

Symposium 2022 Sponsors

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SIEMENS



32nd Annual **INCOSE**
international symposium

hybrid event

Detroit, MI, USA
June 25 - 30, 2022

Silver



Bronze



Academic

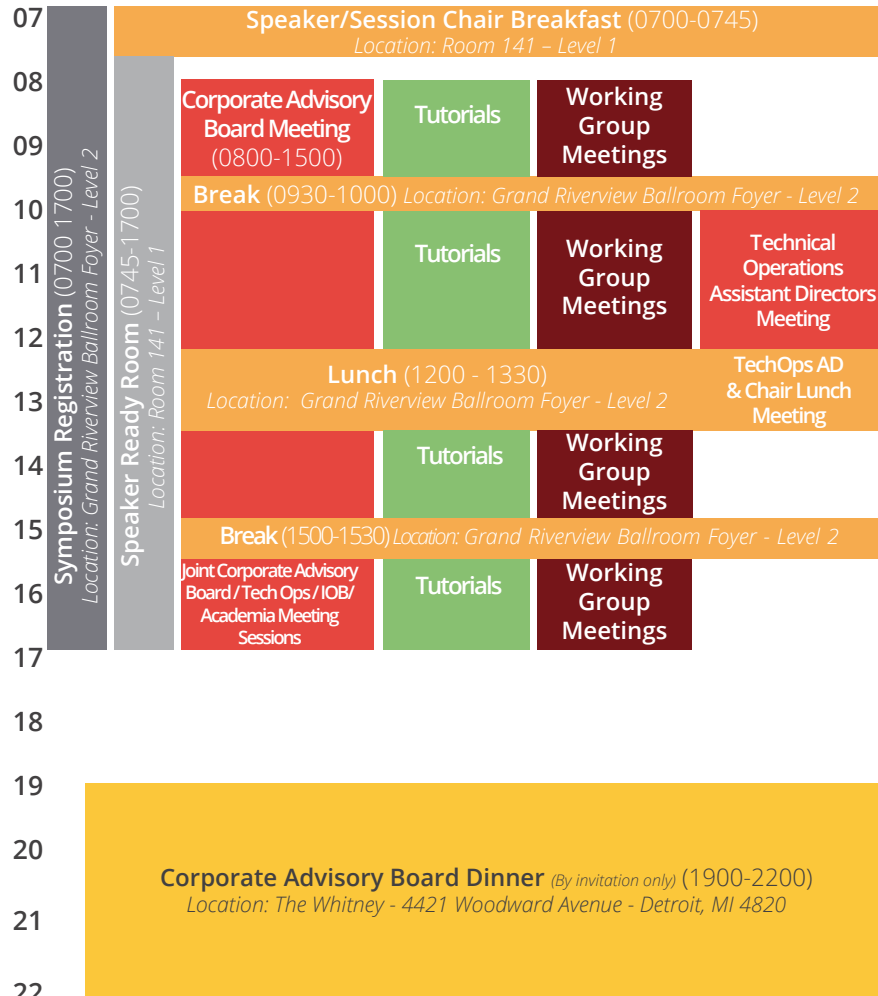


DETAILED PROGRAM

The Power of Connection

Saturday

Overall Schedule



Tutorials

A.1: Back to Basics: Fundamentals for Systems Engineering Success... 0800-1200
David Long
250A - Level 2 (Ticket required)

A.2: Systems Security Engineering: A Loss-Driven Focus 0800-1700
Mark Winstead, Michael Mcevilley, Daryl Hild (The MITRE Corporation)
250B - Level 2 (Ticket required)

A.3: Systems Engineering an Off-Grid Utility System – A MBSE Tutorial.....
..... 0800-1700
Steve Cash
250C - Level 2 (Ticket required)

A.4: Behavior control: methodology and framework for integrating socio-technical systems 0800-1700
Avi Harel (Ergolight)
251A - Level 2 (Ticket required)

A.5: Artificial Intelligence for Systems Engineers: Going Deep With Machine Learning and Deep Neural Networks 0800-1700
Barclay Brown (Raytheon Technologies)
Ramakrishnan Raman (Honeywell Technology Solutions)
Ali Raz (George Mason University)
251B - Level 2 (Ticket required)

A.6: Modelling Systems of Systems Without Drowning: Using ISO 24641-Compliant ARCADIA Methodology 1330-1700
Anthony Komar (Siemens Digital Industries Software)
251C - Level 2 (Ticket required)

C.1. Back to Basics: Thinking Like a Systems Engineering Practitioner
..... 1330-1700
Dave Walden (Sysnovation)
250A - Level 2 (Ticket required)

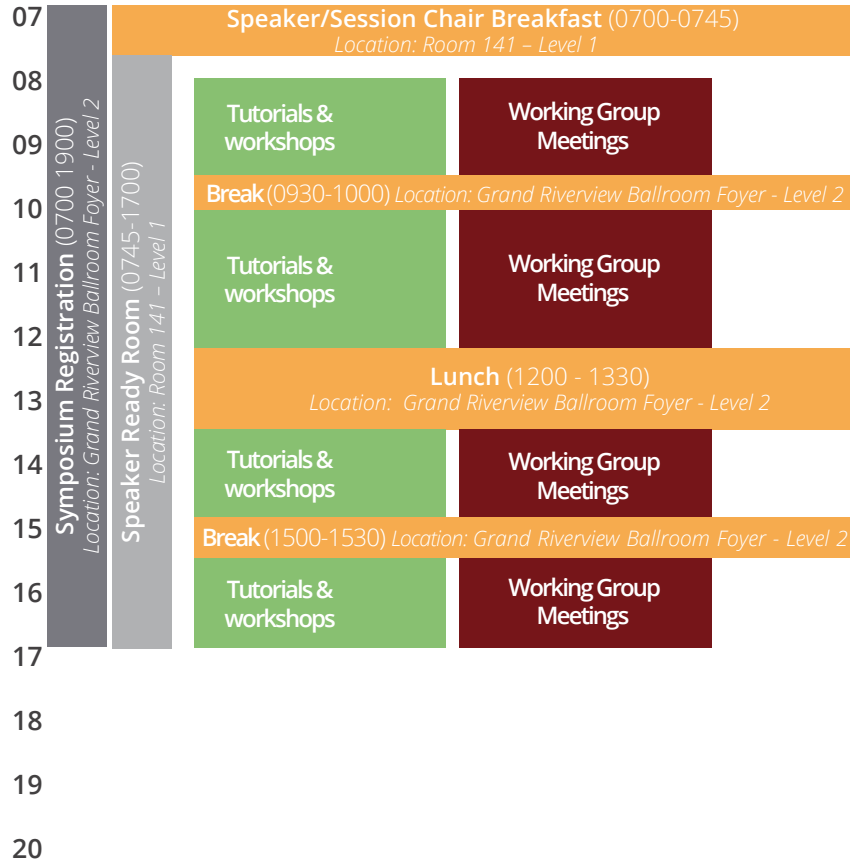
Business / Working Groups Meetings

Meeting Name	Time Start	Time End	Meeting Listing	Room
Technical Operations Associate/ Assistant Directors meeting	09:00	12:00	Closed	260
Corporate Advisory Board Meeting	10:00	16:00	Closed	258-259
EMEA sector II meeting	10:00	12:00	Closed	140E
SBSE WG Technical Products Review	10:00	11:30	Open/WS *	140F
Academic Council	13:00	16:30	Open	140E

