NEWSLETTER

INCOSE
LOS ANGELES

GOLD CIRCLE AWARD
2002, 2004-10

SILVER CIRCLE AWARD
2003

2008 President's Award for Most Outstanding Chapter

INCOSE
International Council on Systems Engineering

UPCOMING EVENTS

April Speaker Meeting
A New Paradigm for Unprecedented Enterprise Performance: The Cost Modeling Framework
Speaker: David Zarnow, Director, Process Solutions, Intelligent Systems Technology, Inc.
When: Tuesday, April 10, 2012, 5:30—7:45 p.m.
Where: Boeing, Huntington Beach
plus remote sites
Details on page 2

Student Division Kick-off Meeting
When: Thursday, April 19, 2012, 5:30—7:45 p.m.
Where: On the campus of the University of Southern California
Details on page 6

Strategic Planning Meeting
When: Saturday, April 28, 2012, 10:00 a.m.—3:00 p.m.
Where: Booz Allen Hamilton offices near LAX
Details on page 2

INCOSE International Symposium
When: July 9 - 12, 2012
Where: Rome, Italy

SEE "SAVE-THE-DATE" FOR MORE UPCOMING EVENTS LISTED ON PAGE 2

Inside This Edition

Systems Engineering for Advanced Programs
By Dr. Larry Earnest, Director of Systems Engineering Education

This is the second in a series of articles by Dr. Earnest. Dr. Earnest is expanding on past practice in the Newsletter to provide articles on specific areas of interest in the discipline of systems engineering.— Editor

A few years ago I was tasked with standardizing the Systems Engineering (SE) processes, from several different business areas, which included an assessment for CMMI compliance.

The number of companies who achieve CMMI Level 3 certification continues to increase, yet the majority of programs assessed by the GAO continue to underachieve[1]. This may indicate that while process maturity expectations are explicit in SE standards, they have yet to be systematically operationalized to their fullest potential. For example, the CMMI states that standard processes are used to establish consistency across the organization. Projects establish their defined processes by tailoring the organization's set of standard processes according to tailoring guidelines[2]. But how well is this principle understood? After all, how would any given process change from program to program and what are the tailoring drivers?

The first lesson I learned is that there's a big difference between process descriptions and executable procedures. The terms for Process and Procedure tend to be used interchangeably, however they are very different. A Process defines what is to be done, and a Procedure describes how (the steps involved) the activities of the process are to be performed. A second lesson I learned is that SE work products are not necessarily the result of following the procedure. This was due to the one size fits all approach to procedure writing and that the procedures were not tailored for the project. Leading performers not only tailor their procedures for each program but go one step further, they bid their process.

In order for an organization to bid their process they need cost data and the associations between the desired Product and Process that defines it has to be well understood. The demand for a product is placed and resourced. Resourced means that cost collectors assigned, period of performance defined and skilled workers identified. This workflow is the path towards systematically operationalizing process development.

Here's why this makes sense. In their review of literature, Krishnan and Ulrich[3] identified over 30 fundamental decisions

April Speaker Meeting

"A New Paradigm for Unprecedented Enterprise Performance: The Cost Modeling Framework "

Presenter: David Zarnow,
Director, Process Solutions,
Intelligent Systems Technology, Inc.

PARTICULARS

When: Tuesday, April 10, 2012, 5:30 — 7:45 p.m.
Where: The Boeing Company
Building 17 — first floor, conference room 109
14900 Bolsa Chica Boulevard
Huntington Beach, California 92647
Remote sites will be available at Booz Allen Hamilton near LAX, the Control Point Corporation in Santa Barbara, JPL in Pasadena, and in the Antelope Valley
Cost: Members-*FREE*; Non-members-*$10.00*

Meeting Agenda:

5:30 - 6:20 p.m. Registration, networking, refreshments
6:20 - 6:30 p.m. Welcome and announcements
6:30 - 7:45 p.m. Presentation followed by questions and answers
Refreshments will be provided at the host site. Contact remote site contacts for more information regarding parking, refreshments, and other administrivia at their site locations.

