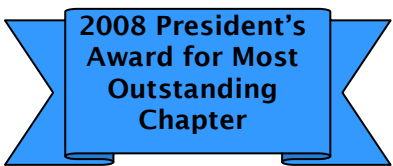




# NEWSLETTER



## UPCOMING EVENTS

### Tutorial

“Rightsizing Your Process: How to Balance Affordability and Project Success,” by Rick Hefner, Ph.D.  
Date and Time: Saturday, June 1, 2013, 9:00 a.m. – 4:00 p.m.  
Where: Northrop Grumman S-Café, Redondo Beach  
See website (<http://www.incose-la.org>) for details

### Chapter Strategic Planning Meeting

Date and Time: Saturday, June 8, 2013, 10:00 a.m. – 3:00 p.m.  
Where: Northrop Grumman S-Café, El Segundo  
Continental breakfast, lunch, and refreshments provided  
*See article on page 9*

### June Speaker Meeting

“The Need for Systems Engineering of System of Systems”  
Speaker: Maj. Gen. Terrence Feehan, Vice Commander at Space and Missile Systems Center, Los Angeles Air Force Base  
Date and Time: Thursday, June 20, 2013, 5:30 p.m. – 7:45 p.m.  
Where: BAH LAX (El Segundo)  
Cost: Free; refreshments included  
*Register by June 16, 2013, at <http://www.incose-la.org>*  
*See article on page 2*

**SEE MORE UPCOMING EVENTS ON PAGE 3**

## 2013 International Symposium: A Preview

The International Symposium is fast approaching, and, as in years past, offers a wide variety of opportunities to learn more about systems engineering and to share systems engineering experience with fellow professionals. As noted in the welcome by Bill Miller, the Technical Director, “INCOSE symposia provide unparalleled value to engage and network with the global systems community. The formal technical program serves as a catalyst for the generation of ideas that lead to the advancement of knowledge through our more than forty working groups and collaborative initiatives with other professional organizations. We are striving to make our working groups and collaborative initiatives more virtual to engage the wider systems community, whether individual contributors, local chapter working groups, or other professional organizations.”

The weekend before the official opening of the symposium (June 22 and 23, 2013) there will be three workshops, a Certified Systems Engineering Professional (CSEP) tutorial, plus three tutorials on some fundamentals of systems engineering. On Monday, June 24, 2013, the symposium officially opens. Monday through Thursday the symposium will offer seven simultaneous tracks and a renowned plenary speaker each day. During this time, seventy-two papers, eleven panels, four roundtables, eight more tutorials, and approximately thirty posters will be presented. On Friday, after the official close of the Symposium, there will be technical tours in the region that are sure to inspire the engineer in all.

The 2013 Technical Program will truly offer value for every systems engineer in attendance. The detailed schedule of the technical program is available online at <http://www.incose.org/symp2013/index.php?q=taxonomy/term/31>. Although all parts of the Technical Program are available to all symposium attendees, some portions of the program carry an extra cost and need to be reserved and prepaid when you register.

Plenary speakers have always been a featured attraction at past symposiums, and this year’s symposium continues the tradition. The keynote speakers for this year will be Stephen P. Welby, the US Deputy Assistant Secretary of Defense for Systems Engineering; Brian Collins, Professor of Engineering Policy at University College London; Dianne D. Anderson, Executive Director of the Great Lakes Energy Institute at Case Western Reserve University; and Leanne Caret, Vice President and General Manager of Vertical Lift for The Boeing Company.

Tutorials will cover a wide range of pertinent topics for the  
*(Continued on page 9)*

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## June Speaker Meeting: The Need for Systems Engineering of System of Systems

**PRESENTER:** Major General Terrence A. “Terry” Feehan, Vice Commander of the Space and Missile Systems Center, Los Angeles Air Force Base

**WHEN:** Thursday, June 20, 2013

**WHERE:** Booz Allen Hamilton – LAX office

5220 Pacific Concourse Drive

Building 5220, 2nd floor, Suite 200

*Please note: Remote sites and virtual attendance for individual participants will NOT be available.*

**COST:** There is no charge for attending this meeting.

### **MEETING AGENDA:**

5:30 – 6:00 p.m. Registration, networking, refreshments

6:00 – 6:10 p.m. Welcome and announcements

6:10 – 8:00 p.m. Presentation and questions and answers

Plentiful refreshments will be provided.

**PLEASE REGISTER ONLINE** at [www.incose-la.org](http://www.incose-la.org) “Upcoming Events” **BY SUNDAY, JUNE 16, 2013. If you are not sure whether you’ll be able to attend, DO make an online reservation and indicate that you’re uncertain.**



General Feehan is responsible for assisting the Commander in managing the research, design, development, acquisition, and sustainment of space and missile systems, launch, command and control, and operational satellite systems. The Space and Missile Systems Center is the nation’s center of technical expertise for military space acquisition.

General Feehan received his commission as a distinguished graduate of the US Air Force Academy in 1984 with a Bachelor of Science degree in mechanical engineering. He has previously commanded at the squadron, group, wing, and numbered Air Force levels, and he has served as an engineer, acquisition program manager, and inspector general. The general has also held assignments at the major command and headquarters Air Force levels, and he was a Secretary of Defense Fellow, Accenture Corporation, Northbrook, Illinois.

