

# MEMBERS NEWSLETTER

December 2019 - Q4, Addendum



## Focus on International Conferences

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# AOSEC

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The Asia Oceania Systems Engineering Conference (AOSEC) has become a series of well-established international conferences on systems engineering in the Asia Oceania Region. Previously known as APCOSEC, past editions of the conferences were: 2007 (Singapore), 2008 (Japan), 2009 (Singapore), 2010 (Taiwan), 2011 (Korea), 2012 (Australia), 2013 (Japan), 2014 (China), 2015 (Korea), 2016 (India), and 2017 (Australia). AOSEC 2019 marked the 12th edition of the conference series. The INCOSE Asia Oceania Sector India Chapter, in collaboration with the Society of Automotive Engineers INDIA (SAEINDIA) ([www.saeindia.org](http://www.saeindia.org)) Bengaluru Section and the Indian

Society of Systems for Science and Engineering (ISSE) ([isseindia.co.in](http://isseindia.co.in)) Bangalore Chapter, organized the AOSEC 2019 in Bangalore, IN on 17-18 October 2019. Alpcord ([www.alpcord.com](http://www.alpcord.com)) provided the event management.

The two-day conference, held at Hotel Shangri-La, Bangalore, had participation of over 400 delegates from 11 countries—Australia, China, France, India, Japan, Lithuania, Mongolia, Singapore, South Africa, the United Kingdom, and the United States. K. Sivan, chairman of the Indian Space Research Organisation (ISRO), inaugurated the conference in the presence of various dignitaries.



AOSEC 2019 inaugural function. Seated on stage (left to right): Serge Landry (INCOSE Asia Oceania Director), Ramakrishnan Raman (INCOSE Asia Oceania Assistant Director, Principal Systems Engineer–Honeywell), Kunhikrishnan (ISSE National President, Director–U R Rao Satellite Centre, Indian Space Research Organisation), Garry Roedler (INCOSE President, Senior Fellow–Lockheed Martin), K. Sivan (Chairman–Indian Space Research Organization, Secretary–Department of Space), Bala Bharadvaj (SAEINDIA President, Managing Director–Boeing India Engineering and Technology Center), Kota Harinarayana (Distinguished Fellow–Science and Engineering Research Board, Council of Scientific and Industrial Research–National Aerospace Laboratories), B. N. Suresh (Honorary Distinguished Professor–India Space Research Organisation Headquarters) and Kannan Marudachalam (SAEINDIA Bangalore Chairman, General Manager of Research and Development– TVS Motor Company)



*Conference delegates*

The inaugural ceremony included the traditional lamp lighting, welcome address by program committee chair, Ramakrishnan Raman (INCOSE Asia Oceania assistant director), address by conference chair, Kota Harinarayana, address by conference advisory board chair and INCOSE Pioneer awardee, B. N. Suresh, addresses by conference advisory board members, Serge Landry (INCOSE Asia Oceania director) and Kunhikrishnan (director of the U R Rao Satellite Centre, Indian Space Research Organisation [URSC, ISRO]), address by organizing committee chair, Kannan



*Lamp lighting during the AOSEC 2019 inaugural function*



*Welcome address by Ramakrishnan Raman, INCOSE Asia Oceania Assistant Director*



*Conference Chair, Kota Harinarayana*



*Conference Advisory Board Chairman, B. N. Suresh*



*Serge Landry, Asia Oceania Director*



*Kunhikrishnan, ISSE National President*



*Kannan Marudachalam, SAEINDIA Bangalore Section Chairman*

Marudachalam, and addresses by conference patrons, Bala Bharadvaj (SAEINDIA president) and K. Sivan (ISRO chairman).

In the conference keynote address on the topic, "Shaping the Future of Systems Engineering," Garry Roedler (INCOSE president) highlighted how our environment has changed, providing an understanding of the challenges we are

facing, the Future of Systems Engineering (FuSE), and the use of digital engineering as an enabler.

