



## INCOSE WMA MAY CHAPTER MEETING

### Semantic Threat Analysis for Systems Security Engineering

**Presenter:** Dr. Richard Potember

**Abstract:**

Systems security engineering is a specialty of systems engineering that applies scientific principles, concepts, and methods to coordinate and direct the activities of various security specialties to provide a fully integrated, system-level perspective of system security.

Threats to these complex systems are growing at alarming rates. Adversaries are using ever increasingly sophisticated techniques to try to attack vulnerable systems. An adversary or an attacker is an individual, group, organization, or government that conducts, or has the intent to conduct, detrimental activities.

The threats to secure systems can be broken down into three interrelated relationships. The relationships are intentions, capabilities, and opportunities. When an adversary exhibits all three elements, the Assets of a vulnerable system can be compromised which will produce a negative impact. It is not possible to control an adversary's intention or capabilities, but it is possible to prevent an attack by denying an adversary an opportunity to do harm to a system. Preventing an attack or dramatically reducing the chances of an attack and the harm that an attack presents can be analyzed, modeled and understood. Once understood, improved countermeasures can be implemented to reduce the risk of future attacks.

This presentation will describe a semantically rich visual method to understand potential threat relationships and countermeasures to these threats. A Semantic Threat Analysis will be described to capture complex concepts and inter relationships.

*Until further notice, all INCOSE WMA Chapter Meetings will be held virtually via Zoom ONLY. INCOSE WMA thanks you in advance for your patience and adaptability as we all work together to manage the challenges presented by COVID-19.*

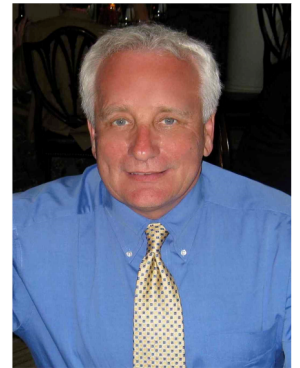
If you have any questions, please contact us [contact@incosewma.org](mailto:contact@incosewma.org)

**Date:** June 09, 2021

**Time:** 6:30 PM – 8:00 PM

**Cost:** Free

**Eventbrite Registration Link:** x`



Richard S. Potember, Ph.D. is a Principal Engineer at the MITRE Corporation. Prior to this position, he was a Program Manager in the Tactical Technology Office at the Defense Advanced Research Projects Agency (DARPA). Before that, he served as a Program Manager and Principal Investigator at the Johns Hopkins Applied Physics laboratory (JHU/APL). Dr. Potember has extensive technical expertise in physical organic chemistry, materials science, polymer chemistry, environmental engineering, microelectronics and anti-tamper, energetics, solid rocket propulsion, homeland defense technologies, biomedical engineering and biotechnology. At JHU/APL, Dr. Potember was a principal investigator on numerous externally funded programs. He has published over sixty papers, holds fourteen U.S. patents, and fifteen foreign patents. Dr. Potember was awarded Inventor of the Year in 2004 and he was made an APL's Master Inventors by an external independent review panel. Only 28 staff members have received the Master Inventor Award since APL began in 1942. While at JHU/APL, Dr. Potember was elected to the rank of Principal Professional Staff. Dr. Potember's research has been transferred to industry five times during his career. He has served on many external committees, external review committees, organized and chaired numerous scientific meetings and he has been invited to present his work at more than sixty colloquia or invited lectures in the U.S., Europe and Asia. Dr. Potember served as a Trustee at Goucher College for a full ten-year term. He was the first trustee to become Chairperson of the Technology Committee where he oversaw all aspects of information technology on campus. He also served on the Finance, Enrollment, and Library Committees. Dr. Potember served on the Howard County Economic Development Authority's Center for Business and Technology Innovation's Advisory Board where he advised the center on technology innovation and worked with start-up companies in the incubator. Dr. Potember has taught in the JHU School of Arts and Sciences, and School of Advanced International Studies (SAIS). He currently teaches several graduate level courses in the Whiting School of Engineering at JHU in the field of biomedical engineering.

*Sponsored by the INCOSE Washington Metropolitan Area (WMA) Chapter*