General Feehan’s academic credentials include a Master of Science degree in engineering management from the West Coast University in California (1989); the Program Managers Course offered by the Defense Systems Management College in Fort Belvoir, Virginia; Air Command and Staff College at Maxwell Air Force Base, Alabama; Leadership for a Democratic Society, offered by the Federal Executive Institute in Charlottesville, Virginia; and the Capstone General and Flag Officer Course offered by the National Defense University at Fort Lesley J. McNair, Washington, D.C.

## Systems Thinking at the Los Angeles Chapter March Mini-Conference

*Inputs from Dr. Len Troncale*

“System science,” “systems thinking,” and how to use systems thinking comprised the featured topic of Track One at the INCOSE-LA Mini-Conference held March 16, 2013, on the campus of Loyola Marymount University. Systems thinking is the process of understanding how things influence one another within a whole. It is a powerful perspective for understanding reality that emphasizes the relationships among a system’s parts, rather than the parts themselves. When applied to a system within the context of its environment, systems thinking often uncovers emergent behavior and highlights potential unintended consequences. It does not matter if that system is one of laws, technology, procedures, policies, processes, society, or culture.

An important aspect of systems thinking is that it deals with the changes caused by the existence of a system. As systems engineers we are in the business of implementing change. The tools we have to understand the wider aspects of change wrought by a new system on the environment and vice versa have been somewhat limited. Combining systems thinking and systems engineering can help us implement more efficient and effective systems.

The introductory presentation by Padman Nagenthiram set the stage for the conversations to follow. It was noted that systems thinking can be thought of as a perspective, a language, that involves loops (iterative or recursive) and a set of tools. There has been only limited enthusiasm for systems science, but interest is growing, as reflected in the 2012 Competency Framework. The obstacles and barriers are not uncommon, including resistance to change, the reductionist nature of the discipline heretofore, and the constraints of schedules and deadlines for linear progress. INCOSE Fellow Jack Ring’s “three types of systems” (state determined, stochastic, and nonstochastic) were a part of the discussion. An integrated systems approach would include “system science;” a challenge to academia was the concept that this approach would include training as systems thinkers and would be introduced earlier in educational institutions. It was also noted that there are INCOSE initiatives to promote more systems thinking.

The second portion of the track on systems thinking was a panel discussion. The panel, hosted by Dr. Bo Oppenheim, included John Carfora, Ph.D., Associate Provost of LMU; the Honorable Ricarda Kessebohm, LL.M, Consulate General, of the Los Angeles Consulate of the Federal Republic of Germany; Azad Madni, Ph.D., Professor and Director, Systems Architecting and Engineering at the University of Southern California; and Dr. Stephen Tarzynski, Chief of Pediatrics at the West Los Angeles facility of Kaiser Permanente.

One of the challenges to systems thinking cited was illustrated by the tenacious adherence to the Ptolemaic model of the universe and the response of the intelligentsia to the observation of Mercury in retrograde: either ignore or deny the data or distort the model to incorporate the new data.

*(Continued on page 10)*

## Positive Train Control — Another Systems Engineering Challenge

By Jorg Largent

Railroads, the system of systems that spawned systems engineering as the system that facilitated the industrial revolution, continue to incorporate advances in technology, metallurgy, software, and other disciplines to improve value to their customers, efficiency for their stockholders, and safety for their industry and communities. Toward these ends, the industry has taken on the challenge of positive train control (PTC), the next step in this progression. PTC is an advanced technology specifically designed to automatically stop or slow a train before certain accidents occur. In particular, PTC is designed to prevent train-to-train collisions, derailments caused by excessive speed, unauthorized incursions by trains onto sections of track where repairs are being made, and movement of a train through a track switch left in the wrong position. Commented one veteran railroader, "It will very much be the next step in train control. Just like DTC (Direct Traffic Control) and CTC (Centralized Traffic Control) eventually changed the way railroading was done, PTC will as well."

The current impetus for PTC stems from the Rail Safety Improvement Act of 2008, which requires Class I railroads to install PTC systems on tracks that carry passengers or "toxic-by-inhalation" materials. The law requires fully functional PTC systems to be in place by the end of 2015.

The scope of the systems engineering challenge is summed up in an Association of American Railroad estimation that PTC technology will have to be deployed on approximately 63,000 miles of US freight rail lines. This will involve the installation of PTC capability on thousands of locomotives; a large, new wireless communications network; and tens of thousands of trackside devices connected to signals, switches, and other wayside devices.

America's railroads are committed to meeting the 2015 deadline. However, the industry supports common-sense implementing regulations that do not impose unnecessary costs, and funding assistance to help railroads offset the costs associated with the technology.

For more information go to <https://www.aar.org/safety/Pages/Positive-Train-Control.aspx>.

## Advertisement: Systems Engineering Career Opportunity Parsons Positive Train Control

The Parsons Positive Train Control (PTC) program seeks a Systems Configuration Manager. This is a full time position with initial direct support to the PTC Program. Key role: support setup and maintenance of Configuration Management activities for all PTC programs via a consolidated PTC lab-based backend, currently located in the Rancho Cucamonga PTC Project Office. Travel to project locations (Los Angeles, San Francisco, New York, and Pennsylvania) is required.

The Configuration Manager will be responsible for completing and implementing the configuration control plan for the project, which is to design and build a mission critical safety system for an operating commuter railroad. Configuration control practices shall be compliant with Parsons' best practices and business objectives, contract requirements, and applicable standards for a large technology construction project. This will include the establishment and maintenance of a design baseline set of drawings and documentation for a very-large-scale-integration system, including a number of complex software based subsystems and construction and installation sites. Controlled items will include drawings, design reports, functional descriptions, software, data used by software applications, geographic data, other computer files, requirements traceability items, test reports, reliability data, installation records, inspection reports, maintenance and operating procedures, property records, and other controlled items.