Rokas Bartkevicius (chief solutions architect, CATIA No Magic, Dassault Systèmes, Lithuania), in his plenary session on the topic, "Challenges in Adopting MBSE for Automotive Industry," highlighted different challenges and experiences in model-based systems engineering adoption.



*Dr. Bala Bharadvaj , SAEINDIA President*



*K. Sivan, ISRO Chairman,*



*Keynote address by Garry Roedler, INCOSE President, "Shaping the Future of Systems Engineering"*



*Plenary Session by Rokas Bartkevicius (Chief Solutions Architect, CATIA No Magic, Dassault Systemes , Lithuania), on the topic "Challenges In Adopting MBSE For Automotive Industry"*



Plenary session by Juan de Bedout (VP, Advanced Technologies, Collins Aerospace, USA), on the topic "AI-Guided Model Based Methods For Architecture Exploration"

Juan de Bedout (vice president-Advanced Technologies, Collins Aerospace, US), in his plenary talk on the topic, "AI-Guided Model-Based Methods for Architecture Exploration," illustrated exploration and discovery of new system architectures as well as expanding evaluation to include optimization over multiple operating points.

Plenary speaker Dr. Jon Friedman (senior industry manager-MathWorks, US), in his talk on "Bridging the System Engineering and Model-Based Design Gulf," explained the creation of architecture models and extending the language through stereotypes and profiles, and building a bridge between early architecture work and downstream design.

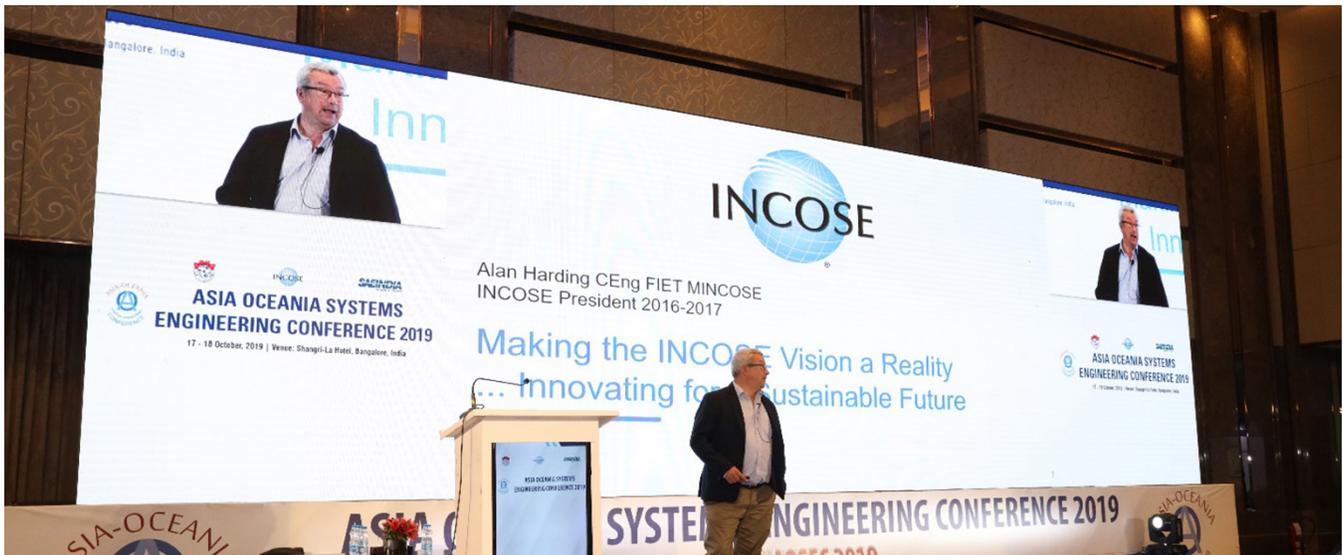
Plenary speaker Aubanel Monnier (Systems Business Unit, ANSYS Customer Excellence (ACE) technical director, Asia) in his talk covered various aspects of autonomous systems development with physics-based simulations.



