

# Mechanical Engineering Department Seminar

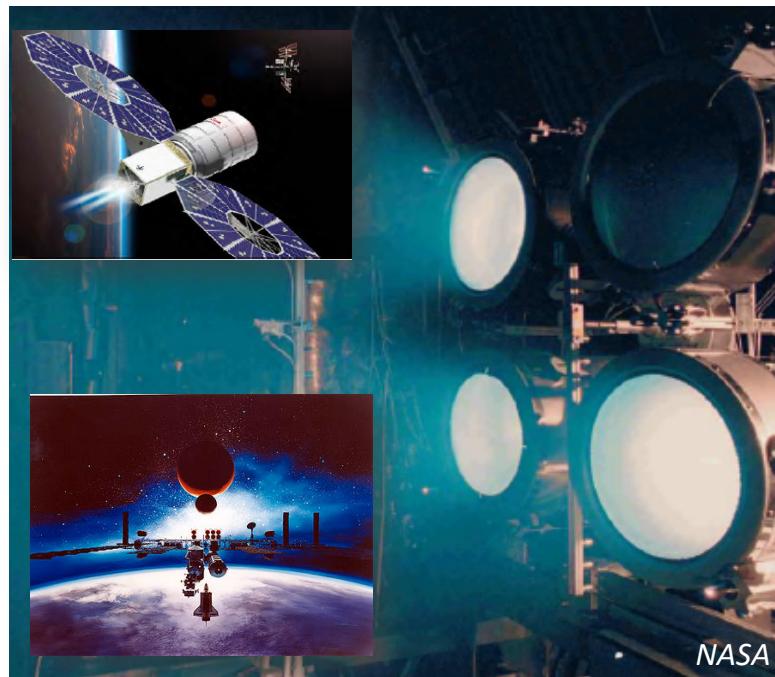
3:35pm March 4, 2015  
1130 Mechanical Engineering  
111 Church Street SE, Minneapolis, MN 55455

## Exploring the Solar System and Beyond with Plasma Propulsion

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Low temperature plasmas science has enabled a host of engineering innovations. The basis of advanced electric propulsion is anchored in plasma science. Here we briefly survey the field of low temperature plasmas and then focus on a specific application—plasma propulsion. The motivation for this technology is discussed along with the operation physics of two key engine systems. The mission enabling nature of the technology is highlighted with a brief survey of past, present and future missions. Advanced propulsion requirements as specified by NASA are then discussed along with an overview of physics roadblocks that must be resolved for realization of high power operation. Research aimed at addressing these roadblocks is highlighted with some emphasis on ongoing efforts at Michigan.



### Bio:

Undergrad: Jackson State University Physic

Grad: University of Michigan, Applied Physics

Postdoc: University of Wisconsin-Madison (Hershkowitz/Wendt)

~10 Years at NASA Glenn working on plasma propulsion

~8 Years at University of Michigan in Nuclear Engineering Department

Research Interests: Advanced propulsion for human and robotic space flight; atmospheric pressure plasmas for solution to societal problems such as water treatment, environmental mitigation, and plasma medicine for wound treatment and disease therapies