Those interested may contact Sheryl Shepherd directly by phone at 626-440-4820 or apply via the Parson's website at <http://parsons.taleo.net/careersection/2/jobdetail.ftl?lang=en&job=16923>

### MORE UPCOMING EVENTS

#### International Symposium 2013

Dates: June 24 – 27, 2013

Where: Philadelphia, PA

Visit <http://www.incose.org/symp2013/> for additional details  
See article on page 1 for additional details

For more details on Chapter-sponsored events and registration, go to <http://www.incose-la.org>

#### Complex Aerospace Systems Exchange (CASE) at AIAA Aviation and Aeronautics Forum

Dates: August 12 – 14, 2013

Where: Hyatt Regency Century Plaza, Los Angeles, CA

Register before July 15 for a reduced rate

Visit <https://www.aiaa.org/aviation2013/> for additional details

#### 2014 Conference on Systems Engineering Research (CSER)

Dates: March 20 – 22, 2014

Where: Crowne Plaza Hotel, Redondo Beach, CA

See article on page 4



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*"Met my objectives very well. I achieved a better understanding of what should be done, rather than what is being currently performed", delegate, Carl Zeiss Optronics*

## UPCOMING 2013 COURSE SCHEDULE

Systems Engineering	Las Vegas, NV	10 Jun - 14 Jun
Systems Engineering Management	Washington, DC	12 Aug - 16 Aug
Requirements Analysis & Specification Writing	Las Vegas, NV	26 Aug - 30 Aug
Cognitive Systems Engineering	Las Vegas, NV	2 Sep - 6 Sep
Software Development Principles & Practices	Las Vegas, NV	23 Sep - 27 Sep
Systems Engineering	Las Vegas, NV	30 Sep - 4 Oct
Software Development Principles & Practices	Washington, DC	30 Sep - 4 Oct
Systems Engineering	Boston, MA	21 Oct - 25 Oct
Systems Engineering	Las Vegas, NV	2 Dec - 6 Dec
Systems Engineering Management	Las Vegas, NV	2 Dec - 6 Dec



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## Conference on Systems Engineering Research to Return to Los Angeles in 2014

By David Murray

Mark your calendars! The Twelfth Annual Conference on Systems Engineering Research (CSER) will take place at the Crowne Plaza Hotel in Redondo Beach from March 20–22, 2014. This marks the fifth time that CSER will take place in the Los Angeles area and the first time since 2011.

As the CSER 2013 official website says, "The annual CSER has provided an international platform to showcase innovative systems engineering research. Originally founded by Stevens Institute of Technology and the University of Southern California, CSER has been hosted by a number of universities and has evolved to be a premier venue for presentation of systems engineering innovation. Its success over the years has been a community-wide effort."

CSER 2014 will again be organized by the University of Southern California in collaboration with Stevens Institute of Technology, and it will be managed by INCOSE-LA. Terry

Rector and Roz Lewis, along with Dr. Elliot Axelband, Professor Azad Madni, and Marilee Wheaton are the nucleus of the leadership team. Axelband, Madni, and Wheaton all held similar positions for CSER 2011.

Details about next year's conference are just starting to take shape, with more emerging in the coming months. The Memorandum of Understanding is being developed, and a draft of the Call for Papers has been written. Additionally, many 2014 Conference Committee members are still being sought. Areas with open roles needing to be filled include website content and execution, finance, promotion and publicity, interorganization liaison, operation,

exhibitor, fundraising, corporate sponsorship, publication, and audio-visual.

To volunteer for one of the open committee positions or offer your assistance in any other way, please contact Terry (trector@irvine-sensors.com) or Roz ([rosalind.lewis@aero.org](mailto:rosalind.lewis@aero.org)).

There will be a CSER kick-off meeting at 8:30 a.m. on Saturday, June 8, 2013, just prior to SPM at Northrop.

## INCOSE-LA Chapter NEWSLETTER

Vol. 11: Issue No. 3 June – July 2013

## Systems Engineering Tools: The April Speaker Meeting

By Jorg Largent

Sam Bertic, an Account Executive with Vitech Corporation and a Certified Systems Engineering Professional, was the featured speaker at the Chapter's April 9, 2013, speaker meeting. Sam's presentation was titled "Systems Engineering Tools: Benefits of Automation."

Sam opened his presentation with a discussion of the value of tools in terms of productivity. Examples of office tools are word processing, tabular (spreadsheet) analysis, and presentations. Sam cited various systems engineering domains, including requirements, functional analysis and simulation, architectural development, verification and validation, and integration and test. Of note were the desired products: specifications, traceability matrices, functional diagrams, simulation validation, analyses, hierarchical architecture diagrams and interface diagrams, test and verification plans, procedures, reports, and benefits versus effort and cost. Bertic reviewed the history of tools, using the 1980s as the "beginning," when there were no PC-level tools and tools such as an IBM mainframe were used for document generation and flat-file databases. Previously all products had been manually created and updated through "Tech Pubs." As tools became more powerful, engineers could do more: identifying weakness in a design earlier, for example, or performing rudimentary traceability analysis. Other advances facilitated early assessment of physical impacts of proposed requirement changes.

A fool with  
a tool is  
still a fool.

