



# INCOSE Chesapeake Chapter

International Council on Systems Engineering

## E-Newsletter

February 2014

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### President's Point of View

#### Getting Work Done!!!



Mr. Erik DeVito - INCOSE  
CC President  
[erik.devito@incose.org](mailto:erik.devito@incose.org)

As I sit down to write this I have more than a few other things going on...I'm thinking of the terrible murder suicide at the Columbia Mall yesterday, I'm watching the documentary "Mitt" on Netflix, I'm reviewing my schedule for next week, and (as if that wasn't enough) I'm also wondering how things are going at the INCOSE IW taking place this week in Torrance, California. Naturally, thinking about California this time of year can be extremely easy, especially with the wicked cold weather we've had lately but I digress. Perhaps I'm a bit overloaded (or a bit ADD) but I also tend to think that this is the new normal for most of us. Despite having so many

things going on in our lives we have to press on through multiple deliverables and mental distractions so that we can focus on getting work done. In January, we spent a lot of time doing just that. The Board came together and compiled evidence necessary for our 2013 Circle Award submission to INCOSE HQ...Based upon our submission and early indications, we're going to do quite well. Next, Chesapeake had a great dinner lecture. Besides having the 2014 Board of Directors installed (Thanks to Steve Sutton), Ann Garrison Darrin of APL provided us with some fantastic insight into Applying SE methodologies to Micro and Nano Scale development projects. She used great examples how using AGILE Systems Engineering practices were proving to be excellent enablers to success. Despite being across the street from our regular Parson's Auditorium lecture space, we had extremely great turn out and really appreciated our co-sponsors from IEEE. We've begun our audit of the 2013 financials and kicked off our 2014 budget formulation. Our Treasurer, Kent de Jong is diligently collecting our records from last year and will be working to adjudicate them to ensure their integrity. Additionally, he has sent budget sheets to all members of the board for each of them to fill out in preparation for our final budget review for this year. Our marketing activities are also in full swing... We're starting to get our promotional materials out to a wider audience. Our communications team led by our Director of Communications, Oren Eisner has been mailing out event posters to volunteers throughout the area who will be posting them in company lobbies, cafeterias, and anywhere we think we can attract greater participation. I think

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- February Dinner/Lecture
- February Workshop
- March Dinner/Lecture
- March MBSE Symposium
- Upcoming Events

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.



The Chesapeake Chapter is always looking for volunteers to speak at our upcoming meetings! Please contact our 2014 Programs Director, [Dr. Alex Pavlak](#), if you would like the opportunity to speak or can recommend someone.

great things will come of this. If you have a space where an event poster will get lots of views please let me know. Special thanks to John Boccio of the SI Org for stepping up and working with Oren on this. Lastly, by the time you read this we will have held our INCOSE Chesapeake Chapter--Women in Systems Engineering (WISE) Kick-Off Luncheon. The meeting, which was hosted by Scitor at their office in Annapolis Junction, Maryland, had great participation. We'll be posting a read out from that meeting on our website. But the really great news here is that we have Women SEs from throughout the chapter who are stepping up to get this off the ground. Very exciting!!! My hope is that January will set the tone for the rest of the year. If so we're looking at un-rivaled accomplishments for 2014. As February begins let me remind everyone that we have two great events scheduled for this month. In addition to our 3rd Wednesday dinner lecture, we have on the 15th, a workshop-- Thinking Outside the Box in Systems Engineering and Integration, with Dr. Howard Eisner. Hope to see you all at both of these events!!! We have some really great volunteers working with us but if you want to get involved or just want to share your thoughts with me please feel free to contact me by email [erik.devito@incose.org](mailto:erik.devito@incose.org) Regards. Erik DeVito - INCOSE Chesapeake Chapter President

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## 19 Feb, 2014 (6:00 - 8:00 PM): Systems Engineering Research at University of Maryland, College Park

**Speakers:** Mr. Petnga and Ms Delgoshaei are PhD candidates, Mr. Block a Masters candidate, all doing research at the UMCP Institute for Systems Research



Leonard  
Petnga

### **Ontologies and Time-based Reasoning for Model-Based Systems Engineering (MBSE) of Cyber-Physical Systems (CPS)**

CPS are characterized by a tight integration of software and physical processes, the need to satisfy stringent constraints on performance, safety and a reliance on automation for the management of system functionality. We'll discuss semantics and their central role in the development of MBSE procedures for behavior modeling and design of CPS and, especially a new reasoning framework. Meta domain ontologies and semantics,

temporal ones, are found to be critical in understanding and modeling the behavior of such systems.



