



**2019**  
Annual **INCOSE**  
international workshop  
Torrance, CA, USA  
January 26 - 29, 2019

INCOSE International Workshop (IW)  
(Jan 26-29, 2019)

IW Plenary  
Sessions

WG  
Meetings

Business  
Meetings

MBSE Workshop—an IW Subset  
(Jan 26-27, 2019)

Experiences of one participant

# International Workshop 2019

# IW versus IS



- International Workshop (IW):
  - Annual winter global society meeting
  - Focus is on Working Group meetings + MBSE Workshop
  - <https://www.incose.org/iw2019/home/what-is-the-international-workshop> (Jan, 2019, Torrance, CA)
- International Symposium (IS):
  - Annual summer global society meeting
  - Focus is on refereed technical paper sessions
  - <https://www.incose.org/symp2019/home/what-is-the-international-symposium> (July, 2019, Orlando, FL)



# INCOSE Working Groups (WGs)

- Many of the 40+ INCOSE Working Groups meet throughout the year, plus at IW:
  - WGs produce community valued technical products
  - <https://www.incose.org/incose-member-resources/working-groups>
- A subset of these WGs that have strong MBSE connection, and the MBSE Initiative, also produce the 2-day MBSE Workshop during the first two days of IW:
  - <https://www.incose.org/iw2019/program/mbse-initiative>

# MBSE Workshop

## Keynote

<a href="#">Keynote Talk: Enterprise Change and Transformation</a>	Willy Donaldson (Christopher Newport Univ.)
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## MBSE Workshop Lightning Talks— downloadable links; videos to follow

<a href="#">Model Based Engineering (MBE) Manifesto</a>	Ed Carroll (Sandia National Labs)
<a href="#">Patterns Storybook</a>	Bill Schindel (ICTT System Sciences)
<a href="#">How Model Curation Influences Model Duration</a>	Donna Rhodes (MIT)
<a href="#">Baseball as a model for teaching STEM</a>	Ricardo Valerdi (University of Arizona)
<a href="#">Model Based Test and Evaluation</a>	Bjorn Cole (GTRI)
<a href="#">Executable System Modeling with SysML</a>	Saulius Pavalkis (NoMagic)
<a href="#">OpenMBEE: Europa Lander Case Study</a>	Christopher Delp and Robert Karban (JPL)

## Other MBSE Workshop Talks—downloadable links

<a href="#">MBSE, PLM and the Digital Thread</a>	Don Tolle (CIMdata)
<a href="#">MBSE Survey Results</a>	Rob Cloutier (Univ. of S. Alabama)
<a href="#">Configuration Management</a>	Working Groups Round Robin
<a href="#">Knowledge Management / Ontologies</a>	
Model-Based Conceptual Design	
<a href="#">Lean Systems Engineering</a>	
<a href="#">Requirements</a>	
<a href="#">MBSE Collaborations, MB Activities</a>	Bill Schindel (ICTT System Sciences)
<a href="#">MBX Ecosystems Challenge Team Intro</a>	Russell Peak (Georgia Tech)
<a href="#">Augmented Intelligence for SE</a>	Mark Petrotta (SSI)
<a href="#">Model Based Enterprise Capabilities Matrix</a>	Al Hoheb (Aerospace) & Joe Hale (NASA)
<a href="#">Production and Logistics Modeling</a>	Timothy Sprock (NIST) and Leon McGinnis (Georgia Tech)
Digital Engineering Information Exchange (DEIX)	John Coleman (Engility)
<a href="#">Tool Integration and Model Lifecycle Management (TIMLM)</a>	John Nallon
<a href="#">SysML v2 Update</a>	Sandy Friedenthal
<a href="#">NAFEMS-INCOSE Systems Modeling and Simulation</a>	Roger Burkhart (John Deere)
<a href="#">Semantic Technologies for Systems Engineering (ST4SE)</a>	Hans Peter de Koning (ESA)