The use of tools to support the performance of the systems engineering kept pace with increasing need and transitioned from multipurpose tools to using increasingly sophisticated and specialized tools capable of supporting more and more elements of the process. Akin to

"peeling the data onion," each improvement revealed the need for increased capabilities and sophistication in the tools. With increasing fidelity in the succession of tools and operating platforms, requirements were better defined and the flow from requirements to design to verification improved. Tools able to facilitate the identification of, and resolution of, "orphan" requirements came online. Auto-generated specifications and change management control became capabilities of the tools. The systems engineering tool used on an advanced aircraft program featured a functional simulation capability. This tool was used to model the mission profiles, divided into phases, and was executable with easily adjusted (what-if) parameters. Tools were used to provide early validation of overall mission capability of a system, as well as to identify and exercise system interfaces. New tools could be used to facilitate detailed analysis and simulation.

Bertic concluded by noting that automation tools for systems engineering are in wide use in many areas for many purposes. Requirements management is a key focus area. Many programs benefit from the use of modern systems engineering tools to perform functional analyses, architecting, simulation,

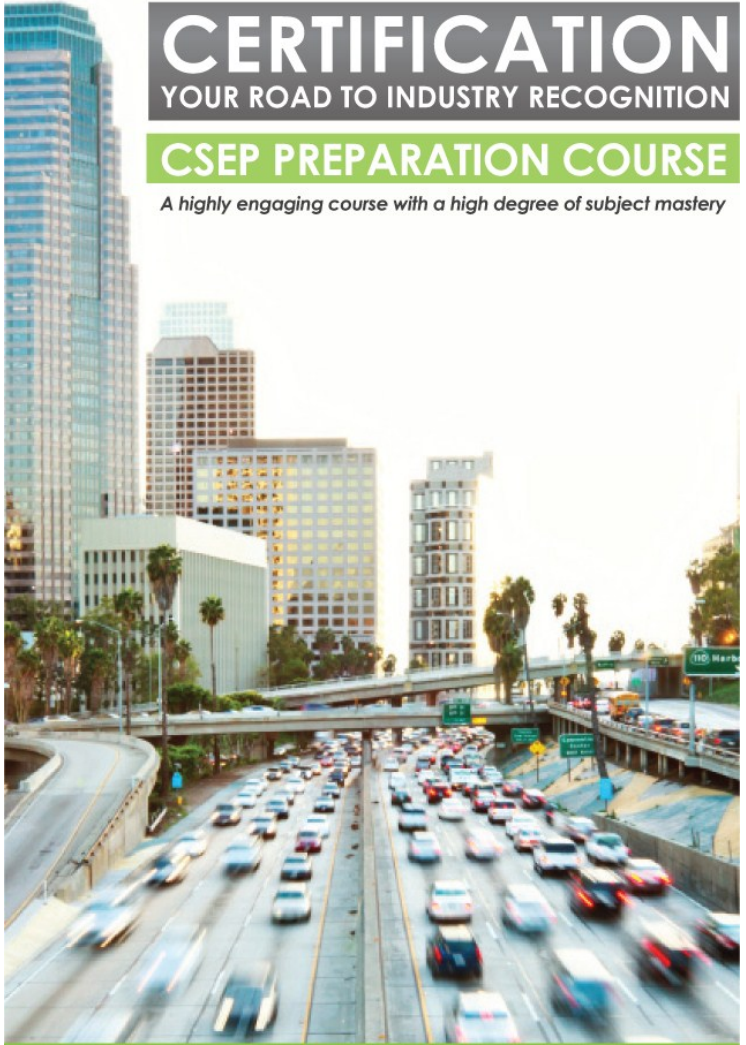
*(Continued on page 10)*

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## The International Symposium: A Few Travel Tips

By Jorg Largent

The Philadelphia Marriott Downtown hotel, host site of IS13, sits atop a railroad station (the East Market Station), providing convenient access to airports throughout the northeast. In addition to direct rail service from the Philadelphia airport, there are Amtrak connections to several major airports: Reagan (National) Airport in Washington, D.C.; Thurgood Marshall Airport between Washington and Baltimore; and Newark Liberty International Airport (aka Newark International Airport) in northern New Jersey.

Signs in the East Market Station provide directions to the elevators that go up to the lobby of the Marriott hotel. For those who prefer to walk at street level, walk south (decrease address numbers) about half a block on North 11th Street to Market Street and then west (increasing address numbers) about a block and a half on Market. The Marriott is on the north side of Market Street.

### Getting there by rail from the Philadelphia airport:

Rail service from the Philadelphia airport terminals to the hotel is provided by the Southeastern Pennsylvania Transportation Authority (SEPTA). This heavy-rail commuter service has stops at each of the terminals at the airport. The first train to the city leaves the station from terminals E and F at 5:09 a.m. and, after stopping at the other terminals, arrives at the East Market Station approximately thirty minutes later. Trains run every thirty minutes, with the last train departing the airport just after midnight.

Tickets can be purchased on board the train for \$7.00. The conductor can accept *only* cash; exact change is recommended.

Customers may purchase a Regional Rail ticket in advance from any station ticket office (the airport does not have one) or SEPTA's online store <http://www.shop.SEPTA.org>.

Check the SEPTA website for more current information: <http://www.septa.org/welcome/airport.html>

### Getting there by rail from other northeastern airports:

Amtrak provides fast and frequent service to Philadelphia from Washington, Pittsburgh, New York, and points north. Tickets on Amtrak can be purchased online at <http://tickets.amtrak.com/itd/amtrak>. Tickets purchased online are delivered as an email message containing a bar code. Email tickets can be printed out at kiosks (located in many major stations) using a credit card. Most major stations have ticket windows as well.

