

PAGE MORTON HUNTER DISTINGUISHED SEMINAR SERIES



SEEING THROUGH WATER: X-RAY BASED MEASUREMENT OF CAVITATING FLOWS

Hydrodynamic cavitation, characterized by the presence of vaporous regions in a liquid fluid flow, is a significant source of noise, performance deterioration, and erosion of maritime vehicles. High void-fraction cavitating flows occur in regions of flow separation and shear layers. Experimental investigation of such optically opaque flows to understand the interplay between phases using conventional optical diagnostics is challenging due to reflection of light. In this presentation, findings from using time-resolved X-ray based void fraction measurement of cavitating flows is discussed. Specifically, the role mixture compressibility on high-void fraction cavitating flows, and its implication on observed dynamics on canonical geometries is presented. Finally, recent progress made in the development of a high-speed 3-D X-ray computed tomography system to investigate 3-D cavitating flows is presented.

Harish Ganesh, Ph.D.



*Associate Research Scientist,
Department of Naval Architecture and
Marine Engineering
University of Michigan, Ann Arbor, USA
<http://www-personal.umich.edu/~gharish/>*

Dr. Ganesh's research interests lie primarily in the field of fluid dynamics with focus on hydrodynamic cavitation, optical and radiation based diagnostics of fluid flows, drag reduction, and experimental methods for multiphase flows. He received his Ph.D. in Mechanical Engineering from University of Michigan at Ann Arbor in 2014, Masters in Aerospace sciences from University of Michigan at Ann Arbor in 2009, and under-graduate degree in Aerospace Engineering from Madras Institute of Technology, India in 2005. Dr. Ganesh has authored over 30 peer reviewed journal and conference publications.

October 19, 2023 • 3:30 p.m.

Location:

111 Rhodes Annex



Department of
BIOENGINEERING
Clemson® University