ABSTRACT: David Zarnow is Director, Process Solutions, at Intelligent Systems Technology, Inc. (ISTI), will discuss pressures upon development programs to convert notional life cycle guidance into substantive, program-specific cost estimates for both pre-award proposal cycles and post-award planning during contract execution. To accomplish this programs often have to depend on massive and costly infrastructures of work instructions and databases, spreadsheets and other repositories of cost, risk, and performance data dispersed throughout the enterprise. A case history on a major defense acquisition program will be analyzed to demonstrate how different interpretations of guidance can lead to contradictions, unexpected behavior, and unintended and undesirable consequences to which the cost modeling framework is offered as a remedy.

This work, sponsored by the Missile Defense Agency (MDA) on SBIR topic MDA06-29, "Cost Modeling Integration and Interoperability within the Model Based Enterprise (MBE)," provides for complete integration and interoperability of cost, effort, and cycle time. The presentation will examine a simple cost model and its characteristic mathematical transform within the cost modeling framework. The examination will show how a common cost model with unique characteristics can be associated with each and every work package, the fundamental "quantum" of cost and earned value, throughout the cost

Strategic Planning Meeting

The Los Angeles Chapter of INCOSE will hold its second strategic planning meeting of 2012 on Saturday, April 28, 2012, 10:00 a.m. to 3:00 p.m., at the Booz Allen Hamilton facility near El Segundo. (5220 Pacific Concourse Drive, Building 5220 (second floor, Suite 200), Los Angeles.

The purpose of the meeting is to maintain and improve the value of the Chapter to the members. Toward this end, the strategic planning meetings provide an opportunity for chapter officers, members, and volunteers to review in detail Chapter's activities, and annual operating plan, and to assess progress on the direction and goals of the chapter for the year.

The INCOSE-LA Board welcomes active participation and contributions from any chapter member. Members unable to attend are encouraged to provide inputs or to suggest agenda items via e-mail to Chapter President John Silvas at john.silvas@bah.com.

An R.S.V.P. website linked from INCOSE-LA.org has been established at: http://events.constantcontact.com/register/event?llr=l4ihvgeab&oeidk=a07e5ps9yga7f901039.

The results of this meeting will adjust the approaches the chapter employs to maintain and improve the health and vitality of the chapter and to provide value to chapter members.

SAVE THE DATE

May Speaker Meeting
The Story of the "Curiosity" Rover
The Mars Science Laboratory
Peter C. Theisinger
Manager, Mars Science Laboratory Project
NASA, Jet Propulsion Laboratory
When: Tuesday, May 8, 2012, 5:30 p.m. — 7:45 p.m.
See note on page 8, more details available in the May edition of the Newsletter, on the INCOSE-LA website, and in a Reflector notice

Tutorial Webinar on Fundamentals of the Systems Engineering Process
When: beginning April 4, 2012 and running through June, 2012
More information on page 3

Tutorial Webinar on Preparing for the Certification Exam
When: beginning April 5, 2012,
running through September, 2012
More information on page 3

Software Process Improvement Network
When: April 6, and May 4, 2012
More details available in the May edition of the Newsletter, on the INCOSE-LA website, and in a Reflector notice

Two Webinar Series on Systems Engineering and Certification

Beginning in April, INCOSE is offering two seminars of interest to the systems engineering community. The first is of interest to those wishing to learn the fundamentals of the systems engineering process and the second is for those who wish to become certified as systems engineering professionals.

Fundamentals of the Systems Engineering Process

Description: This tutorial covers the systems engineering fundamentals from the systems engineering standards perspective, which includes: EIA/IS-632, IEEE 1220, EIA-632, and ISO/IEC/IEEE 15288. The tutorial also provides a composite view of systems engineering. Individual help with the material will be available.

When: Begins on Wednesday, April 4, 2012 and occurs weekly through June 2012. from noon to 1:00 p.m., Eastern Time USA. The schedule is subject to change, so check the site each morning before class to obtain the latest schedule.

Cost: None to INCOSE members and NGC employees (see website below for details and conditions.)

