



June 2013

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President's Point of View

System Engineering begins in Kindergarten



Dr. William Ewald - INCOSE CC President
wewald@jhu.edu

About the time I joined INCOSE, my daughter was attending Kindergarten. In the various teacher/parent meetings I was struck by the fact that little attention was being paid to science, technology, engineering and mathematics – what today we label STEM (Science, Technology, Engineering and Mathematics) initiatives. My membership in INCOSE had sensitized me to the importance of these kinds of initiatives, and that we could not begin early enough to introduce them into the classroom curriculum. My interest was also piqued by a video (I don't remember the name) of a female astronaut engaging kindergarten students in what was essentially a systems engineering problem using large building blocks. Needless to say, it wasn't rocket science and the exercises seemed easily portable to any classroom setting.

I was particularly impressed by the enthusiasm and capabilities of the young students and armed with new knowledge, determined to bring what I had learned to my daughter's teachers and to my fellow parents. The parents were very receptive. The teachers were not. No matter how much we argued that science and math could be fun and that there were abundant examples of how this could be done, they continued to have allergic reactions to our suggestions.

I remember saying that the back yard contained numerous opportunities to bring science alive. A falling leaf reflects the laws of physics, biology, and chemistry – again not rocket science, but at a level that would resonate with most children. With enough of these kinds of examples built into a rigorous curriculum that expanded with age, children would become more inclined to pursue careers in science and engineering. Fast forward today, and we are in the midst of a national awareness that we have lost a strategic advantage as a nation in the hard and soft sciences. Based on this awareness, there has been an extraordinary and sustained effort on the parts of many organizations and companies to address our nation's needs.

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This is the monthly newsletter for INCOSE Chesapeake, a local chapter of INCOSE International. We are a not-for-profit organization dedicated to providing a forum for professionals practicing the art and science of Systems Engineering in the Northern & Central Maryland & Southern Pennsylvania area.



Mark your Calendars with these upcoming events:

From my perspective, many of these efforts appear to involve robotics based on the pioneering efforts of *First*, a charitable organization devoted to capturing young children's inherent curiosity and directs it toward discovering the wonders of science and technology. The children are mentored by adult sponsors and coaches – most involved in engineering and the sciences – not as many as I would like in what we would call the traditional teacher's profession. Based on informal conversations with kindergarten and primary school teachers about this issue (and I could be using a very biased sample set), I am struck by the number of times I hear the wish that their education and training programs had placed more emphasis on skills in teaching mathematics and science –and so they feel uncomfortable and unprepared to tackle a robust curriculum in STEM domains.

This suggests to me that one of the root causes of our current national STEM malaise resides in the ways we educate and prepare our teachers, primarily those in the lower grades where there are the earliest opportunities to help students discover and develop a passion for science, engineering, technology and mathematics. By the time students reach the secondary level, they are almost hard-wired in terms of their interest in these areas. Robotics and like initiatives can accelerate and focus this interest – and this is all to the good.

From my point of view, the deeper and more fundamental strategy for building our nation's competency in STEM areas can be found in the ways we are educating and preparing our teachers – especially in the lower grades – a fairly daunting goal. But there are things that can be done. Perhaps INCOSE CC can initiate an effort to apply the *First* model not just to students but also to their teachers. Perhaps we can offer tutorials and seminars to teachers in the same way we offer them to our colleagues. Perhaps we can be adjunct professors in academic and educational settings. Perhaps we can adopt a school. I'm sure if we put our heads together, we could come up with a Chapter initiative or two that goes beyond working with robotics initiatives. We might even be a test bed for initiatives that would capture the interest of other INCOSE Chapters and INCOSE Central. If not now, when? If not us, who?

Bill Ewald - INCOSE Chesapeake Chapter President

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Philadelphia, PA
June 24-27, 2013

INCOSE International Symposium, June 24th – 27th, Philadelphia, PA The 23rd

Annual INCOSE International Symposium returns to the USA to Philadelphia June 24th – June 27th. The Symposium attracts participants from our global community we anticipate record breaking attendance which will create additional networking and learning opportunities throughout the week.

Dinner/Lecture 19 June 2013 (6:00 – 8:00 pm)
[Logistics of Disaster Management](#)



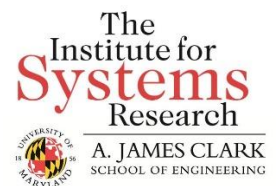
Philadelphia, PA
June 24-27, 2013

[INCOSE International
Symposium](#)

The Chesapeake Chapter is always looking for volunteers to speak at our upcoming meetings! Please contact our 2013 Programs Director, [Dr. Alex Pavlak](#), if you would like the opportunity to speak or can recommend someone.

The Chesapeake Chapter of INCOSE is proud to recognize the following organizations for sponsoring our endeavors to expanding the understanding and appreciation of Systems Engineering in the local area:

Booz | Allen | Hamilton





Mr. Chuck Willis,
BG&E

Presentation: Baltimore Gas and Electric (BGE), an Exelon Utility, distributes electric power from substations to the consumer and distributes natural gas from the City Gate to the consumer. 1999 was a pivotal year for storm and emergency planning at BGE. While Y2K contingency planning was up and running, the 1999 Ice Storm and Hurricane Floyd struck. The Y2K Team continued their work after 2000 becoming the Business Continuity Organization and institutionalizing contingency planning throughout the Company. This lecture explains the BGE Incident Command System, how it was developed and evolved over the past 13 years. A

key part of the system is the Electric Delivery Emergency Response Plan (EDERP) which was first released in 2000 and has evolved over the years in response to lessons learned. This lecture discusses lessons learned from Irene, one of the most severe events in BGE’s history, as well as Snowmageddon, the Derecho and Hurricane Sandy.