Plenary session by Dr. Jon Friedman, "Bridging the System Engineering and Model-Based Design Gulf"



Plenary session by Aubanel Monnier, "Autonomous Systems Enabled by Physics-Based Simulation"



Plenary session by Alan Harding, "Innovating for a Sustainable Future"

Alan Harding (Head of Information Systems Engineering, BAE Systems, UK), in his plenary talk on "Innovating for a Sustainable Future," explored on what we mean by "a better world," and how we can fully embrace sustainable development.

Kevin R. Driscoll (Fellow-Honeywell Aerospace, US) in his plenary talk, "Murphy was an Optimist," provided many real-life examples of how for safety-critical systems, "if anything can't go wrong, it will go wrong anyway."

The preparatory work for this conference began in November 2018. We released the call for papers and participation in February 2019. We received over 150 submissions, spanning refereed papers and non-refereed presentations. The Technical Program Committee comprised eminent systems engineering experts from India, Australia, Japan, Singapore, and the United States. The papers went through a rigorous review process and the committee shortlisted 39 refereed papers for presentation and publication in the conference



Plenary session by Kevin R. Driscoll, (Fellow, Honeywell Aerospace, USA) "Murphy was an Optimist"



René Oosthuizen (INCOSE treasurer) chairing a parallel track session



*One of the parallel track sessions*



*Sponsor booths at the conference*

proceedings. Authors orally presented 31 papers in the parallel tracks and presented 8 papers in poster session. In addition, there were 15 non-refereed presentations. The refereed paper and non-refereed presentations pertained to model-based systems engineering, systems life cycle and processes, system complexity, system design and optimization, system data analytics, system safety and reliability, systems

architecture and design, system modeling, and systems engineering culture. The committee organized these presentations in 3 parallel tracks comprising a total of 12 sessions, with 4 paper presentations in each session. INCOSE's Empowering Women as Leaders in Systems Engineering (EWLSE) held a panel discussion in one of the sessions in a parallel track. The parallel tracks comprehensively covered



*Conference Program Committee Chair Ramakrishnan Raman (INCOSE Asia Oceania assistant director) thanking INCOSE President Garry Roedler for his guidance and support during the conference valedictory function in the presence of Conference Chair, Kota Harinarayana*

various aspects of systems engineering which generated exceptionally good knowledge sharing and discussions.

Many organizations sponsored the conference. Dassault Systèmes was a platinum sponsor. ANSYS, Centum, Collins Aerospace, CTI, Intercax, MathWorks, Bluestar Engineering Ltd., and Chandraka Aerospace and Cargo were gold sponsors. Cyient, Capella, IBM, Shell, VCB, and Ananth Technologies were silver sponsors. The sponsors' booths attracted keen interest from the delegates, who visited and interacted well with the exhibitors.

The valedictory function at the end of the second day of the conference summarized the conference proceedings and had a short feedback session from the delegates, followed by a vote of thanks.



*Dignitaries networking session*



*Networking with INCOSE President*

There were events that aligned with this conference. The two-day training for INCOSE systems engineering certification was on the 15<sup>th</sup> and 16<sup>th</sup> of October, by Rene King (CTI).

On the 18<sup>th</sup> of October, there was also the systems engineering certification exam where over 30 candidates took the exam. And on

Saturday, the 19<sup>th</sup> of October, there was a workshop conducted for EWLSE, organized by Stueti Gupta, EWLSE Asia Oceania Sector leader.

To learn more about the event, please visit [www.aosec2019.org](http://www.aosec2019.org).

To view conference pictures, please click [here](#).