* Open/OS: Open/Outreach Session | * Open/WS: Open/Working Session

Sunday

Overall Schedule



Tutorials

- E.1: Systems 101 - An Introductory Tutorial on Systems Thinking and Systems Engineering**0800-1700
 Jawahar Bhalla (JB Engineering Systems)
Presented remotely 250A - Level 2 (Ticket required)
- E.2: Systems Engineering by the Book**.....0800-1700
 Paul Martin (SE Scholar, LLC)
 250B - Level 2 (Ticket required)
- E.3: Negotiation, Persuasion and Conflict Management for the Systems Engineer**0800-1200
 Zane Scott (Vitech Corporation)
 250C - Level 2 (Ticket required)
- E.4: Complex System Governance: Practical Implications for Improving Complex System Performance**.....0800-1700
 Joseph Bradley (Old Dominion University)
 Richard Hodge (DrRichardHodge.com)
 251A- Level 2 (Ticket required)
- E.5: Building Really Big Systems with Lean-Agile Practices**.....0800-1200
 Harry Koehnemann (Scaled Agile)
 Robin Yeman, Jeff Shupack (Project & Team)
 251B - Level 2 (Ticket required)
- G.5: Trustworthy Secure Design**1330-1700
 Heidi Davidz (Aerojet Rocketdyne); Eileen Arnold (ConsideredThoughtfully.com); Dale Thomas (University of Alabama in Huntsville)
 251B - Level 2 (Ticket required)

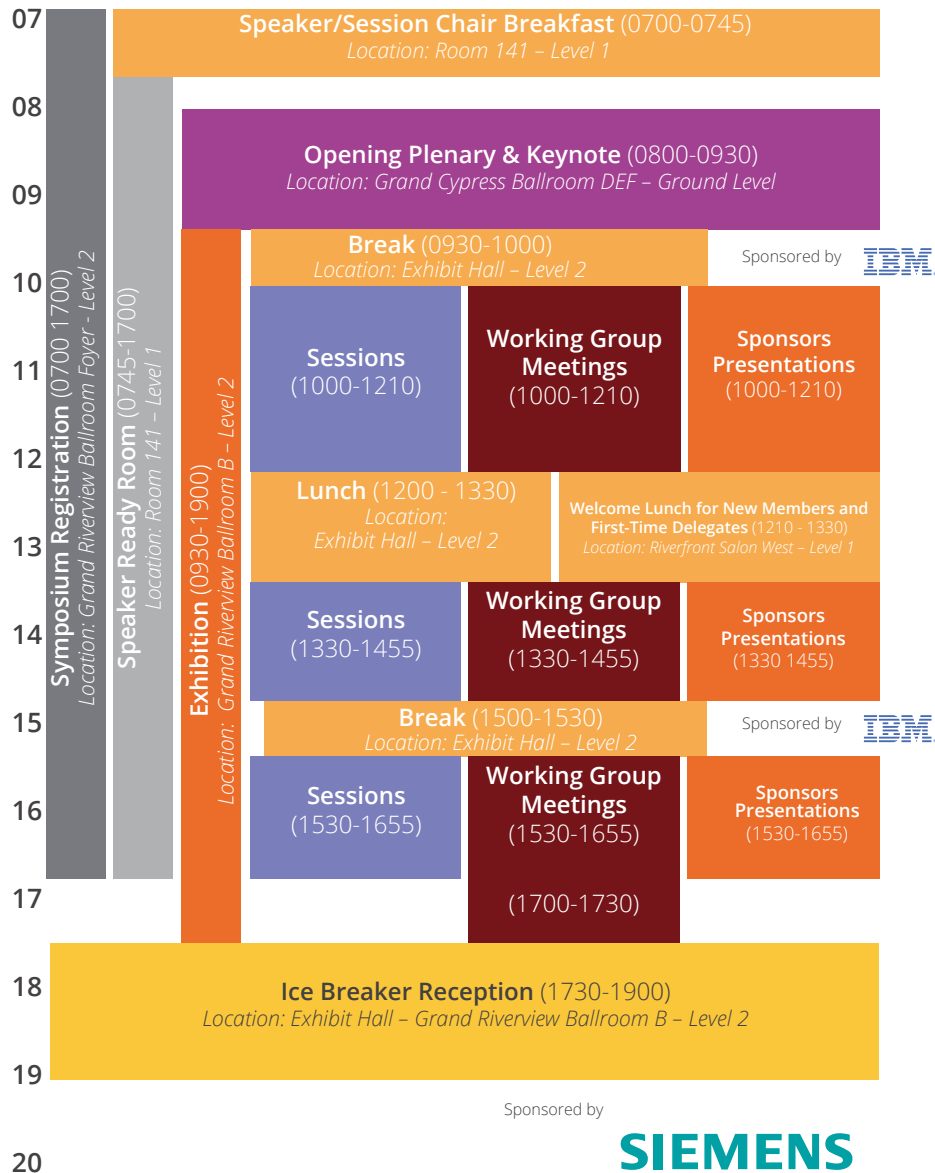
Business / Working Groups Meetings

Meeting Name	Time Start	Time End	Meeting Listing	Room
Certification Exam	08:00	11:00		140G
Decision Analysis Working Group status and planning	08:00	09:00	Open/WS *	140D
INCOSE Fellows	10:00	12:00	Closed	140E
INCOSE MBSE Patterns Working Group	13:30	16:30	Open/WS *	140E
Certification Academic Equivalency Workshop	14:00	16:00		140D
INCOSE Events - IS2022 Meeting	15:00	18:00	Closed	140F

* Open/OS: Open/Outreach Session | * Open/WS: Open/Working Session

Monday

Overall Schedule



Business / Working Groups Meetings

Meeting Name	Time Start	Time End	Meeting Listing	Room
Digital Engineering Information Exchange Working Group planning meeting	10:00	12:10	Open/ WS *	140E
Ambassadors- Outreach	13:30	14:55	Open/WS *	140D
Americas Chapter Leader Meeting	15:30	17:30	Open/WS *	140E

* Open/OS: Open/Outreach Session | * Open/WS: Open/Working Session

Posters

Collaborative Systems-Thinking Culture: A Path to Success for Complex Projects

Raymond Wolfgang (Sandia National Laboratories); Erika Palmer (Sintef); Alex Deng (SNC-Lavalin Atkins); Joe Gaskell (Strategic Technical Services LLC); Ryan Noguchi (The Aerospace Corporation); Anabel Fraga (Carlos III of Madrid University); Mickael Bouyaud (Ingenico); Jean Duprez (Airbus); Maria Romero (The Aerospace Corporation); Natalie Davila-Rendon, Michael Wozniak (Lockheed Martin Corporation); Leema John (Eli Lilly and Co.); Jay Patel (Lockheed Martin Corporation)

Engineering Complicated Systems Still Needs Systems Engineering and Thinking

Andrew Pickard (Rolls-Royce Corporation); Richard Beasley (Rolls-Royce plc)

MBSE approach for complex industrial organisation program

Joerg Wirtz (Airbus Defence and Space); Christophe Ducamp (Airbus Defence and Space); Fabien Bouffaron (Airbus); Arnaud Darbin (Airbus Defence and Space)

Systems Engineering and Industrial Engineering


Gregory Parnell (University of Arkansas); C. Robert Kenley (Purdue University); Eric Specking, Ed Pohl (University of Arkansas)

Sponsor/Exhibitor Track

IBM (C9-C10)	10:00-10:30 (140B - Level 1)
SPEC Innovations (C8).....	10:00-10:30 (140C - Level 1)
The Aerospace.....	11:30-12:00 (140B - Level 1)
Dassault Systemes (B9-B10)	13:30-14:00 (140B - Level 1)
Siemens Digital Industries Software (C4-C5)	14:15-14:45 (140B - Level 1)
The Reuse Company (C1-C2).....	16:15-16:45 (140B - Level 1)