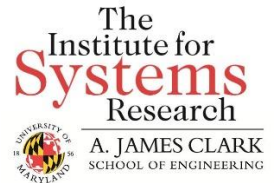
Parastoo  
Delgoshaei

### **Semantic Platforms for Requirements Traceability and System Assessment**

This presentation describes a new approach to requirements traceability and system assessment through the use of semantic platforms. The platform is an integration of software design patterns supporting traceability mechanisms and associated sets of rules. This platform will enhance systems engineering practice by filling in the gap between system requirements and system models, by allowing for rule checking early in design and by providing support for performance assessment during the system operation.

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





Peter Block

**All Elastomer Tactile Sensors for Robotic Skins** While development has improved robot-human interaction, and general sensing capability, the ability to provide a material akin similar to human skin has still proved troublesome because either the skin would be too expensive or require complex wiring, making any sort of scale-up to full coverage of a humanoid robot impractical. A cheap and scalable solution to robotic skins can be realized by combining

conductive polymers with simple low-power micro-controllers to make tactile systems.

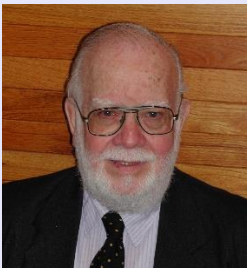
[>>>Check out the Event Flyer Here<<](#)

Go to [www.incose-cc.org/registration/](http://www.incose-cc.org/registration/) to register

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## [15 Feb, 2014 \(9:00 AM - 1:00 PM\): Thinking Outside the Box in Systems Engineering and Integration](#)



Dr. Howard Eisner, GWU  
Professor Emeritus

**Tutorial:** Building large and complex systems continues to be a significant challenge for today’s systems engineers and integrators. This tutorial sets forth new ways of thinking that could lead to improvements in how systems engineering and integration are carried out. In particular, nine new perspectives are suggested for “thinking outside the box”. Examples are provided for each along with a discussion of how they may be applied and their potential benefits. In addition, thinking in groups as well as historical thinking patterns are examined. A summary provides an overview of the several notions that represent departures from current mainstream approaches. **Bio:** Dr.

Howard Eisner has retired as professor emeritus of engineering management and distinguished research professor in the Engineering Management and Systems Engineering Department at the George Washington University. He spent 30 years in industry and 24 years in academia. In industry he served as research engineer, manager and executive at ORI, Inc. and the Atlantic Research Corporation. At the George Washington University he introduced and taught courses in systems engineering, architecting, and technical enterprises and issues. Dr. Eisner has written seven books on various aspects of systems engineering and related technical and management areas. He is a Life Fellow of the IEEE and a Fellow of INCOSE and the New York Academy of Sciences. He received BEE, MS and Doctor of Science degrees from CCNY, Columbia University and The George Washington University.

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

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**REGISTER TODAY!**

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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## 19 March, 2014 (6:00 - 8:00 PM): Lessons from Revolutionary Systems



*Dr. Mark W. Maier,  
The Aerospace  
Corporation,  
Distinguished  
Engineer*

**Presentation:** The most famous systems, the ones with revolutionary effect, were developed against a background of fairly similar systems. Moreover, the reasons for their great success were often not fully anticipated by their designers. In this talk we will examine several particularly famous systems whose architectural histories are well enough known to extract major lessons. The two major systems to be considered will be the DC-3 and the Global Positioning System, although we'll also relate the lessons to several other famous successes. The most important lessons are:

- There are threshold levels of capability, rarely known in advance, that produce non-linear effect.
- Finding the threshold is not exactly accidental, but neither is it a certain choice.
- Revolution requires a co-evolution of user CONOPS and system technology.

**Bio:** Dr. Mark W. Maier is an author and practitioner of systems architecting, the art and science of creating complex systems. He is co-author, with Dr. Eberhardt Rechtin, of *The Art of Systems Architecting, Third Edition*, CRC Press, the mostly widely used textbook on systems architecting. He has also authored more than 50 papers on systems engineering, architecting, and sensor analysis. Since 1998 he has been employed by The Aerospace Corporation, a non-profit corporation that operates a Federally Funded Research and Development Center with oversight responsibility for the U.S. National Security Space Program, where he holds the position of Distinguished Engineer.