Co-organized by:



# 12th Asia Oceania Systems Engineering Conference 2019



17-18 Oct, 2019 | Hotel Shangri La Bengaluru, India

## Engineering of new technologies in complex systems

**11 countries represented**



Australia, China, France, India, Japan, Lithuania, Mongolia, Singapore, South Africa, UK, USA,

**410+ Delegates**



**07**

Plenary Talks



**54**

Refereed, non-refereed paper presentations

- Model Based Systems Engineering
- System Lifecycle & Processes
- System Design & Optimization
- System Complexity
- System of Systems
- Systems Design & Modeling
- Systems Thinking
- System Data: Learning & Analytics
- System Safety & Reliability
- Systems Engineering Culture
- System Modeling
- System Architecture Design



**~35**

Academicians across 14 universities



**~35**

Students across 12 universities



**~150**

Professionals & Officials across 10 Public Sector/ Government Organizations



**~200**

Industry professionals across 53 organizations



**14**

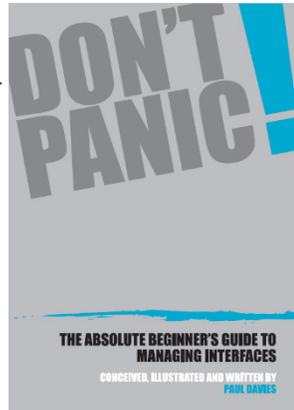
Exhibitors

**2019** is INCOSE UK's Silver Jubilee, celebrating 25 years since its inception in 1994. Over those years, the chapter has grown substantially with over 1000 members, a diverse spectrum of local, interest, and working groups, and a growing range of systems engineering publications.

Adding to this range, we are pleased to announce the publication of another in our "Don't Panic" series of books.

Paul Davies wrote *Don't Panic! The Absolute Beginner's Guide to Managing Interfaces* to equip readers with some practical methods and best practice tools for improving their definition and management of interfaces, an area underexplored in engineering literature.

*Don't Panic! The Absolute Beginner's Guide To Managing Interfaces* is available from the [INCOSE UK online store](#).



This year's INCOSE UK Annual Systems Engineering Conference (ASEC) entered its 10th year and was held on the 19th and 20th of November in the historic Royal Armoury Museum in Leeds.

The chapter programmed the conference with interesting and informative discussions, tutorials, and presentations, and brought together a wide range of professionals from a variety of backgrounds, with the common interest of building upon their systems engineering knowledge and networking with the peers.

If you would like to read more about ASEC 2019, you can find a full report in the December edition of e-Preview, INCOSE UK's quarterly newsletter, available online from the [INCOSE UK website](#).

Also available are the published proceedings from the event, featuring the best of the papers from this year's submissions to ASEC 2019. We hope that this will allow delegates to review/study the papers in more depth after the conference and to give the option for members who were not able to attend the event to get a taste of the past event and to plan for the next.



The ASEC 2019 proceedings are available from the [INCOSE UK online store](#).

We are pleased to announce the results of the INCOSE UK election. The roles of both technical and financial directors were uncontested and we are pleased to announce that Jon Holt and Phil Savvides will remain in their roles respectively.



**2020**  
Annual **INCOSE**  
international workshop  
Torrance, CA, USA  
January 25 - 28, 2020



Register today to the  
**Annual INCOSE International Workshop**  
January 25 - 28, 2020  
Torrance, CA, USA

[www.incose.org/iw2020/registration](http://www.incose.org/iw2020/registration)

## 2019 KEY NUMBERS

**147**

Meetings

**576h**

of Productive Workshop

**10h**

of Social Events



Visit [www.incose.org/iw2020](http://www.incose.org/iw2020) and contact us **TODAY** - The IW2020 Organizing Team



**30<sup>th</sup> Annual INCOSY**  
international symposium

Cape Town, South Africa  
July 18 - 23, 2020



## Mark your calendar now! July 18 - 23, 2020

### SPONSOR INCOSY IS 2020!

- 1** Unique brand of recognition and visibility for your organization
- 2** Access to the latest thinking relevant to the practice of Systems Engineering
- 3** Put a spotlight on your organization's competency in Systems Engineering
- 4** Be associated with the highest culture of professionalism and innovation
- 5** Demonstrate organizational support to INCOSY's mission
- 6** Develop sustainable business relationships



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- Develop sustainable business relationships

**16 642**  
SQ FT

**4**  
DAYS

**2**  
SOCIAL EVENTS

**11**  
BREAKS & LUNCHES

**Lots of possibilities to interact with systems engineering communities**

Visit [www.incose.org/symp2020](http://www.incose.org/symp2020) and contact us **TODAY** - The IS2020 Organizing Team



**30<sup>th</sup>** Annual **INCOSE**  
international symposium

Cape Town, South Africa  
July 18 - 23, 2020

## Call for Submissions

The INCOSE International Symposium is the premier international forum for systems engineering. Participants network, share ideas, knowledge and practices, and learn more about the most recent innovations, trends, experiences and issues in systems engineering from world-class thought leaders in the field.