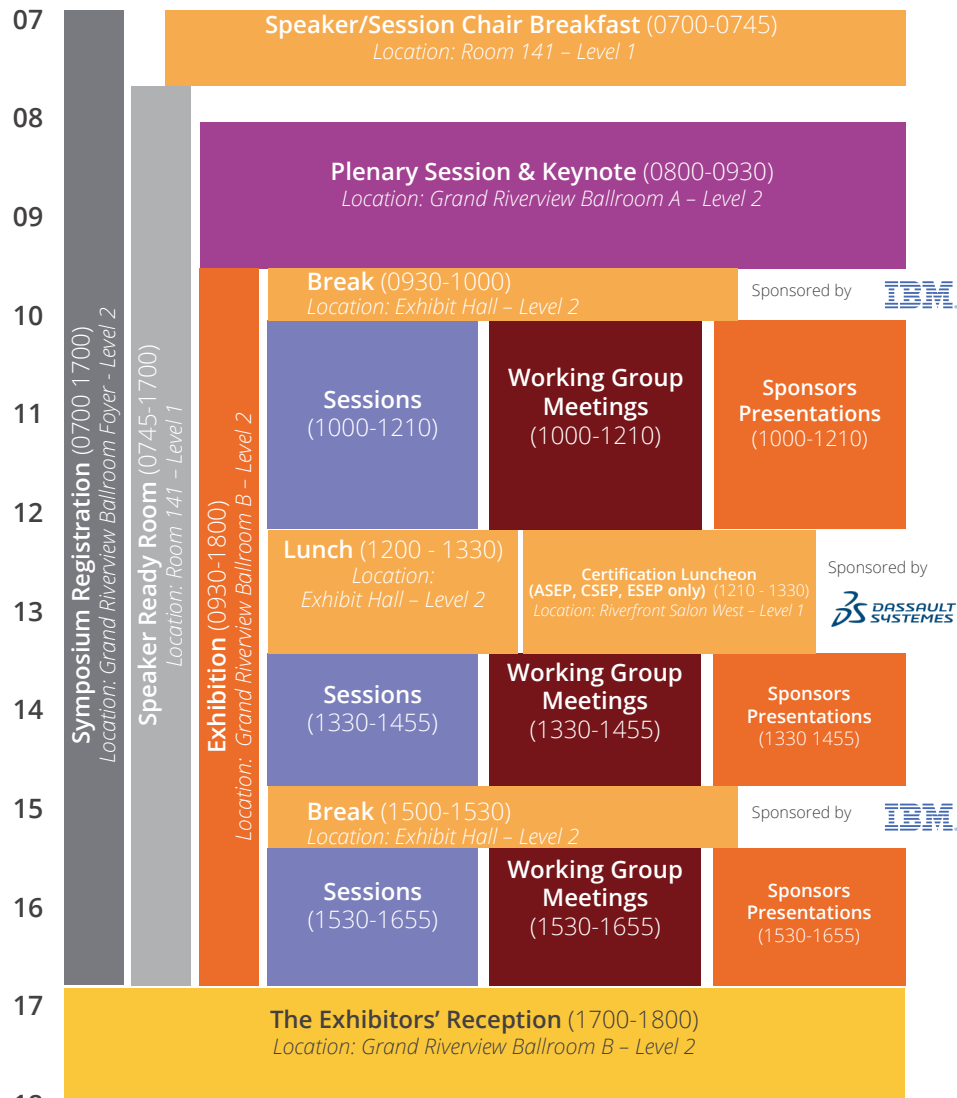
Monday

Monday at IS 2022

Start time	End time	Start time	End time	Start time	End time	Start time	End time	Start time	End time	Start time	End time	Start time	End time	Start time	End time	Track 1	Track 2	Track 3	Track 4	Track 5	Track 6		
US West Coast		US East Coast		UK		Europe		India		China Hongkong		Korea and Japan		Australia Sydney		Grand Riverview Ballroom A, Level 2	250BC, Level 2	251BC, Level 2	252, Level 2	258-259, Level 2	260, Level 2		
05:00	06:30	08:00	09:30	13:00	14:30	14:00	15:30	17:30	19:00	20:00	21:30	21:00	22:30	22:00	23:30	Keynote  Architecting the Future: The Role of SE and DE at the NRO Dr. Christopher J. Scolese (Director, NRO)							
06:30	7:00	09:30	10:00	14:30	15:00	15:30	16:00	19:00	19:30	21:30	22:00	22:30	23:00	23:30	0:00		Break						
US West Coast		US East Coast		UK		Europe		India		China Hongkong		Korea and Japan		Australia Sydney		Session 1	President Invited Content Daniel Siegl Invited Content#PIC#1: 1.1 / Safer Complex Systems – How to Move from State of the Practice to State of the Art, SAFELY!! Moderator: Kerry Lunney (Thales Australia); Duncan Kemp (UK Ministry of Defence); Panelists: Michael Watson; Erika Palmer; Meaghan O'Neil;	MBSE, System Architecture/Design Definition Paper#128: 1.2.1 / From Model-based to Model and Simulation-based Systems Architectures – achieving quality engineering through descriptive and analytical models Pierre Nowodzienski, Juan Navas (Thales Corporate Engineering)	Agile Antony Williams Presentation#76: 1.3.1 / Industrial DevOps: From Value Streams to Lean-Agile Teams for sustainable delivery Suzette Johnson (Northrop Grumman); Robin Yeman (Catalyst Campus)	Artificial Intelligence, Machine Learning Barclay Brown Paper#123: 1.4.1 / Artificial Intelligence Capabilities for Effective Model-Based Systems Engineering: A Vision Paper Mohammad Chami, Nabil Abdoun (SysDICE GmbH); Jean-Michel Bruel (IRIT)	System Safety Ken Plack Paper#149: 1.5.1 / A SysML Profile for MIL-STD-882E (System Safety) Myron Hecht, Ross Raymond (Aerospace Corp)	SE Fundamentals David Long, Nicole Hutchison Invited Content#SEFun#2: 1.6.1 / Engineering the Value Chain System Dr. Jon Wade (University of California, San Diego)	
7:00	7:40	10:00	10:40	15:00	15:40	16:00	16:40	19:30	20:10	22:00	22:40	23:00	23:40	0:00	0:40								
7:45	8:25	10:45	11:25	15:45	16:25	16:45	17:25	20:15	20:55	22:45	23:25	23:45	0:25	0:45	1:25								
8:25	9:10	11:25	12:10	16:25	17:10	17:25	18:10	20:55	21:40	23:25	0:10	0:25	1:10	1:25	2:10								
12:10	12:30	12:10	13:30	17:10	18:30	18:10	19:30	21:40	23:00	0:10	1:30	1:10	2:30	2:10	3:30	Lunch							
US West Coast		US East Coast		UK		Europe		India		China Hongkong		Korea and Japan		Australia Sydney		Session 2	MBSE, Aerospace, Defense Ken Plack, Antony Williams Panel#5: 2.1 / Transdisciplinary Systems Engineering: What is it, why do we need it, and how do we get there from here? Moderator: Marilee Wheaton (The Aerospace Corporation); Peter Brook (Dashwood Systems Engineering);	Paper#132: 2.2.1 / Applying Model-Based Systems Engineering Methods to a Novel Shared Systems Simulation Methodology Jeremy Ross, Chris Craft, Chris Caron, Stephen Pien, Ashish Kumar Prajapati (Ford Motor Company); Michael Vinarcik	Teaching and Training Ali Raz Paper#27: 2.3.1 / Introducing Systems Thinking Techniques into an Undergraduate Engineering Education Eric Dano (BAE SYSTEMS)	Aerospace Tami Katz Presentation#25: 2.4.1 / Systems Engineering Challenge of a Solar Powered High Altitude Aircraft Andreas Bierig, Florian Nikodem, Daniel Rothe (German Aerospace Center)	Digital Engineering Eric Belle Presentation#68: 2.5.1 / Realizing viewpoints in digital engineering Erhan Gery (IBM)	SE Fundamentals David Long, Nicole Hutchison Invited Content#SEFun#4: 2.6.1 / MBSE - The Natural Evolution of Systems Engineering Jon Holt (Scarecrow Consultants)	
10:30	11:10	13:30	14:10	18:30	19:10	19:30	20:10	23:00	23:40	1:30	2:10	2:30	3:10	3:30	4:10								
11:15	11:55	14:15	14:55	19:15	19:55	20:15	20:55	23:45	0:25	2:15	2:55	3:15	3:55	4:15	4:55								
14:40	15:00	15:00	15:30	20:00	20:30	21:00	21:30	0:30	1:00	3:00	3:30	4:00	4:30	5:00	5:30		Break						