### Amtrak connections in Philadelphia:

Amtrak trains arrive in Philadelphia at the 30th Street Station. The Regional Rail service provided by SEPTA is two levels up from the Amtrak platforms; the stairs to the SEPTA train platforms are at the west end of the waiting room. SEPTA and Amtrak personnel abound and seek out opportunities to provide help and directions. Take any eastbound train (headed across the Schuylkill River) to the East Market Station. Amtrak paper tickets and e-Tickets, purchased for the same date of travel and presented for inspection, will be accepted as a fare to

ride on Regional Rail trains between 30th Street Station and Market East Station. Customers with e-Ticket confirmations should present their personal device (iPad, laptop computer, smart phone, etc.) to the SEPTA conductor for visual confirmation of the Amtrak fare.

### Amtrak connections from the south to 30th Street Station:

Travelers flying into **Reagan Airport** can take a short, grade-separated walk from the terminal across to the Washington, D.C., Metro (<http://www.wmata.com/>). The D.C. Metro has two routes serving Reagan, and both connect with the Red Line, to which the traveler needs to transfer in order to get to Union Station. Tickets from Reagan to Union Station cost between \$1.35 and \$3.70. Trains depart Reagan Airport approximately every six minutes, and travel time to Union Station is approximately twenty-two minutes.

Acela trains (Amtrak's touted high-speed service) from Washington's Union Station to Philadelphia depart on the hour (typically an Acela, followed by a conventional train a few minutes later). Acela trains from Washington make one or, in some cases, two fewer stops than the conventional trains and run about twenty minutes faster (one hour and thirty minutes versus one hour and fifty minutes). The fare for a conventional train from Washington to Philadelphia is \$35.00; Acela tickets cost \$109.00; first class on Acela is an additional \$82.00.

Flyers utilizing **Thurgood Marshall Airport** (between Washington and Baltimore) can take advantage of free shuttle buses that operate between the airport terminals and the nearby train station. The buses operate every twelve to twenty-five minutes daily. Buses stop adjacent to the rail station garage directly in front of the rail station. Some Acela trains and many conventional trains stop at Thurgood Marshall Airport. The fare on a conventional train to Philadelphia is \$32.00; Acela tickets are \$104.00; first class on Acela is an additional \$67.00. The approximate travel time is one hour and twenty-five minutes on a conventional train and one hour and twelve minutes on Acela.

Travelers flying into **Dulles International Airport** can also connect with Amtrak at Washington Union Station by using a bus connection with the Metro from Dulles Airport or a taxi or limousine service:

For the bus-Metro connections, the traveler should purchase a bus ticket (one-way, \$10.00, or round-trip, \$18.00) at the Washington Flyer Coach ticket counter located at Arrivals Door No. 4 in the Main Terminal. Travelers will also board the bus at this location. The buses depart approximately every thirty minutes, but travelers should be attentive for announcements regarding exact bus departure times. Information on the bus service can be found on the internet at [http://www.washfly.com/flyer\\_bus\\_about.htm](http://www.washfly.com/flyer_bus_about.htm).

Travel on the Metro is a separate fare, and the traveler will need to purchase a Metrorail fare card (\$2.00 to \$5.00) inside the train station at the West Falls Church Metro stop. Trains bound for "New Carrollton" go towards Washington, D.C. The traveler will need to transfer to the red line to complete the

(Continued on page 7)

## April Networking Event

By Scott Britlan

On April 17, 2013, the Chapter held another successful networking event. The group gathered at one of our usual after-work hot spots, Lido di Manhattan, in Manhattan Beach. Fifteen members and a few guests gathered to socialize and share their recent experiences as systems engineers of all types working in and enjoying the Los Angeles area. We were pleased to greet Dennis Wonica, the Enterprise Programs Chair of the AIAA Los Angeles–Las Vegas chapter, and had a great time trading ideas for networking events! Members of the University of Southern California Student Division and a few of the Loyola Marymount University staff were also in attendance and provided for some lively discussion on the status of the two newly created student divisions and future collaborative events.

The INCOSE-LA Chapter holds informal networking social events every other month throughout the year, rotating around the Los Angeles metro area. The events are open to both members and guests. The next event is scheduled for Wednesday, June 19, 2013, in the Pasadena area. Come join us! You are sure to meet new friends and enjoy some casual

## INCOSE-LA Is Still Golden!

For the ninth consecutive year, INCOSE-LA has been recognized as a Gold Circle Award Chapter for last year's contributions and accomplishments. In general, the INCOSE annual awards program is intended to encourage effort and innovation at the local level by recognizing chapters which meet or exceed organizational standards for local service and contributions. As the INCOSE Chapters Committee stated, "The Gold Circle Award recognizes chapters adopting best practices and reaching the highest goals and standards established by our organization."



The 2012 Gold Circle Award will officially be presented to INCOSE-LA at the banquet during the 2013 International Symposium in June.

*(Travel Tips, continued from page 6)*

connection to Union Station. Total travel time from Dulles to Union Station using the bus and Metro is as much as two hours. Information on the D.C. Metro can be found at <http://www.wmata.com/>.

Limousine service is available from Dulles and costs upwards of \$45.00. The distance from Dulles to Washington Union Station is thirty miles and travel time by road can take as little as forty minutes or as much as two hours, depending upon traffic and weather.

