

Date: March 10th

Time: 11:00 AM

Location: Maryland Hall 110

**Speaker: Dr. Marat Mor
Department of Aeronautics & Astronautics
University of Washington**

Title: “Bubbly Water Ramjet Engine: Concepts, Design and Performance”

Abstract

The presentation will focus on theoretical study of the performance of a new two-phase bubbly water ramjet engine (US Patents No. 5598700 and No. 5692371, 1997). Using the concept of ramjet, the new propulsion system is driven by injected air-bubbles, which therefore changes the mixture properties inside the engine. The presentation includes various aspects related to the basic concepts and design issues. Some solutions of internal multiphase flow will be shown and their application in design and optimization of the air/water ramjet propulsion system will be demonstrated. Presented parametric study will reveal in a form of performance maps the behavior of propulsion efficiency (in the range of 50%-80%) and ramjet thrust as a function of vessel speed/air mass flow rate, for both ideal and practical cases.