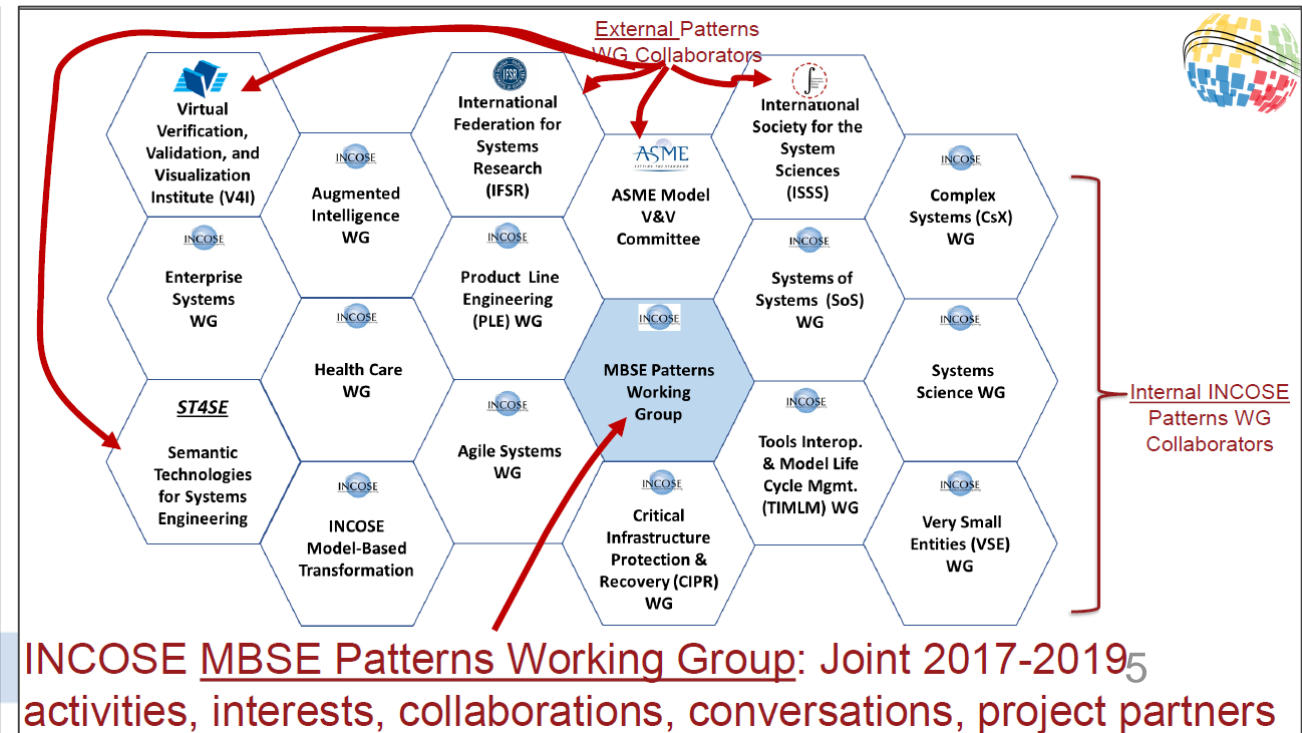
# WG & Business Meetings—Selected Highlights



- MBSE Patterns Working Group
  - Review of MBSE Patterns WG projects in process
  - <http://www.omgwiki.org/MBSE/doku.php?id=mbse:patterns:patterns>
  - Two days of meetings, >35 participants from diverse domains
  - [http://www.omgwiki.org/MBSE/lib/exe/fetch.php?media=mbse:patterns:mbse\\_patterns\\_wg\\_mtg\\_slides\\_iw2019\\_jan\\_2019\\_v1.3.6.pdf](http://www.omgwiki.org/MBSE/lib/exe/fetch.php?media=mbse:patterns:mbse_patterns_wg_mtg_slides_iw2019_jan_2019_v1.3.6.pdf)

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## MBSE Patterns Working Group