### **Amtrak connections from the north:**

Amtrak trains from New York to Philadelphia depart New York on the hour (Acela, followed by a conventional train a few minutes later) with additional conventional trains leaving at about thirty minutes after the hour during peak periods. Acela trains from New York make two fewer stops and run about ten or fifteen minutes faster than conventional trains (one hour and eight minutes versus one hour and twenty minutes). The fare for a conventional train from New York to Philadelphia is \$36.00; Acela trains cost \$96.00; first class on Acela is an additional \$73.00.

**Newark Liberty International Airport** is on the Amtrak route through New Jersey to Philadelphia. All terminals have a monorail that provides a direct connection to the Amtrak station. The monorail fare is included in Amtrak tickets to and from the Newark Airport Rail Station. None of the Acela trains and only a limited number of the regular trains stop at the Newark airport station.

To use this monorail, Amtrak passengers must present to

the station gate agent their Amtrak ticket receipt showing Newark Airport as the destination or boarding point. Passengers without tickets showing Newark Airport must purchase \$5.00 monorail tickets from the New Jersey Transit ticket vending machines located at the transfer station.

Passengers must have Amtrak tickets before boarding Amtrak trains from this station.

Travelers who wish to fly into the **JFK** airport (previously New York International) can connect to Amtrak by riding an airport rail shuttle to Jamaica Station and then riding the Long Island Railroad to Penn Station in Manhattan. The connection costs \$15.50 and takes about thirty-five minutes. The Long Island Railroad website (<http://new.mta.info/lirr>) describes the choices for getting from a specific terminal at JFK to Penn Station. Bus, taxi, and limousine service is also available (go to <http://www.panynj.gov/airports/jfk-airtrain.html> for more information).

Travelers flying into **LaGuardia Airport** can connect with Amtrak by the NYC Airporter bus. The buses provide door-to-door service and depart the airport roughly every thirty minutes. On average the travel time is sixty minutes to Manhattan. The fare is \$13.00; travelers can purchase bus tickets online at [www.NYCAirporter.com](http://www.NYCAirporter.com).

### **Disclaimer:**

All of the data provided above is as accurate as can be under the circumstances at the time of writing, and are subject to change at the discretion of the service providers. The data is not an exclusive dataset; other options are available. Please contact the service providers at the websites cited or your travel professional before finalizing your travel plans.

## Rightsizing Your Process: The May Speaker Meeting

By Jorg Largent

Dr. Rick Hefner, from the Caltech Center for Technology and Management Education, was the speaker for the May Speaker Meeting. His presentation was titled “Rightsizing Your Process: How to Balance Affordability and Project Success.” Dr. Hefner’s credentials and deft speaking talent combined into a presentation that was interesting and challenging to the systems engineering community, asking the audience to think about thinking through the process.

Dr. Hefner opened with a discussion of the importance of processes and of some of the challenges to developing and implementing processes. On the one hand, one of the enablers for project success is robust systems engineering and project management processes to optimize project success, but on the other hand, there is the persistent challenge to make the processes “lean” and more affordable.

There is a need to standard things, and it is good to have things written down. An oft-voiced concern is that procedures stifle creativity. A part of the challenge is to have the process be agile, but agility needs to be controlled so as to provide balance.

To set the stage, Dr. Hefner presented two definitions of *process*: a “set of interrelated or interacting activities which transforms inputs into outputs” (INCOSE Systems Engineering Handbook); and a “sequence of interdependent and linked procedures which, at every stage, consume one or more resources (employee time, energy, machines, money) to convert inputs (data, material, parts, etc.) into outputs. These outputs then serve as inputs for the next stage until a known goal or end result is reached” (BusinessDictionary.com). Dr. Hefner noted that a process has value, and that the value varies with perspective, having differing values to individuals, projects, organizations, and the profession. This was the forum for some audience participation as those in attendance cited attributes of having a process that would be of value to the various groups. Providing some answers of his own, Dr. Hefner asked and

The less we know,  
the more we tend to  
overestimate how  
much we do know.

answered the question, “How do the industry best practices add value?” His answers were performance, quality, insight, and communications.

With this foundation, Dr. Hefner moved on to why a process might need rightsizing. Rightsizing tailors in needed activities and tailors out unneeded activities, balances discipline and bureaucracy, and ensures usability. As an aside, Dr. Hefner noted that a process could be so comprehensive and written at such a fine level that “anything we do is wrong.”

Dr. Hefner used baking as an illustration. Baking cookies is a process. Rightsizing the recipe to bake only six cookies rather than twelve is a matter of dividing by two; however, rightsizing is also a little more sophisticated: one ought not cut the oven temperature in half or the cooking time in half.

There was a point of clarification with respect to “rightsizing” and “tailoring” and with respect to the difference between “process” and “procedure.” In the context of this presentation (and that of the upcoming tutorial), “tailoring” is a part of, a dimension of, rightsizing. In addition, a procedure is different than a process in that a procedure is more step-by-step, whereas a process is at a higher level. Dr. Hefner used painting a fence as an illustration. There were three parts of the project:

1. Policy: the fence shall be painted each spring.
2. Process: wash fence, sand fence, apply primer, apply paint.
3. Plan: who does the job, when it should be accomplished, and what materials are needed (sandpaper, paint)

“Tailoring” might include instructions from management: clean the brushes. This could include a procedure: “how to clean brushes.” A hypothetical neighbor was proposed, a neighbor with the same policy, but with a plastic fence. The neighbor would tailor out the sanding step and rightsize the process by eliminating sandpaper from the plan. As a footnote, Dr. Hefner highlighted the importance of subject matter experts, noting that without some expertise one might also tailor out the primer.

