

Abstract Submitted  
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**Experimental Study of Cavitation Inception in a Pair of Interacting Vortices**<sup>1</sup> DANIEL KNISTER, ELIZABETH CALLISON, HARISH GANESH, STEVEN CECCIO, University of Michigan-Ann Arbor — Cavitation inception in shear flows often occurs in secondary stream-wise vortices (braids) stretched by span-wise vortices. Stretching of the weaker secondary stream-wise vortices can lead to a rapid drop in core pressure below the vapor pressure, and thus inception of captured cavitation nuclei in the stretching core. Understanding of the relationship between the stretching process, pressure drop, and nuclei size is critical for understanding inception. As a model experiment of this phenomenon, two parallel vortices are created by a pair of hydrofoils in a re-circulating water channel following the study of Chang et al. (2012). Cavitation inception and occurrence caused due to interaction between two trailing vortices is studied using high speed video and synchronized hydrophone measurements, with the vortices visualized by cavitation and dye injection and SPIV. We will discuss the hydrodynamic performance of the new configuration, including the parameters that lead to the desired vortex interactions and inception in the weaker (secondary) vortex.

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