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

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## **29 March, 2014 (9:00 AM - 3:30 PM): 2014 Model-Based Systems Engineering (MBSE) Symposium, Co-hosted by the Johns Hopkins University Applied**

## *Physics Laboratory and the INCOSE Chesapeake Chapter*

**Symposium Theme:** “Model-Based Systems Engineering: Challenges and Opportunities”

**Abstract:** While much progress has been made in the standardization and adoption of MBSE, its practice has yet to become ubiquitous. Many challenges to widespread practice of MBSE still exist, and Systems Engineering is at a tipping point between traditional document-based techniques and new model-based techniques. Nevertheless, new methodologies, ever-improving tools, maturing standards, lessons learned, and success stories continue to emerge to support and drive the practice of MBSE. This symposium will provide attendees with a look at the current state-of-practice for MBSE through the eyes of four experts who are “on the front lines” in the fight to make MBSE the de-facto way we do business.

### **Program:**

- **Keynote Address**
- **Matthew Hause** Chief Architect, Atego; Co-Chair, UPDM Working Group **Topic:** Modeling Systems-of-Systems and Management of Design Variations
- **Tamara Valinoto** System Architect, Northrop Grumman; Chairperson, Northrop Grumman Corporate Model-Driven Engineering CoP **Topic:** Application of MBSE Theory in a World of Practical Deadlines and Deliverables: Lessons Learned
- **Tom Capelle** President, Sodium Corporation **Topic:** Interoperability between Models using Emerging Tools, Techniques, and Standards
- **Manas Bajaj** Chief Systems Officer, InterCAX LLC **Topic:** Synergy between Model-Based Systems Engineering and Product Lifecycle Management
- **Roundtable Discussion: Topic:** “What do you see as the most critical challenge to the ubiquitous practice of MBSE?”

Continental Breakfast and Catered Lunch will be provided

**Cost:** \$50 Registration and Payment via the INCOSE Chesapeake Chapter website ([www.incose-cc.org/registration](http://www.incose-cc.org/registration))

**Date and Time:** March 29th, 9:00 AM – 3:30 PM

**Location:** Building 200 Main Auditorium, JHU/APL Main Campus, Johns Hopkins Road, Laurel, Maryland

**For More Information:** Please contact Sean McGervey ([Sean.McGervey@jhuapl.edu](mailto:Sean.McGervey@jhuapl.edu)) or Terri Wolfrom ([Terri.Wolfrom@jhuapl.edu](mailto:Terri.Wolfrom@jhuapl.edu)).

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## **Volunteer Opportunity...**

The annual Anne Arundel County Science & Engineering fair is scheduled for the morning of Saturday March 8th at North County HS. INCOSE Chesapeake Chapter has, in the past, provided judging at this event. We would like again offer our expertise by becoming a Judge at this event. Last year we gave out three Certificates with small monetary gifts. It is very rewarding to see the breadth of

projects covering many science, technology, engineering, and math areas of interest, and to be able motivate students to continue studying in these fields.

If anyone is interested in supporting this event, please contact Don Gantzer, 410-956-1562, or [dongantzer@comcast.net](mailto:dongantzer@comcast.net) If anyone knows of similar technical activities that we might be able to support in our efforts to enhance knowledge and rewards of those pursuing future SE type careers, please also contact [dongantzer@comcast.net](mailto:dongantzer@comcast.net) or any of our officers

## Upcoming Events

- **February 15**, Tutorial: Thinking Outside the Box in Systems Engineering and Integration *Dr. Howard Eisner, Professor Emeritus, The George Washington University*
- **February 19** Dinner/Lecture: Systems Engineering Research at the University of Maryland, College Park *Leonard Petnga, Parastoo Delgoshaei, and Peter Block*
- **March 8** Anne Arundel County Science & Engineering Fair at the North County HS.
- **March 19** Dinner/Lecture: Lessons from Revolutionary Systems, *Dr. Mark W. Maier, Distinguished Engineer, The Aerospace Corporation*
- **March 29** Model-Based Systems Engineering (MBSE) Symposium, *Co-hosted by the Johns Hopkins University Applied Physics Laboratory and the INCOSE Chesapeake Chapter*



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, Erik R. DeVito](#) or our [Communications Director, Oren Eisner](#). We value your feedback.

### Board of Director Officers, 2014

- President: Mr. Erik DeVito
- Past President: Dr. William Ewald
- President Elect: Mr. George Anderson
- Treasurer: Mr. Kent DeJong
- Secretary: Mr. Mark Kaczmarek

### Directors at Large

- Communications: Mr. Oren Eisner
- Programs: Dr. Alex Pavlak
- Membership Committee: Mr. Bob Lecorchick

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