Presenter: The INCOSE Training Working Group, the Hampton Roads Area Chapter and the Northrop Grumman Corporation are hosting the webinars. John Clark, a veteran of the process and an experienced instructor, will be teaching the webinars. John is the leader of the Training Working Group, is the Director of Education and Training for the Hampton Roads Area Chapter, and, within Northrop Grumman, is the Corporate Systems Engineering Instructor and the Northrop Grumman Information Systems Sector Chief Engineer.

Registration: There is no need to pre-register but further details should be reviewed at http://www.incose.org/newsevents/ news/details.aspx?id=251 before the course begins.

Preparing for the Certification Examination

Description: This tutorial on systems engineering and obtaining a certification as a systems engineering professional is offered in preparation for the systems engineering certification exam.

Registration and additional information is on the INCOSE homepage, (http://www.incose.org/) under the current news tab.

When: Begins on Thursday, April 5, 2012 and occurs weekly through September, 2012. Each of the 90-minute sessions will run from noon to 1:30 p.m., Eastern Time USA. The schedule is subject to change, so check the site each morning before class to obtain the latest schedule.

Cost: None to INCOSE members and NGC employees.

Presenter: As with the "Fundamentals of the Systems Engineering Process" tutorial above, this tutorial is sponsored by the INCOSE Training Working Group, the Hampton Roads Area Chapter and the Northrop Grumman Corporation, and taught by John Clark.

Registration: There is no need to pre-register but further details should be reviewed at http://www.incose.org/newsevents/ news/details.aspx?id=252 before the course begins.

that are commonly required on new programs. These program considerations address technical decisions as well as enterprise considerations for planning. These decision categories provide a framework for capturing tailoring requirements and other considerations during program initiation activities.

One example of these tailoring drivers is associated with the novelty of the development activity.

Consider bidding your SE process for an Advanced System. Many of the following characteristics will drive execution of the SE procedures.

1. Conops are conceptual, unproven and highly susceptible to change. This reality introduces many opportunities for requirements changes, design uncertainty, and requirements creep. A Systems Engineering Management Plan (SEMP) may call for several trade studies. The Requirements Development process may be tailored to require executive review of trade findings.

2. Advanced projects require higher skill levels for most technical and managerial disciplines. This will drive changes in your procedure for selecting the right mix of skills. Keep in mind that every program manager wants the A-Team and you may have to prepare justification to retain certain skills.

3. Potential point solutions and Commercial-off-the-shelf (COTS) component selection is less restricted in the beginning. The COTS selection process may require tailoring in order to communicate the COTS philosophy to all team members.

Now consider bidding your SE process for a Planned Product Improvement. Many of the following characteristics will drive execution of the SE procedures.

1. Legacy systems benefit from a known concept of operations that are currently being practiced. It's reasonable for parametric estimates for SE implementation to still be valid.

2. User interfaces are well defined. The SEMP will not require as much redefinition for interface changes or integration risks.

3. Engineering standards are well defined and hard to justify changing to a new standard.

4. The trade space is bounded by existing design characteristics and physical limitations.

5. Skill levels required to make incremental product improvements tend to be less demanding.

I invite all readers to participate in this discussion by sharing your experiences, etc. Please join in the LinkedIn discussion or email me at larry.earnest@incose.org.

References:

[1] Chick, Timothy, "CMM/CMMI Level 3 or Higher? No Guarantee for Success," *Defense AT&L* (November-December 2006)

[2] Chrissis, Mary Beth, Konrad, Mike, and Shrum, Sandra, *CMMI for Development: Guidelines for Process Integration and Product Improvement* (Reading, Massachusetts, Addison-Wesley. 2006)

[3] Krishnan, V. and K. Ulrich "Product Development Decisions: A Review of the Literature," *Management Science* (January 2001, vol. 47, No. 1): 1-21.

March Speaker Meeting Report

By DeAnna Regalbuto

Return with us now to those thrilling days of yesteryear. The Lone Ferroequinologist rides again!

