



UNITED STATES  
**COAST GUARD**  
ACADEMY

Saul Krasner Memorial Science Lecture Series

*Incorporating DOD research and historical materials into a second-semester introductory calculus-based physics course*

**Dr. Mary Lanzerotti**

*Department of Physics and Nuclear Engineering, United States  
Military Academy*

This talk presents an overview of research activities since 2012 with undergraduate students. The first part of the talk presents a study of the impact on student learning of incorporating DOD research activities in a second-semester calculus-based physics course required for physics and engineering majors.

The second part of the talk presents an overview of research with undergraduate students in stabilization of sling-loads and hoists for helicopters, advanced signal processing using weak radiofrequency (RF) signals (electronic warfare), and identification of electrical properties on integrated circuits, which produced a patent.

The third part of the talk presents observations of drop formation following the bursting of thick liquid films of molten steel.

***Tuesday, January 21st, 2020  
8 - 9 PM: Dimick Hall Auditorium  
U.S. Coast Guard Academy***

Dr. Mary Yvonne Lanzerotti is an Assistant Professor at the United States Military Academy. At West Point, she is a Master Teacher and teaches calculus-based physics and applied optics. Her research interests include hoist stabilization for helicopters, drop formation and bursting of thick liquid films, electrical properties of integrated circuits, hardware verification for quantum computing, and weak signal estimation using advanced signal processing for electronic warfare. Dr. Lanzerotti was awarded the 2007 Distinguished Service Award from the IEEE Lasers and Electro-Optics Society (LEOS) for her service as Editor of the IEEE LEOS Newsletter. She received an A.B. *summa cum laude* from Harvard University, a M.Phil. from University of Cambridge (UK), and an M.S. and Ph.D. from Cornell University, all in physics. She is a Senior Member of the IEEE and holds six patents.

**If you have any questions regarding the event, please contact LT Trip Fernandes (860.701.6129 / [jay.c.fernandes@uscga.edu](mailto:jay.c.fernandes@uscga.edu)) for more information.**