# WG & Business Meetings—Selected Highlights

- Model Community Outreach Planning Group
  - Formation meeting—established plan parameters for next wave of INCOSE outreach to model communities (model users, decision-makers, model originators, standards groups)
  - >25 participants from diverse domains and organizations
  - [http://www.omgwiki.org/MBSE/lib/exe/fetch.php?media=mbse:patterns:model\\_communities\\_outreach\\_iw2019\\_v1.2.1.pdf](http://www.omgwiki.org/MBSE/lib/exe/fetch.php?media=mbse:patterns:model_communities_outreach_iw2019_v1.2.1.pdf)



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MBSE Collaborations, MB Activities

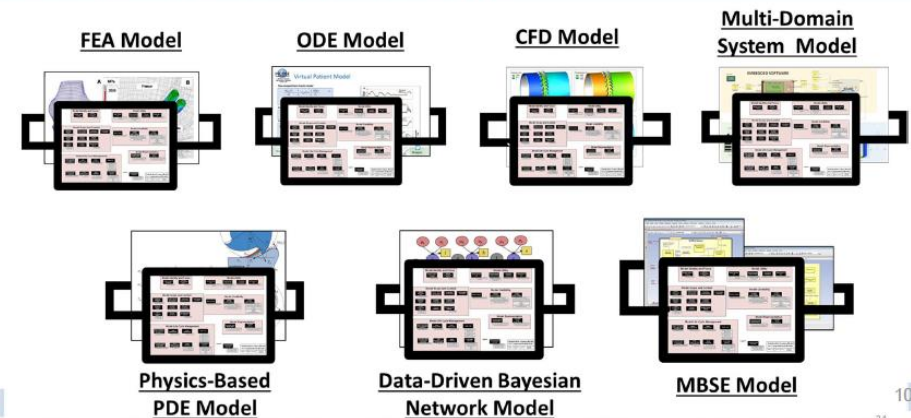
## Model Communities Outreach

www.incose.org/IW2019

Bill Schindel  
ICTT System Sciences  
[schindel@ictt.com](mailto:schindel@ictt.com)  
V1.2.1

### V4I-INCOSE Collab Example: Model VVUQ Pattern

- Uniform model “wrapper” describes all types of computational and representational models.
- Currently being used by INCOSE MBE Transformation to package diverse MBSE models.
- Developed with the INCOSE MBSE Patterns WG.



**FEA Model**      **ODE Model**      **CFD Model**      **Multi-Domain System Model**

**Physics-Based PDE Model**      **Data-Driven Bayesian Network Model**      **MBSE Model**

10

# WG & Business Meetings—Selected Highlights



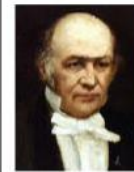
- System Science Working Group (SSWG)
  - Collaborations on improved science-based foundation for systems engineering—the System Phenomenon.
  - [http://www.omgwiki.org/MBSE/lib/exe/fetch.php?media=mbse:patterns:patterns\\_wg\\_inputs\\_to\\_sswg\\_at\\_iw2019\\_01.28.2019\\_v1.2.1\\_with\\_att\\_1.pdf](http://www.omgwiki.org/MBSE/lib/exe/fetch.php?media=mbse:patterns:patterns_wg_inputs_to_sswg_at_iw2019_01.28.2019_v1.2.1_with_att_1.pdf)



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## System Science WG – MBSE Patterns WG Discussion

## Attachment 1: From the IW2018 & IS2018 SSWG



William Rowan Hamilton



**2018**  
Annual **INCOSE**  
international workshop  
Jacksonville, FL, USA  
January 20 - 23, 2018



Emmy Noether

System Patterns:  
The System Phenomenon, Hamilton's Principle, and  
Noether's Theorem as a Basis for System Science

IW2018 System Science Working Group Meeting, 01.23.2018  
Bill Schindel  
ICTT System Sciences  
[schindel@ictt.com](mailto:schindel@ictt.com)

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# Networking: INCOSE Working Groups, Tech Ops, and You



- Whether you make it to the global IW/IS meetings or dial into the working group meetings through the year:
  - Participation in INCOSE teams is an efficient way to keep track of the rapid changes occurring in practice and theory, . . .
  - And to build your network of colleagues for future collaborations and support.
  - Join an INCOSE Working Group or Emerging Team.





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