Putting aside cheeky allusions to old TV shows ("The Lone Ranger" - 1949 to 1957), the March 13, 2012 INCOSE-LA speaker meeting featured Jorg Largent, INCOSE-LA member and newsletter editor, presenting "Systems Engineering for the Great Iron Horse". Though Jorg has spent his career as an aerospace engineer, he has also developed a special interest in locomotives, a.k.a. iron horses. In the process he became a ferroequinologist a word coming from Latin ferrum ("iron") + Latin equus ("horse") + English –logist (one who studies a particular area).

In studying trains, and the rails they travel on, Jorg realized that railroads were the beginning of modern systems and in their history was the beginning of systems engineering as a discipline. The basic requirement of a railroad is to move "stuff" some distance successfully. Its architecture consists of stuff that moves, stuff that does not move, and the interface between them. As Jorg looked back into history, he discovered other systems with similar requirements and architectures including barefoot humans following paths created by animals looking for sustenance, wheeled wagons pulled by animals along ancient Roman paved roads in the pursuit of commerce, and the harnessing of air and steam to mechanical advantage in the movement of stuff.

As lessons were learned from each of these pre-train systems, paradigm shifts occurred allowing more stuff to be moved with greater speed. For example, shoes allowed people to carry more by reducing the risk of cuts, and the friction coefficient. Without knowing a single syllable of systems engineering terminology, people identified requirements, established domains, performed functional analysis, developed use cases, characterized attributes, identified architectures, improved concepts of operation, tackled maintainability, managed risk, and even increased stakeholder satisfaction.

By 1800, the pieces of the puzzle that was to become "Railroad" were in place and great rail networks began to grow. Already in place, when steam locomotion began its commercial and cultural paradigm shift as the first system of the industrial revolution, were the architecture of the system, objects, use cases, concepts of operations, the "ilities," rudimentary requirements, and the needs for interface and configuration management and control. Systems of systems began to develop as various railways sought to interface with each other. People and stuff began to move successfully faster and further than at any time in history. With this movement came a paradigm shift every bit as significant as the computer revolution. People could enjoy food from places they had never heard of. Trips that previously took months were reduced to days. Educational materials could be delivered in bulk instead of one precious book at a time. And it all began with some barefoot person wanting a better way to get people and stuff from one place to another.

February Speaker Meeting Report

This report is a compilation of the student's write-ups, edited for accuracy by Dr. Bellman.— Editor

Dr. Kirstie Bellman, a Principal Scientist at The Aerospace Corporation, presented "Model-Based Design, Engineering and Development (MBDED): Advancements mean New Opportunities for Space Systems Development" at the February 2012 INCOSE-LA speaker meeting. After noting the long history of using models in the development of space systems, Dr. Bellman emphasized the application of MBDED in support of critical decisions throughout a program's lifecycle.

Some of the new advancements in the effective and improved implementation of MBDED include: application of formal methods, statistical verification, assumption-guarantee architectures and modeling languages with better formal and semantic foundations. New formal computational methods can model more states than ever, increasing from 103 to 1015 states, and also incorporate stochastic properties allowing better modeling of real world scenarios. Popular programming and modeling languages, such as Modelica, AADL, and SysML, are being enhanced to capture new and more formal properties and to better integrate with domain-specific languages and mathematical methods. However, these languages and MBDED in general is still limited by the poor integration methods used to combine the diverse models, analyses, and databases needed to model complex systems (i.e. the Mars rover.) In the modeling of complex systems, it is difficult to understand all the implications of an analysis or to track the changes in the designs or results of analyses as the system changes. Advances in computing power and in MBDED tools and approaches, enable the calculation of complex systems metrics, including an ongoing probabilistic verification for the system and allows tighter integration of the models and analyses used throughout the modeling process from design throughout the actual manufacturing process. A critical aspect of advancements in model-based design allows one to incorporate an early continual and tight verification loop between the design and verification processes. This allows one to insert real failure data early in the design process, which is critical, and can be used to prove automatically-generated design configurations based on allowable components. With end to end models, models can be developed that work within the context of a customer CONOPs, allow the impacts of design changes to be tracked throughout the life of a system, and allow better error traceability throughout a design.