Speaker: Chuck Willis is a Senior Engineering Technical Analyst in Electric Systems Operations and Planning at BGE. He received his BS and MS degrees in Management from University of Maryland University College. Chuck graduated from the US Navy’s Nuclear Power Program and served on the USS Nautilus from 1974 through 1980. He joined Baltimore Gas and Electric in 1982 starting his career at Calvert Cliffs Nuclear Power Plant. Chuck has worked in a variety of roles at BGE including Nuclear Training, QA/QC, as the Project Manager for BGE’s Federal Utility Privatization Program and as Functional Project Manager for the upgrade of BGE’s Outage Management System. Chuck has spent the last several years in BGE’s Restoration Services organization.

Location: [Applied Physics Laboratory, Johns Hopkins University](#); 11100 Johns Hopkins Rd Laurel MD 20723 (Main Entrance – Lobby 1)

[>>Download the Meeting Flyer Here<<](#)

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Don’t Miss next month’s Dinner/Lecture 17 July [MBSE Current State and Directions](#)



Mr. Sanford Friedenthal

Presentation: Model-based systems engineering (MBSE) formalizes the practice of systems engineering through the use of models, and is considered by many to be critical to the advancing the practice beyond traditional document based approaches to SE. This presentation highlights some recent applications of MBSE, emerging standards and other

advancements, and general directions. The presentation will provide the




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This Newsletter is to serve our members and is open to all for contributions. Do you have an interesting idea for an article? A review of a new book related to engineering? [Let us know](#). We’d love to hear about. It may wind up in a future issue of our Newsletter.

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participants with a sampling of the broad nature of MBSE and its implications on how SE is likely to change.

Bio: Sanford Friedenthal is an INCOSE Fellow, an industry leader in model-based systems engineering (MBSE) and an independent consultant. At Lockheed Martin, he led the effort to enable Model-Based Systems Development (MBSD) and other advanced practices across the company. His experience includes the application of systems engineering throughout the system life-cycle – from conceptual design, through development and production on a broad range of systems in aerospace and defense. While a systems engineering department manager, Friedenthal was responsible for providing systems engineering people, process, and tools to the programs. Friedenthal has been a leader of the Industry Standards effort through the Object Management Group (OMG) and INCOSE to develop the Systems Modeling Language (OMG SysML™) that was adopted by the OMG in 2006. He is co-author of *A Practical Guide to SysML™*.

[>>Check out the Event Flyer Here<<](#)

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Did you miss last month's lecture?

[Maryland Greenhouse Gas Reduction Act](#)



Dr. Robert Summers

Maryland's Greenhouse Gas Reduction Act of 2009 set a goal of a 25% reduction in GHG emissions by 2020. Building on an initial report by Governor O'Malley's Climate Change Commission published in 2008, the current 2013 plan, will support a green economy, improve air quality, aid in restoring the Chesapeake Bay and promote renewable energy. The Plan's 150-plus programs and initiatives will also aid in expanding the State's economy. The Regional Economic Studies Institute (RESI) analysis of the Plan finds positive economic results for both jobs and economic output for the period of analysis from 2010 through 2020 for an additional net benefit of \$7.1

billion in economic output and roughly 42.7 thousand jobs.

[>>Check out the complete write-up on the event<<](#)

[>>Download Presentation Here<<](#)

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Also last month: [April's Agile Workshop](#) [Agile System Development Workshop](#)



Suzette Johnson

DoD, Federal Agencies, and commercial companies facing a high rate of requirements volatility, changing mission needs, and the need for more frequent releases of capabilities are making the Agile transition. As systems engineers and program managers we need to know how the Agile framework and major systems engineering practices can work together. Agile practices are a highly disciplined yet light-weight and flexible approach to the historical scope-driven paradigms. This hands-on workshop takes participants through the Agile framework,

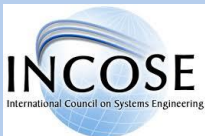
transitional practices for change, vision and roadmap planning, requirements and release planning, execution and release progress reporting with a discussion on V-Model components throughout these phases. Emphasis is placed on the necessary collaboration needed between customers, stakeholders, systems engineering, and development teams to enable a well-managed process. These concepts and practices are taught through games and interactive team exercises to help participants better understand and visualize how the process works. A primary objective of this workshop is to provide systems engineers with basic skills for planning, leading, and contributing to Agile projects

[>>>Check out the complete write-up on the event<<](#)

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Upcoming Events

- June 19: Logistics of Disaster Recovery, *Mr. Chuck Willis, BGE*
- June 24 – June 27: **INCOSE International Symposium, Philadelphia, PA.**
- July 17: MBSE Current State and Directions, *Sanford Friedenthal*



Keep up with the latest news and events. Find out about our new Board of Directors. Explore our extensive library of previous lectures from our Monthly Dinner Meetings. Learn of the Benefits of Joining INCOSE. Check out Systems Engineering education in the local area. All this and more awaits you at our [INCOSE Chesapeake Chapter Website](#).

For any comments or suggestions about this newsletter please e-mail our [President, William Ewald](#) or our [Communications Officer, Oren Eisner](#). We value your feedback.

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