US West Coast		US East Coast		UK		Europe		India		China Hongkong		Korea and Japan		Australia Sydney		Session 3	System Thinking Duncan Kemp, Amy Thompson Paper#112: 3.1.1 / What Systems Engineers Should Know About Emergence Jakob Axelsson (Mälardalen University)	MBSE, Configuration Management Mark Sampson Presentation#77: 3.2.1 / An integrative approach proposal for System Engineering, Design Science and Configuration Management Michel Paillet, Jean-Pierre Dandrieux, Omar Abderrazik (Cognitive Companions)	Teaching and Training Rick Heffner Paper#121: 3.3.1 / Extracurricular projects - Teaching Systems architecting in a limited time-span Håkon Kindem (NTNU)	Digital Engineering Daniel Siegl Paper#125: 3.5.1 / Controlling the Digital Engineering Ecosystem: An Elastic Model Governance Guide for the Digital Thread Heidi Davidz, Douglas Orellana (ManTech International Corporation)	SE Fundamentals David Long, Nicole Hutchison Invited Content#SEFun#6: 3.6.1 / You're a Systems Engineer: Own It! Dr. Nicole Hutchison (Stevens Institute of Technology)		
12:30	13:10	15:30	16:10	20:30	21:10	21:30	22:10	1:00	1:40	3:30	4:10	4:30	5:10	5:30	6:10								
13:15	13:55	16:15	16:55	21:15	21:55	22:15	22:55	1:45	2:25	4:15	4:55	5:15	5:55	6:15	6:55								
14:40	15:00	15:00	15:30	20:00	20:30	21:00	21:30	0:30	1:00	3:00	3:30	4:00	4:30	5:00	5:30		Break						
US West Coast		US East Coast		UK		Europe		India		China Hongkong		Korea and Japan		Australia Sydney		Session 3	System Thinking Duncan Kemp (Ministry of Defence); Meaghan Oneil (INCOSE)	MBSE, Configuration Management Paper#70: 3.2.2 / Configuration Management for Model Based Systems Engineering - An example from the Aerospace Industry Adriana D'Souza, Shankrishna Thota (Airbus)	Teaching and Training Paper#142: 3.3.2 / Enabling the Systems Engineering Education Ecosystem (SEE) Jon Wade (University of California, San Deigo); Arianne Collopy (University of Colorado, Denver); Cihan Dagli (Missouri S&T); Hortense Gerardo (University of California, San Diego); Kristin Wood (University of Colorado, Denver)	Digital Engineering Susan Ronning (ADCOMM Engineering LLC); Anne O'Neil (Anne O'Neil Consultants LLC); William Manley (Decision Analysis Service); Keith Rotschild (Cox Communications)	SE Fundamentals Heidi Davidz, Douglas Orellana (ManTech International Corporation) Presentation#73: 3.5.2 / Defining a Measurement Framework for Digital Engineering Joseph Bradley (Main Sail, LLC); Thomas McDermott (SERC)		
12:30	13:10	15:30	16:10	20:30	21:10	21:30	22:10	1:00	1:40	3:30	4:10	4:30	5:10	5:30	6:10								
13:15	13:55	16:15	16:55	21:15	21:55	22:15	22:55	1:45	2:25	4:15	4:55	5:15	5:55	6:15	6:55								
14:40	15:00	15:00	15:30	20:00	20:30	21:00	21:30	0:30	1:00	3:00	3:30	4:00	4:30	5:00	5:30		Break						

Tuesday

Overall Schedule



Sponsored by

Business / Working Groups Meetings

Meeting Name	Time Start	Time End	Meeting Listing	Room
Events Core Planning Committee	10:00	12:00	Closed	140D
Nominations & Elections	10:00	12:00	Closed	140E
Requirements Working Group General Meeting (open)	13:30	14:55	Open/WS *	140E
Transportation Working Group	13:30	14:55	Open/WS *	140D
INCOSE Events - IS2023 Meeting	15:00	17:00	Closed	140F
Americas Chapter Leader Meeting	15:30	16:55	Open/WS *	140G
INCOSE Fellows	15:30	17:00	Closed	140E
SE Modernization Strategy Session Follow-up	15:30	16:55	Open/WS *	140D

* Open/OS: Open/Outreach Session | * Open/WS: Open/Working Session

Posters

Modeling STPA with SysML for Airworthiness Applications

Anna Blair, Eric Pham (AFWERX)

Modeling and Analysis Method and practice of helicopter system quantitative re-requirement

Ji Xin (China Helicopter Research and Development Institute); Guangxin Hao (Dassault Systemes (Shanghai) Information Technology Co., Ltd.); Lixia Chen (China Helicopter Research and Development Institute)

Prioritization of Best Practices in the Implementation of Model-Based Systems Engineering

Cacia Ploeg, Kimberly Lai, Alison Olechowski (University of Toronto)


Why System Models Need the RDS 81346 Reference Model

Henrik Balslev (Systems Engineering A/S); Thomas Barre (Airbus S.A.S)