The evening concluded with questions and answers and an appreciative audience. The audience included participants at the regular remote sites plus a new one, and a call-in from McClellan Air Force Base in northern California.

Sometimes learning  
doesn't make you  
smart; it makes you  
confused at a higher  
level.

## USC Student Division Activities

The USC Student Division held a joint event on April 18 with the American Society of Quality (ASQ). Marianne Silva, Manager of Quality, Regulatory and Compliance for the USC Clinical Laboratories, Keck Hospital of USC and USC Kenneth Norris Jr. Cancer Hospital gave a talk on quality management systems, references for quality system requirements, and how to apply quality systems to biologics, medical devices, clinical laboratories, and the food and supplement industries.

## INCOSE-LA Chapter NEWSLETTER

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## Strategic Planning Meeting

The Board of Directors is hosting another Strategic Planning Meeting, and welcomes the active participation and contributions of all members of the Chapter. If you have an input, a recommended change or improvement, an activity you think the Chapter should pursue, or you would like to learn more about the members of the Board and what we do, please join us. Your contributions to helping us make this a better Chapter—a Chapter that serves its members—would be greatly appreciated. If you have any topics you would like the Board to discuss, please send them to the Chapter President, Eric Belle, at [eric.belle@incose.org](mailto:eric.belle@incose.org). Chapter members are encouraged to

participate, especially if you are interested in knowing more about chapter operations or if you have thought about volunteering for chapter events or leadership positions.

### PARTICULARS

Continental breakfast, lunch, and light refreshments will be provided.

COST: no charge (ideas and inputs would be appreciated)

WHEN: Saturday, June 8, 2013, 10:00 a.m. to 3:00 p.m.

WHERE: Northrop Grumman Building S-Café, at 2100 Marine Drive, Redondo Beach, California

REGISTRATION: Please register by June 5, 2013, so that we can plan appropriately for refreshments.

*(Continued on page 10)*

*(International Symposium, continued from page 1)*

systems engineer seeking keener insight into the application of the discipline.

This year's tutorials are

- A Lean Engineering Journey, taught by Olivier Temien of Thales Systemes Aeroportes
- A Solutions-Based Approach to MBSE [Model-Based Systems Engineering] Architectures with UPDM [the United Profile for the DoD Architectural Framework/Ministry of Defence Architectural Framework], taught by Matthew Hause of Atego
- Applied Systems Engineering: Fundamentals for Project Success, taught by Zane Scott of Vitech Corporation
- Applied Systems Thinking for Organization Success, taught by Mark Wilson of Strategy Bridge International
- Essential Model-Based Systems Engineering – Applied and Practical, taught by Warren Smith of Vitech Corporation
- Introduction to Pattern-Based Systems Engineering (PBSE): Leveraging MBSE Techniques, taught by William Schindel of ICTT Systems Sciences and Troy Peterson of Booz Allen Hamilton
- On Principles of Complex Systems Engineering: Complex Systems Made Simple, taught by Brian White of CAUSES
- Preparation for INCOSE Systems Engineering Certification, taught by John Clark
- Presentation Secrets of Comedians and Stage Performers: The Advanced Presentation Workshop, taught by Barclay Brown of IBM
- Systems Architecting and Program Management with the Design Structure Matrix (DSM), taught by Tyson Browning of Texas Christian University
- Systems Engineering Requirements Analysis and Trade-offs for Trusted Systems and Networks, taught by Paul Popick of Aerospace and John Miller of the MITRE Corporation
- The Graduate Reference Curriculum for Systems Engineering: Impact and Prospects, taught by Dr. Timothy L. J. Ferris of the University of South Australia and Rick Adcock of Cranfield University
- The SEBoK: New Material, New Users, New Uses, New Directions, taught by Dr. Art Pyster of Stevens Institute of

### The Chapter Soiree

The Chapter will again be hosting a networking event for International Symposium attendees from Southern California and their guests. Past festivities have been highlights of symposiums past (as well as workshops) with good food and beverages to match (no-host bar) combined with fun people and scintillating conversation. The event is tentatively planned for Monday evening starting at 5:00 p.m. Please contact Eric Belle ([eric.belle@incose.org](mailto:eric.belle@incose.org)) for additional details.

Technology and Dr. David Olwell of the Naval Postgraduate School

- The System Engineering of Interfaces, taught by Hazel Woodcock of IBM and Paul Davies of Thales
- Toward a Science of Systems: Exploring the Nature of Systems Processes and Pathologies, taught by James Martin of the Aerospace Corporation

Scott Jackson, an INCOSE-LA member, will represent the University of Southern California on a panel that discusses the topic, "Have North America and the Caribbean Shown Resiliency to Recent Natural Disasters and Human-Induced Accidents? A Debate on the Issues." Dr. Bohdan "Bo" Oppenheim, also an INCOSE-LA member, will represent Loyola Marymount University on a panel that discusses the topic, "Agile and Lean Systems Engineering: Are these two approaches complementary or they are different and should applied in specific environment?"

INCOSE-LA members Jo Ann Lane and Dan Ingold (University of Southern California student division), in concert with Richard Turner (Stevens Institute of Technology) and Ray Madachy (Naval Postgraduate School) will be presenting a paper, "A Lean Approach to Improving Systems-Engineering Visibility in Large Operational Systems Evolution."

Interested? To learn more and to register, go to the INCOSE symposium webpage at <http://www.incose.org/symp2013/index.php?q=taxonomy/term/1>.