Dr. Bellman also emphasized several additional capabilities that should be emphasized in MBDED to make its impact upon complex space system design even greater. The first was to model the development plans and processes for a complex system. The second capability that could greatly improve MBDED are reflection capabilities to help tie all the diverse resources together into an adaptive framework. Reflection is the ability of a system to reason about its own resources, capability and limitations. It allows the system to observe its use of resources and then back out of decisions made, and also share this information with other systems. Reflection capabilities allow the system to self-design, monitor, analyze and correct.

INCO SC E

Please join us for the kick-off event of INCOSE USC, a new Student Division of INCOSE-LA. Enjoy appetizers, drinks, a raffle, and a great opportunity for new student members to meet with our industry counterpart.

When   Thursday, April 19, 2012 from 5:30 PM to 8:00 PM PDT

Where   *Traditions*
351 Trousdale Parkway
Los Angeles, CA 90089

Parking options include the following. Parking on campus costs $8.00 per car. The closest campus parking structures to *Traditions* are PSA and PSX; the entrances are on Vermont Ave and S Figueroa St respectively. *Traditions* is located in the basement of the new campus center in the heart of the campus (near Tommy Trojan). Off campus parking is available. Should you chose this option, we recommend parking on the north side of campus.

Driving Directions
From the 110 heading north towards downtown: Take exit 20B for Exposition Blvd toward 37th St., Merge onto S Hope St (signs for Exposition Boulevard), Slight left to stay on S Hope St, Continue onto Exposition Blvd. To park in PSX, turn right onto S Figueroa St and left onto 35th Street. To park in PSA, turn right onto Vermont Avenue and turn right at 36th Place.
From the 10 heading east towards downtown: Take exit 13 to merge onto the 110 S toward San Pedro, Take exit 20B to merge onto Exposition Blvd. To park in PSX, turn right onto S Figueroa St and left onto 35th Street. To park in PSA, turn right onto Vermont Avenue and turn right at 36th Place.

Please RSVP by April 17th via the INCOSE-LA website. www.incose-la.org

INCOSE is the International Council on Systems Engineering.
INCOSE-LA - the Los Angeles Chapter of INCOSE - is one of the organization's largest chapters, serving over 360 members in the greater Southern California area.

modeling framework and the life cycle it represents. This examination will include how an enterprise can use a cost modeling framework to drive process improvement and to achieve first-pass success on programs. Finally, the presentation will address other key uses and extensibility of the cost modeling framework paradigm including system engineering courseware development for teaching best practice, application to CMMI appraisal efforts and how the framework serves as the ultimate artifact, and extensibility to an entire supply chain: from the "customer" to the "prime," and down to the lowest level tier in what amounts to a "virtual enterprise."

R.S.V.P.:

ALL PARTICIPANTS: We request that all reservations are made online. This helps to facilitate event registration and planning for our host site and our remote sites. Visitors at JPL and Boeing must register by the R.S.V.P. deadline to provide visitor clearance from site security.

Please register online at http://www.incose-la.org by Friday, April 6, 2012. You will be asked to provide your full name, title, company, phone number, and email address. State whether you are a US Citizen, resident alien, or foreign national. Please indicate the site at which you will be attending. Site-unique requirements are listed below.

The Boeing Company, Huntington Beach (the host site): The Boeing Company. Open to U.S. citizens and non-resident aliens. *We regret that foreign nationals will not be able to attend at the Boeing Company site.* Visitors will need to bring identification and check in with Security in the lobby of Building 17 **not later than 6:00 p.m.** *Please bring your picture identification (driver's license, passport and/or green card) to the meeting.* Point of Contact: Beth O'Donnell, phone: 714-837-6924, email: elizabeth.l.o'donnell@boeing.com. **Refreshments will be provided at this site.**

Planned Remote Webcast Sites:

Antelope Valley/Palmdale: Held on the campus of the Antelope Valley College in the "BE" (Business Education) building, room 207. Open to all; no R.S.V.P. deadline. Point of Contact: Mike Wallace, phone: 661-540-0290, email: m.wallace@ngc.com.