The theme for the INCOSE International Symposium 2020 is:

### Systems Engineering for Earth's Future Uniting Technology and Grand Challenges through Systems Engineering

INCOSE appreciates all submissions on systems engineering, with particular emphasis on:

#### Developing and Evolving Complex Sociotechnical Systems with reference to UN Sustainable Development Goals

<https://www.un.org/sustainabledevelopment/sustainable-development-goals/>



**Domains** include but are not limited to:

- Automation and Smart Cities
- Aerospace and Defense
- Cybersecurity
- Energy and Environment
- Healthcare and Biomedical
- Sustainable Technologies
- Transportation and Automotive
- Socio-economics

**Emphasis Areas** include but are not limited to:

- Critical Infrastructure
- Digital Engineering
- Emerging Technologies
- Engineering Management
- Innovative Approaches: Agile, Iterative and Lean
- Industry 4.0
- Global Environmental Sustainment
- Systems of Systems (SoS)
- Systems Modernization
- Systems Resilience, Reliability, Safety
- Systems Security Engineering
- Socio-economic Sustainment

## Key Dates

Paper, Panel, Tutorial Submission	November 17, 2019
Notification of Acceptance	February 16, 2020
Paperless Presentation Abstract Submission	February 16, 2020
Paperless Presentation Acceptance	March 15, 2020
Final Paper, Panel, Tutorial Submission	March 15, 2020



# CESUN 2020 Engineering Systems Symposium

**PURDUE**  
UNIVERSITY

Purdue University, West Lafayette, IN  
June 9–11, 2020

*Perspectives on Engineering Systems - Seeking Convergence  
Advancing research and education to make societal impacts*

The Purdue Systems Collaboratory is hosting the Annual Meeting of the Council of Engineering Systems Universities (CESUN) on June 9-11, 2020, at the Purdue University in West Lafayette, Indiana. At Purdue, we keep in mind that various perspectives such as “systems thinking”, “systems science”, and “systems engineering” all play a role in addressing engineering systems / socio-technical problems. The CESUN 2020 theme of “Perspectives on Engineering Systems - Seeking Convergence” also highlights that addressing engineering systems requires a convergence of knowledge from multiple domains.

Topics for papers, posters, and workshops include but are not limited to the following:

- Hazard mitigation, disaster response and recovery
- Education in engineering systems - how people learn systems thinking
- Theoretical and methodological advances in systems research
- Smart infrastructure and smart cities
- Transportation and other networks
- Policy interfaces for engineering systems
- Modeling humans and human institutions
- Metrics for resilience, sustainability, and socio-technical qualities
- Sustainability and environmental impact
- Other complex systems such as health care systems, engineering systems of finance, IoT, security systems, and knowledge systems

Recognizing the support and involvement of Purdue’s College of Engineering and School of Aeronautics & Astronautics, we are also supporting submissions addressing the following Purdue Engineering Initiatives: Data and Engineering Applications; Engineering and Medicine; Autonomous and Connected Systems; Innovation and Making; and the Cislunar Initiative.

CESUN was established in 2004 by universities offering educational and research programs in engineering systems. CESUN membership includes more than 50 universities in North America, Europe, Asia, and Australia. The Council provides a mechanism for the member universities to work together developing engineering systems as a new field of study. An overall objective of the Council is to broaden engineering systems education and practice.

More information will be available on the conference website  
[www.purdue.edu/collaboratory/cesun2020/](http://www.purdue.edu/collaboratory/cesun2020/)



**Save the Date!**