Sponsor/Exhibitor Track

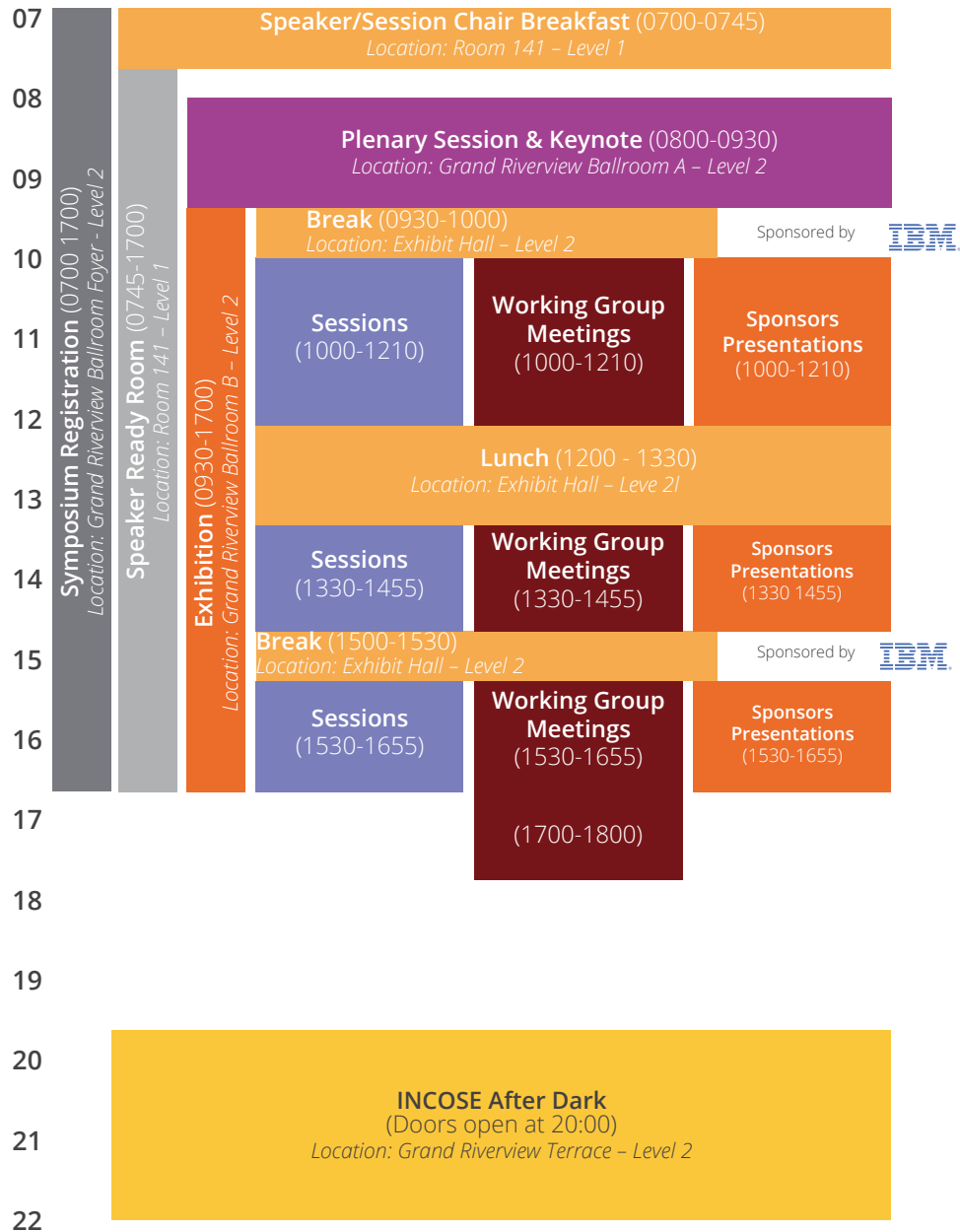
IBM (C9-C10)	10:00-10:30 (140B - Level 1)
Jama Software (A7)	10:00-10:30 (140C - Level 1)
Siemens Digital Industries Software (C4-C5)	10:45-11:15 (140B - Level 1)
SodiusWillert (B5).....	10:45-11:15 (140C - Level 1)
SAIC.....	11:30-12:00 (140B - Level 1)
Mirabilis Design Inc. (D3)	11:30-12:00 (140C - Level 1)
Dassault Systemes (B9-B10)	15:30-16:00 (140B - Level 1)