LAX/El Segundo: Booz Allen Hamilton (BAH LAX facility), 5220 Pacific Concourse Drive, Building 5220 - 2nd floor, Suite 200. Site coordinator: John Silvas, silvas_john@bah.com. Refreshments will be provided at this site.. Please bring your picture identification (driver's license, passport or green card) to the meeting.

Goleta: Control Point Corporation, 110 Castilian, Suite 200, Goleta. Please register by Friday, March 9, 2012. POC: Scott Grant, scott.grant@control-pt.com. 805-882-1884, x108 for directions or more information. Refreshments will be provided at this site.

Pasadena, JPL: Please register online by Thursday, April 5, 2012. Contact Michela Muñoz Fernández at Michela.Munoz.Fernandez@jpl.nasa.gov for specific location and directions. JPL, 4800 Oak Grove Dr, Pasadena CA. Open to all. Visitors must register by RSVP deadline. Site coordinator: Chelsea Dutenhoffer, chelsea.dutenhoffer@jpl.nasa.gov.

DIRECTIONS to Host Site:

The Boeing Company, Huntington Beach, Building 17, Room 109, 14900 Bolsa Chica Road, Huntington Beach CA

From the 405 heading South (south of Long Beach):

From the 405, take the first exit after passing the merge to CA-22 East - Bolsa Chica Road.

Merge onto Bolsa Chica Road. Proceed south about 1-1/2 miles. After passing Rancho Road, make a left into the Boeing site (tall building with a flag on the top). Parking is available in Parking Lot K or K1. If you accidentally pass the building, you can also turn left at the next street, Bolsa Ave, and then turn left into the Boeing parking lot.

From the 405 Heading North:

From the 405 North, exit Bolsa Ave (Exit 18) toward Golden West St. Continue on Bolsa Ave for about 2-1/2 miles, crossing Springdale St and Astronautics Dr. Just before reaching Bolsa Chica Road, turn right into the Boeing parking lots (K or K1). Building 17 is the tall building with the flag on the top.

A Discussion of Profligate Systems Engineering
A report from the Ground System Architectures Workshop

By Shirley Tseng

The 16th Annual Ground System Architectures Workshop (GSAW), was held February 27 through March 1, 2012 in Los Angeles. The Wednesday evening keynote address, entitled "A Discussion of Profligate Systems Engineering", was delivered by Dawn C. Meyerriecks, Assistant Director of National Intelligence for Acquisition, Technology, and Facilities, Office of the Director of National Intelligence (ODNI). INCOSE-LA's own Shirley Tseng attended..— Editor

Ms. Dawn C. Meyerriecks addressed a mixed audience of local systems engineering, software engineers, and ground systems designers in an open forum. After reviewing the characteristics of "profligate [extravagant or wasteful] systems engineering", she challenged her audience with a call to action to reinvent how we work. With the current shrinking federal budget situation, continuing with the status quo could result in cancelled programs and all of audience members looking for new jobs/careers.

Ms. Meyerriecks noted that the complexity of engineering endeavors continues to increase non-linearly as we demand more and more inter-relationship between our devices and our data. Because no one individual or small team can track, let alone manage, all of these dependencies, we tend to build more and more "slop capacity" into each level of the stack, hence, profligate systems engineering. But when budgets go south and we need to recover efficiencies without sacrificing effectiveness, then what?

To focus attention on the success of Apple Incorporated's development process, and its usefulness as an example, Ms. Meyerriecks quoted a February 15, 2012, *Wall Street Journal* article that stated, "For all the companies in the Standard & Poor's 500-stock index, earnings are on track to post a 6.6% year-on-year rise in the fourth quarter. Once Apple's earnings are

factored out, the expected fourth quarter gain shrivels to just 2.8%, according to UBS [formerly Union Bank of Switzerland, that country's largest bank]."