Dr. Madni warned about the danger of what we don't know, which would be particularly significant in the transition from conventional to systems thinking. Activities considered a part of systems thinking included identifying sources, planning the plan, describing the systems framework, and identifying stakeholders. Dr. Madni described ways to "operationalize" systems thinking:

- associative thinking
- lateral thinking
- critical thinking
- identifying "what-if" constraints
- analogical reasoning
- questioning assumptions (note Ptolemaic universe discussion earlier)
- care in problem formulation
- questioning boundary identifications
- probing objectives, and
- employing analytical and synthetic thinking.

Dr. Madni went on to say that systems thinking involves care about sources and sinks, not depleting resources, adequate modeling of the numerous feedback loops, unexpected behaviors, and knowing how to ask the right questions.

Dr. Tarzynski shared a perspective based on the world of medicine. While noting his lack of formal training per se in systems engineering, he made the point that the medical profession deals with whole, complex systems all the time. He showed a chart of Obama healthcare systems (an extremely complex chart), citing all the very numerous components of the healthcare systems at all hierarchical levels, classes, and types. He noted that it behaves like a system in that it has characteristics of randomness, chaos, and order. Dr. Tarzynski cited future developments in the "systemness" of the health system (genomics, stem cells, lifespan, quality of life, end of life, beginning life, entitlements, unintended consequences, and financing [for example, Chargemaster]). He commented that 30 percent of healthcare is waste; and 30 percent more is wasted on private insurance infrastructure. When asked whether or not Obama healthcare system was sustainable, he said "no."

and verification and test. The successful deployment of a systems engineering tool means systems engineering efficiency, cost savings, time savings, and improved project integrity. Sam noted a complementary growth in the use of tools across a broader and broader spectrum of industries. While aerospace is the largest user, biomedical and other sectors are beginning to use the tools to increasing advantage.

The presentation was followed by questions and answers. One cautionary note was that a tool can produce only those solutions it is programmed to produce; that is, tools have their limits and the systems engineer should be aware of those limits. Bertic, as a member of the INCOSE Tools Database Working Group, passed out survey forms for those who would like to provide inputs that would influence the future tools available to systems engineers.

Please register online at:

<http://events.r20.constantcontact.com/register/event?oeidk=a07e7e85pte03605fe1&llr=14ihvgeab>

**HOW TO GET THERE:**

Take the 405. If coming from the north, exit on to Rosecrans Avenue westbound and go west approximate one half mile to Aviation Boulevard. Turn left onto Aviation and proceed south to Marine Drive. Turn left onto Marine Drive and the turn right into the second entrance on your right (the big entrance that is a divided driveway).

From the south on the 405, take the Inglewood Avenue exit north to Marine Avenue. Turn left on to Marine Avenue and proceed west approximately eight tenths of a mile. The entrance is the first driveway on the left, just past Mettler Drive.

Proceed to the second parking lot on your left to park. The "S-Café" is in the bottom floor of the building to the south of the parking lot, and is below the level of the parking lot.

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<http://www.incose.org/educationcareers/certification/index.aspx>

**Need a Volunteer?  
Tap into the INCOSE-LA Volunteer Databank!**

**The Board of Directors wishes to welcome the following new members to the Los Angeles Chapter of INCOSE.**

Note: The information listed below is from the member directory and is based upon your initial membership application. If the information is not correct or complete, then please access the member directory (at [www.incose.org](http://www.incose.org)) to update your information.

<b>Name</b>	<b>Title</b>	<b>Company or Organization</b>
Mr. John A. Kaptain	Software Engineer	Northrop Grumman
Julie A. Reed		US Air Force
Ms. Lauren M. Schiff	Engineer Systems 1	Northrop Grumman
Ms. Michelle A. Camagay	Student	Cali Poly University, Pomona
Jonathan E. Bernal	Student	USC
Edgar D. De Leon	Student	USC
Jorge Delgadillo	Student	USC
Francisco Iturbe	Student	USC
Yuse Jin	Student	USC
Michael S. Ortega	Student	USC
Matthew J. Shin	Student	USC
Shiyu Tan		
Hans D. Tremmel	Civil Engineer	LA DPW
Dr. Cameron Cam G. Massey	Mechanical Systems Engineer	Boeing Space and Intelligence Systems
Amir A. Mirmirani	Program Manager	Newport Corporation
Mr. Alex T. Kwan	Product Engineer	First Solar
Mr. Steven H. Rines	Staff Systems Engineer	Zodiac In Flight Entertainment
Mr. Rick Carter	Deputy Sr Manager for Systems Engineering & Integration	Pratt & Whitney Rocketdyne

**NOT A MEMBER? JOIN INCOSE!**

Learn more about becoming a member by clicking on:  
<http://www.incose.org/membership/valueofmembership.aspx>

**\*Stay Connected\***

Get the latest on INCOSE-LA happenings in the Reflector e-mails  
 If you wish to be placed on our e-mail distribution, contact Susan Ruth at [susan.c.ruth@aero.org](mailto:susan.c.ruth@aero.org)



# INCOSE-LA Chapter NEWSLETTER

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**Return Address:**

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Westminster, CA 92685-0969**

## Forwarding Service Requested

The International Council on Systems Engineering (INCOSE) is a not-for-profit membership organization founded to develop and disseminate the interdisciplinary principles and practices that enable the realization of successful systems. INCOSE's mission is to share, promote, and advance the best of systems engineering from across the globe for the benefit of humanity and the planet. The Los Angeles Chapter meets several times per year for speaker meetings and, in addition, sponsors tutorials, mini-conferences and other activities of interest to those in systems engineering or related fields.

## 2013 Board of Directors

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