Tuesday

Start time	End time	Start time	End time	Start time	End time	Start time	End time	Start time	End time	Start time	End time	Start time	End time	Start time	End time	Track 1	Track 2	Track 3	Track 4	Track 5	Track 6	
US West Coast	US East Coast	UK	Europe	India	China Hongkong	Korea and Japan	Australia Sydney									Grand Riverview Ballroom A, Level 2	250BC, Level 2	251BC, Level 2	252, Level 2	258-259, Level 2	260, Level 2	
05:00	06:30	08:00	09:30	13:00	14:30	14:00	15:30	17:30	19:00	20:00	21:30	21:00	22:30	22:00	23:30	 <p>Keynote</p> <p>Mobility and System Engineering Integration</p> <p>Carla Bailo (Center for Automotive Research (CAR))</p>						
06:30	7:00	09:30	10:00	14:30	15:00	15:30	16:00	19:00	19:30	21:30	22:00	22:30	23:00	23:30	0:00		Break					
US West Coast	US East Coast	UK	Europe	India	China Hongkong	Korea and Japan	Australia Sydney									<p>Session 4</p>	<p>President Invited Content</p> <p>Angela Robinson</p>	<p>Risk and Opportunity Management</p> <p>Matthew Hause (SSI); Lars-Olof Kihlström (Syntell AB)</p>	<p>MBSE</p> <p>Mark Sampson</p>	<p>Competency</p> <p>Mike Celentano</p>	<p>Biomed/Healthcare</p> <p>Stephanie Chiesi</p>	<p>Tech Ops Invited Content</p> <p>Christopher Hoffman, Olivier Dessoude</p>
7:00	7:40	10:00	10:40	15:00	15:40	16:00	16:40	19:30	20:10	22:00	22:40	23:00	23:40	0:00	0:40		<p>Invited Content#PIC#2: 4.1 / President Invited Content #2</p>	<p>Paper#60: 4.2.1 / Tilting at Windmills: Drivers, Risk, Opportunity, Resilience and the 2021 Texas Electricity Grid Failure</p>	<p>Paper#113: 4.3.1 / Git-based Model Management for Quality Monitoring of Systems Engineering Models</p>	<p>Paper#104: 4.4.1 / Developing Competence in the Systems Engineering Professional Competencies</p>	<p>Presentation#20: 4.5.1 / Using Systems Engineering to Design and Evaluate a Transparent and Accessible Vaccine Appointment and Delivery System</p>	<p>Invited Content#TOIC#1: 4.6 / Transforming Mobility: Automotive Executive Roundtable</p>
7:45	8:25	10:45	11:25	15:45	16:25	16:45	17:25	20:15	20:55	22:45	23:25	23:45	0:25	0:45	1:25		<p>Presentation#27: 4.2.2 / The Unified Risk Assessment and Measurement System (URAMS)</p>	<p>Paper#127: 4.3.2 / Model-Based Analysis of Standard Operating Procedures' Role in Abnormal and Emergency Events</p>	<p>Paper#144: 4.4.2 / Systems Engineering Competency Expectations, Gaps, and Program Analysis</p>	<p>Presentation#63: 4.5.2 / Rapid Application of Systems Engineering: Quantifying Airborne Dispersion & Solutions in Response to the COVID-19 Pandemic</p>	<p>Moderator:Carla Bailo (Center for Automotive Research, CAR); Anne O'Neil (Systems Catalyst & Strategist for Mobility and Infrastructure, AOC Systems Consortium);</p>	
8:30	9:10	11:30	12:10	16:30	17:10	17:30	18:10	21:00	21:40	23:30	0:10	0:30	1:10	1:30	2:10		<p>Presentation#71: 4.2.3 / Risky Business - Developing an Approach to Managing Technical Systemic Risks</p>	<p>Paper#47: 4.3.3 / You Can't Touch This: Logical Architectures in MBSE and the UAF</p>	<p>Paper#105: 4.4.3 / Gender-based Differences in the INCOSE Professional Competencies</p>	<p>Paper#53: 4.5.3 / System Engineering as an effective approach for the fast development of space downstream applications in the health sector</p>		
9:10	10:30	12:10	13:30	17:10	18:30	18:10	19:30	21:40	23:00	0:10	1:30	1:10	2:30	2:10	3:30	Lunch						
US West Coast	US East Coast	UK	Europe	India	China Hongkong	Korea and Japan	Australia Sydney									<p>Session 5</p>	<p>Human Systems Integration</p> <p>Ben Mogridge</p>	<p>Industry 4.0, LDSE</p> <p>Michael Watson, Mike Celentano</p>	<p>MBSE</p> <p>Ali Raz</p>	<p>Soft Skills</p> <p>Rick Hefner</p>	<p>Tech Ops Invited Content</p> <p>Christopher Hoffman, Olivier Dessoude</p>	
10:30	11:10	13:30	14:10	18:30	19:10	19:30	20:10	23:00	23:40	1:30	2:10	2:30	3:10	3:30	4:10		<p>Paper#67: 5.1.1 / Developing a Human Performance Model Based Systems Engineering System Architecture (MBSE-SA) for Defense Application</p>	<p>Presentation#28: 5.2.1 / Manufacturing industry in industry 4.0: As experienced by engineering managers.</p>	<p>Presentation#45: 5.3.1 / Think Globally, Act Locally: Adapting MBSE for the Enterprise Context</p>	<p>Panel#6: 5.4 / SE Leadership Through Influence and Persuasion - An Art We Should All Master!</p>	<p>Invited Content#TOIC#2: 5.6 / Transdisciplinary Perspectives on Systems Engineering in and for Contested Cyber Environments</p>	
11:15	11:55	14:15	14:55	19:15	19:55	20:15	20:55	23:45	0:25	2:15	2:55	3:15	3:55	4:15	4:55		<p>Paper#45: 5.1.2 / Oversimplification of Systems Engineering Goals, Processes, and Criteria in NASA Space Life Support</p>	<p>Presentation#75: 5.2.2 / The Value of Loss-Driven Systems Engineering (LDSE)</p>	<p>Presentation#39: 5.3.2 / Using Model Based Systems Engineering Technical Reviews for Complex System of Systems</p>	<p>Moderator:Kerry Lunney (Thales Australia); Panelists: Brian Collins (University College London); Anne O'Neil (Anne O'Neil Consultants); Melissa Jovic (Engineers Australia);</p>	<p>Presentation#9: 5.5.2 / Negotiation: Playing the Infinite Game</p>	
12:00	12:30	15:00	15:30	20:00	20:30	21:00	21:30	0:30	1:00	3:00	3:30	4:00	4:30	5:00	5:30	Break						
US West Coast	US East Coast	UK	Europe	India	China Hongkong	Korea and Japan	Australia Sydney									<p>Session 6</p>	<p>Construction</p> <p>Paul Schreinemakers, Eric Belle</p>	<p>MBSE, System Architecture/Design Definition</p> <p>Amy Thompson</p>	<p>Value of System Engineering</p> <p>Stephanie Chiesi</p>	<p>Soft Skills</p> <p>Heather Feli</p>	<p>Tech Ops Invited Content</p> <p>Christopher Hoffman, Olivier Dessoude</p>	
12:30	13:10	15:30	16:10	20:30	21:10	21:30	22:10	1:00	1:40	3:30	4:10	4:30	5:10	5:30	6:10		<p>Panel#1: 6.1 / 'Stop beating up on complexity'</p>	<p>Paper#72: 6.3.1 / An MBSE Architectural Framework for Inter-Satellite Communication in a Multiorbit Disaggregated System</p>	<p>Presentation#79: 6.4.1 / An Overview of the upcoming Communications Systems Primer: A Systems Engineer's Guide to Communications Networks: Modeling Networks as Systems</p>	<p>Presentation#85: 6.5.1 / Culture of Inquiry: Forming the Systems Engineering Mind</p>	<p>Invited Content#TOIC#3: 6.6 / MBSE Lightning Round: MBSE Implementation progress reports from the field</p>	
13:15	13:55	16:15	16:55	21:15	21:55	22:15	22:55	1:45	2:25	4:15	4:55	5:15	5:55	6:15	6:55		<p>Jawahar Bhalla (JB Engineering Systems / Shoal Group); Gary Smith (ISSVP System Practice); Charlotte Dunford (Rolls Royce); Suja Joseph-Malherbe (Letter27); Patrick Godfrey (Emeritus Professor: University of Bristol)</p>	<p>Caroline Saatvedt Witte, Satyanarayana Kokkula, Gerrit Muller (University of South-Eastern Norway)</p>	<p>Awele Anyanhan (Georgia Tech Research Institute); Peter Adejokun (Lockheed Martin Aeronautics); Matthew Hause (System Strategy Inc.)</p>	<p>Susan Ronning (ADCOMM Engineering LLC); Keith Rothschild (Cox Communications); Thomas Manley (Decision Analysis Services Ltd); William Scheible (MITRE Corporation)</p>	<p>Enanga Fale (University of Charleston / Northrop Grumman Corporation)</p>	<p>Moderator:Mark Sampson (INCOSE); Panelists: Robert Halligan (PPI); Eise Higgins (Medtronic); Emilee Bove (NASA);</p>
																<p>Paper#46: 6.2.2 / Construction System Failures: Frame Notation of Project Pathogens and their Propagation Across Time and System Hierarchy</p>	<p>Paper#91: 6.3.2 / A Data-Centric System Architecture Model Development Process Emphasizing Rapid Tempo and Quality</p>	<p>Presentation#40: 6.4.2 / Delivering Systems Engineering in practice</p>	<p>Presentation#62: 6.5.2 / Cultural Influences on Systems Engineering</p>	<p>Ahmad Alsudairi, Azmin Shakrine Mohd Rafie (Universiti Putra Malaysia); Abdullah Algarni (NES); Syarif Azrad, Ezanee Gires (Universiti Putra Malaysia)</p>		

Wednesday

Overall Schedule



Business / Working Groups Meetings

Meeting Name	Time Start	Time End	Meeting Listing	Room
Certification Exam	08:00	11:00	Registration required	140G
Certification Meeting	10:00	12:00	Closed	140C
SBSE WG Framework for Marketplace/Innovation	10:00	12:10	Open/WS *	140F
Smart Cities Initiative - Call for Modelers	10:00	12:10	Open/WS *	140E
Technical Leadership Institute Planning Meeting	10:00	12:10	Open/WS *	140D
Events Core Planning Committee	15:30	18:00	Closed	140E

* Open/OS: Open/Outreach Session | * Open/WS: Open/Working Session

Posters

A generic hierarchical Systems of Systems Engineering (SOS) Approach for Model based System Engineering (MBSE) Projects

Mohinder Pandey (*S P Jain School of Global Management*)

Exploiting Synergies Between Decision Analysis and Complex Systems Engineering

Ali Abbas, Azad Madni (*USC*)

Systems Engineering Integration and Test Challenges due to Security Measures in a Cloud-Based System

Eric Dano (*BAE SYSTEMS*)


The Power of Connection between Systems Engineering and 3D Wire Harness: Model-Based Wire Harness Engineering at Lockheed Martin Skunk Works

Chris Meeker (*Dassault Systemes*); Clifton Davies (*Lockheed Martin*); Pascal Fontanie, Saulius Pavalkis, Axelle Sery, Zhen Yang (*Dassault Systemes*)