Apple's innovation and technology leadership as well as its market leadership with time to market, offers worthy practices for the Space and Aerospace industries to emulate. Apple limits itself to 3-4 unit components for inclusion in their modular product development. Ms. Meyerriecks asked us to consider why the Space industry has excessive numbers of star trackers, transponders, batteries, etc. in our product inventories. Can we be more efficient and reduce the 'profligate' practices to 'responsible' systems engineering? Do we really need to have so many parallel developments? How can we work differently, saving money and cycle time?

Ms. Meyerriecks challenged the community with a series of questions on our design processes. She also led a discussion on leadership and challenged her audience to take up the call to action in personal leadership with a series of questions.

- What role(s) do you play today?
- What role(s) do you want to play?
- What are you doing today?
- What should you be doing today? Tomorrow? In the next six months?

Definitely fuel for all systems engineers to consider in our respective situations!

Join us on the INCOSE-LA LinkedIn group to find out more and to continue the discussion.

Ms. Meyerriecks's presentation, as well as the rest of the 2012 GSAW proceedings, is available at http://csse.usc.edu/gsaw/gsaw2012/agenda12.html.

18th Annual Improving Space Operations Workshop
April 24-25, 2012

The Space Operations and Support Technical Committee (SOSTC) of the American Institute of Aeronautics and Astronautics is sponsoring a workshop on improving space operations. The workshop is being hosted by Jet Propulsion Labs and SpaceOps. This year's workshop will be held April 24 and 25, 2012 at the Jet Propulsion Laboratory in Pasadena.

The SOST is concerned with all aspects of civil, military, and commercial space operations and support, including direct and supporting operations, the systems and software affecting operations, and space operations and operational risk management. The SOSTC addresses all types of space operations. It is involved with all phases of mission operations, including pre-launch and launch activities, early mission commissioning activities, on-orbit activities, cruise and encounter activities, post-landing activities, and end-of-life operations. The SOSTC likewise addresses space related operational support activities, including training, servicing, mission planning, flight dynamics, telemetry transmission, command and control, and data handling, analysis, and storage.

Additional information can be found in the February 2012 edition of the *Newsletter* and at the workshop website: https://info.aiaa.org/tac/SMG/SOSTC/Workshop   Documents/2012/SOSTC 2012 workshop flyer - Final.pdf

Freeman Instrumentalism? "Our measure of success lies in how clearly we invent a software reality that satisfies our application's requirements — and not in how closely it resembles the real world."

"Object Design," Wirfs-Brock and McKean

The Story of the "Curiosity" Rover, The Mars Science Laboratory Project
Speaker Meeting, May 8, 2012

Pete Theisinger, the Mars Science Laboratory (MSL) Project Manager will describe the MSL project, including its science objectives, the challenges faced during development, the selection of its landing site (Gale Crater), its current status in operations, and the challenges ahead, including Entry Descent and Landing on August 5, 2012 and the surface mission. Curiosity was launch on November 26, 2011 from Cape Canaveral. For those who would like to learn more in anticipation of Pete's presentation, visit the MSL website at http://mars.jpl.nasa.gov/msl/

The Board of Directors wishes to welcome the following new members in 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) to update your information.

Name	Title	Company
Doulas Black	Engineer	The Boeing Co.
Michael Robkin	President	Anakena Solutions
Dar Manarang	Information Assurance/Security Engineer	ARINC Engineering Services, LLC
Jessica Maiten	Senior Systems Engineer	GMTO Corporation
Helene Skratt	Assistant Principal Director	Aerospace Corporation
Daniel Nigg	Director, Concept Design Center	The Aerospace Corporation
Robert Green	Systems Engineer	Alliant Techsystems (ATK)
Evan Tsang		Replenish

INCOSE-LA Chapter   NEWSLETTER

Return Address:

PO Box 10969
Westminster, CA   92685-0969

PLEASE JOIN US FOR THE NEW INCOSE-LA STUDENT DIVISION, INCOSE-USC, KICKOFF: APRIL 19TH!

More information, see page 5.

Forwarding Address 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 the systems engineering field or related fields.

2012 Board of Directors

Elected Officers			Elected At-large Directors		
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