

MSE SEMINAR

February 24, 2017

113 McBryde Hall

3:30 – 4:30 PM

Refreshments at 3:00 PM

Peter Todoroff

Graduate Student

Materials Science and Engineering, Virginia Tech

“Erosion-Corrosion of Cu-Ni alloys in turbulent flow”

ABSTRACT

Corrosion of materials under highly turbulent fluid flow, often termed Flow-Related Materials Degradation (FRMD), impacts a variety of industrial applications that extend from nuclear and hydroelectric power generation, petroleum refineries, and naval and maritime industries. While FRMD is a challenge that many industries face, there is an absence of a well understood theory that relates quantitative measurements of turbulence to the observed phenomena of corrosion. The objective of the author’s research is to study the FRMD phenomena experienced in naval heat exchangers composed of CuproNickel alloys through both characterizing changes in the passivation layer and the turbulence of the fluid. The author is constructing a proprietary sensor to measure the bed shear stress experienced in these systems and will perform his experiments the recently constructed Virginia Tech High Turbulence Corrosion Loop (VTHTCL).

BIOSKETCH

Peter Todoroff is a student pursuing his masters of science at Virginia Tech in MSE as part of the accelerated program. His project is a continuation of his senior design project and involves studying the impacts of flow-related materials degradation, specifically erosion-corrosion in piping and tubing systems. His research is being conducted under both Dr. Hendricks of the MSE department and Dr. Schetz in AOE with communication with the Naval Surface Warfare Center, at Carderrock, MD.