Sponsor/Exhibitor Track

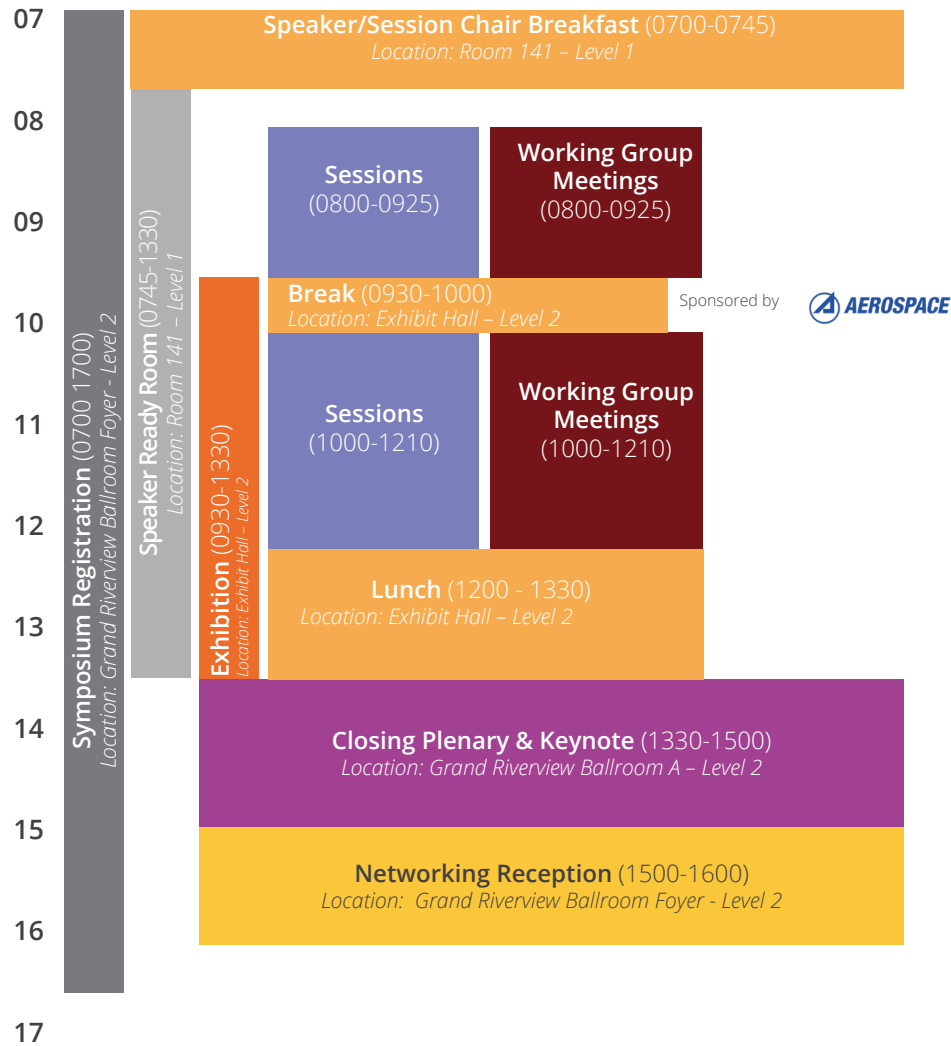
IBM (C9-C10)	10:00-10:30 (140B - Level 1)
Jama Software (A7)	10:00-10:30 (140C - Level 1)
Siemens Digital Industries Software (C4-C5)	10:45-11:15 (140B - Level 1)
SodiusWillert (B5).....	10:45-11:15 (140C - Level 1)
SAIC.....	11:30-12:00 (140B - Level 1)
Mirabilis Design Inc. (D3)	11:30-12:00 (140C - Level 1)
Dassault Systemes (B9-B10)	15:30-16:00 (140B - Level 1)
IBM (C9-C10)	10:00-10:30 (140B - Level 1)
Siemens Digital Industries Software (C4-C5)	10:45-11:15 (140B - Level 1)
Dassault Systemes (B9-B10)	11:30-12:00 (140B - Level 1)
pure-systems GmbH (B2).....	13:30-14:00 (140B - Level 1)

