. The results are interpreted to explain the physical mechanisms responsible for the observed change in Strouhal number.

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