Wednesday

Start time	End time	Start time	End time	Start time	End time	Start time	End time	Start time	End time	Start time	End time	Start time	End time	Start time	End time	Start time	End time	Track 1	Track 2	Track 3	Track 4	Track 5	Track 6		
US West Coast		US East Coast		UK		Europe		India		China Hongkong		Korea and Japan		Australia Sydney				Grand Riverview Ballroom A, Level 2	250BC, Level 2	251BC, Level 2	252, Level 2	258-259, Level 2	260, Level 2		
05:00	06:30	08:00	09:30	13:00	14:30	14:00	15:30	17:30	19:00	20:00	21:30	21:00	22:30	22:00	23:30			 <p>The Power of connection: The power of influencing and how to do it</p> <p>Laura Doughty (Director Peakfield Consultancy Ltd and currently Head of Culture and Engagement, Project Delivery Directorate, Sellafeld Ltd)</p>							
06:30	7:00	09:30	10:00	14:30	15:00	15:30	16:00	19:00	19:30	22:30	23:00	23:30	0:00					Break							
US West Coast		US East Coast		UK		Europe		India		China Hongkong		Korea and Japan		Australia Sydney											
7:00	7:40	10:00	10:40	15:00	15:40	16:00	16:40	19:30	20:10	22:00	22:40	23:00	23:40	0:00	0:40			<p>President Invited Content</p> <p>Mark Sampson</p> <p>Satyanarayana Kokkula</p> <p>Jimmie McEver, Susan Ronning</p> <p>Eric Belle</p> <p>Gregory Parnell</p> <p>Invited Content#PIC#3: 7.1 / How to be an Effective DEI Ally and Advocate</p> <p>Paper#108: 7.2.1 / Digital Engineering Environments: A Digital Engineering Perspective</p> <p>Presentation#70: 7.3.1 / How to Faithfully model systems composed of millions of parts?</p> <p>Paper#64: 7.4.1 / Practical Experience Applying Feature-based Product Line Engineering in a DevOps Environment: Achieving the Best of Both Worlds</p> <p>Paper#129: 7.5.1 / Managing Complexity through Collaborative Intelligence</p> <p>Paper#41: 7.6.1 / Crafting an Experience-Based Master's Program in Systems Engineering</p> <p>Moderator: Marilee J. Wheaton (Systems Engineering Fellow, The Aerospace Corporation and INCOSE President); Panelists: Tamara Hambrick (Boeing Defense and Space); Alan Harding (BAE Systems - Air); Gary Johansen (Cummins, Inc.); Rosalind Lewis (The Aerospace Corporation);</p> <p>Sami Rodriguez, Brandi Gerstner, Jimmy La, Calvin Montgomery, Jonathan Obenland, Jorge Pena (Deloitte Consulting LLC)</p> <p>David Hetherington (System Strategy, Inc); Samuel Boutin (Knowledge Inside)</p> <p>Mary El Maa, Alexander Derkatsch, Dianne Deturris (California Polytechnic State University)</p> <p>Marshall Bronston, Joe Angel, Brian Berenbach, Jeremy Doerr (Georgia Institute of Technology)</p> <p>Paper#42: 7.2.2 / Automation through Digital Engineering and Digital Twins</p> <p>Presentation#47: 7.3.2 / ISO/IEC/IEEE 24641 MBSE standard</p> <p>Paper#114: 7.4.2 / Two Variant Modeling Methods for MBPLE at Airbus</p> <p>Paper#34: 7.5.2 / System Engineering Heuristics for Complex Systems</p> <p>Paper#58: 7.6.2 / Red-Teaming as a Research Method for Systems Engineering Thesis Students</p> <p>Jeren Browning, Kaleb Houck, Katie Wildson, Adam Pluth, Joshua Hansel (Idaho National Laboratory)</p> <p>Lalitha Abhaya (Airbus Defense and Space); Robert Malone (Boeing); Eric Gauthier (Thales Group)</p> <p>Marco Forlingieri (Airbus); Tim Welkiens (Oose)</p> <p>Dean Beale (University of Bristol); Dorothy McKinney (Lockheed Martin (Retired)); Rudolph Oosthuizen (University of Pretoria); Gary Smith (International Society for System Sciences); Michael Watson (NASA Marshall Space Flight Center)</p> <p>Tim Ferris, Fanny Camella (Cranfield University); Rogério Machado (Brazilian Navy); Tuomas Mattsson (The Finish Defence Forces)</p> <p>Paper#66: 7.2.3 / Empowering Engineers in a Digital Engineering Transition: Applying organizational psychology and systems thinking approaches to define the problem and to develop recommended actions</p> <p>Paper#69: 7.3.3 / The ISO-15288 technical processes, system maturity and conceptual gaps</p> <p>Presentation#84: 7.4.3 / From Systems Engineering to System Family Engineering Development</p> <p>Paper#131: 7.5.3 / A Surrogate Model Approach for Studying Performance and Cycle Time in Complex System Development</p> <p>Paper#92: 7.6.3 / Plug-and-Play Adaptive Approach to Integrating Model-Based Systems Engineering Concepts into Academic Curriculum</p> <p>Sandra Dawson, Ann Batchelor (Colorado State University)</p> <p>Keith Collyer (Retired); Liz Wright, Alexander Hill (Costain Group plc)</p> <p>Charles Krueger (BigLever Software)</p> <p>Stephanie Chiesi (SAIC and Stevens Institute of Technology and SAIC); Paul Grogan (Stevens Institute of Technology)</p> <p>Leonardo Marcos, Tiantian Li, Wanju Huang, Kerrie Douglas, Audeen Fentiman, Daniel DeLaurents, C. Robert Kenley (Purdue University)</p>							
8:30	9:10	11:30	12:10	16:30	17:10	17:30	18:10	21:00	21:40	23:30	0:10	0:30	1:10	1:30	2:10										
9:10	10:30	12:10	13:30	17:10	18:30	18:10	19:30	21:40	23:00	0:10	1:30	1:10	2:30	2:10	3:30				Lunch						
US West Coast		US East Coast		UK		Europe		India		China Hongkong		Korea and Japan		Australia Sydney											
10:30	11:10	13:30	14:10	18:30	19:10	19:30	20:10	23:00	23:40	1:30	2:10	2:30	3:10	3:30	4:10			<p>Brown field / Legacy Systems</p> <p>All Raz, Ken Ptack</p> <p>Architecture Design</p> <p>Angela Robinson</p> <p>Requirements</p> <p>Tami Katz</p> <p>Systems of Systems</p> <p>Amy Thompson</p> <p>Verification/Validation</p> <p>Susan Ronning, Eric Belle</p> <p>Paper#95: 8.1.1 / Leveraging the Systems Engineering Life Cycle Process for Reverse Engineering</p> <p>Panel#3: 8.2 / Institutional Change and the Evolution of Systems Engineering</p> <p>Presentation#38: 8.4.1 / Connecting the Systems Lifecycle through Architecture-Driven Engineering</p> <p>Presentation#38: 8.4.1 / Requirements Management framework for program RFQ phase</p> <p>Paper#126: 8.5.1 / Multi-Disciplinary Insights into Measurement and Assessment for SoS</p> <p>Paper#89: 8.1.2 / Don't mix the tenses: Managing the present and the future in an MBSE context</p> <p>Erik Herzog (SAAB AB); Johanna Axehill (Saab AB)</p> <p>Moderator: Joseph Bradley (Leading Change, LLC);</p> <p>David Long (Blue Holon)</p> <p>Max Franklin, Enoch Lee (INVENSITY Inc.)</p> <p>Jaci Pratt (DST Group); Stephen Cook (Shoal Group Pty Ltd)</p> <p>Paper#87: 8.5.2 / Framework for Complex SoS Emergent Behavior Evolution Using Deep Reinforcement Learning</p> <p>Paper#33: 8.6.2 / Mindful Maturation Matters</p> <p>Richard Beasley (Rolls Royce plc); Paul Eastwood, Hazel Woodcock (Costain Group plc)</p> <p>Ramakrishnan Raman (Honeywell Technology Solutions); Anitha Murugesan (Honeywell Aerospace)</p>							
11:15	11:55	14:15	14:55	19:15	19:55	20:15	20:55	23:45	0:25	2:15	2:55	3:15	3:55	4:15	4:55										
12:00	12:30	15:00	15:30	20:00	20:30	21:00	21:30	0:30	1:00	3:00	3:30	4:00	4:30	5:00	5:30				Break						
US West Coast		US East Coast		UK		Europe		India		China Hongkong		Korea and Japan		Australia Sydney											
12:30	13:10	15:30	16:10	20:30	21:10	21:30	22:10	1:00	1:40	3:30	4:10	4:30	5:10	5:30	6:10			<p>Infrastructure</p> <p>Michael Watson</p> <p>Digital Engineering</p> <p>Mark Sampson, Eric Belle</p> <p>Architecture Design</p> <p>Heather Feil, Paul Schreinemakers</p> <p>Space Value</p> <p>Daniel Siegl</p> <p>Regional Survey</p> <p>Rick Hefner</p> <p>Presentation#10: 9.1.1 / Use of Systems Engineering in Repurposing Coal-Fired Power Plants with Malta Pumped Thermal Energy Storage System</p> <p>Paper#24: 9.2.1 / Digital Transformation in Acquisition: Using Modeling and Simulation to Advance the State of Practice</p> <p>Paper#28: 9.3.1 / Using Design Structure Matrices (DSMs) to Derive System Architectures</p> <p>Presentation#46: 9.4.1 / Space Policy Insights: A System Dynamics Model-based Assessment of the growing NewSpace Ecosystem</p> <p>Panel#2: 9.5 / Systems of Systems and Complexity Roundtable</p> <p>Presentation#59: 9.6.2 / Insights from the First 'State of Systems Engineering in India' Survey</p> <p>Bao Truong (Malta Inc.)</p> <p>Nicole Hutchison, Tom McDermott, Megan Clifford, Camryn Burley (Stevens Institute of Technology); Craig Arndt (Georgia Tech Research Institute (GTRI)); Tim Sherburne, Paul Wach, Peter Beiling (Virginia Tech); Dinesh Verma, Mark Blackburn, Hoong Yan See Tao (Stevens Institute of Technology); David Long (Blue Holon)</p> <p>Erik Herzog, Johan Tingström, Asa Nordling Larsson (Saab Aeronautics)</p> <p>Paper#51: 9.4.2 / Advanced Statistical Methods in Spacecraft Flight Software Cost Estimation: Bayesian Regression and Nonlinear Principal Components Analysis to Support System Engineering in the Early Project Lifecycle</p> <p>Samuel Fleischer, Jairus Hihn (NASA) / Jet Propulsion Laboratory; James Johnson (NASA)</p>							
13:15	13:55	16:15	16:55	21:15	21:55	22:15	22:55	1:45	2:25	4:15	4:55	5:15	5:55	6:15	6:55										

Thursday

Overall Schedule



Posters

Heuristic-Based Architecting for Autonomous Vehicle Systems

Manpreet Bansal, Bradley Drogosch, Omar Lara Monarrez, Edwin Plantharan, Zdravko Nikolik, Jonathan Weaver (*University of Detroit Mercy*)

Inconsistent and Incomplete Datasheets: The case for systematic use of requirement engineering

Lorraine Brisacier-Porchon, Omar Hammami (*ENSTA Paris*)

Systems Engineering your MBSE implementation: Where are you on your MBSE Journey

Mark Sampson (*Siemens*)

The Evaluation of the Effectiveness of a Digital Engineering Tool in a Project Engineering Company

Thomas Saraby Vatle (*University of Southeast Norway*); Yangyang Zhao (*University of Oslo*); Kristin Falk (*University of Southeast Norway*)

