ASME Overview

- Established 1880
- 4 offices in U.S.
- >35 conferences conducted annually
- 355 staff
- 462 ME/MET degree programs accredited via ABET
- ~500 consensus standards
- >7,300 certified companies
- >10,000 individuals trained annually
- >130,000 individual members
- 145,000 monthly readers of *Mechanical Engineering*
- 207,000 technical papers in digital collection
• George Wallace Melville (1841-1912) - ASME's 18th president (1899-1900) and honorary member, is credited with modernizing the U.S. Navy.

• Benjamin Franklin Isherwood (1822-1915) - ASME honorary member, engineered U.S. Navy’s conversion to steam power.

• John Ericsson (1803-1889) built the first ironclad warship, the USS Monitor (1862), developed the screw propeller (1836).

• George Westinghouse (1846-1914) - ASME's 29th president (1910-1911) and honorary member, developed steam turbines for maritime propulsion and electric generators.
ASME Strategic Technologies

Enabling/ Cross-cutting Technologies:

- Internet of Things
- Big Data Analytics
- Artificial Intelligence
- Cybersecurity
- Design
- Materials
- Nanotechnology
- Sustainability

Digital Engineer
Knowledge Portfolio

Forums

Publications

Standards Development
WHERE WILL YOUR INDUSTRY PEERS BE THIS AUGUST?

ASME’s ADDITIVE MANUFACTURING + 3D PRINTING CONFERENCE

Join us at the 2016 Additive Manufacturing + 3D Printing Conference & Expo (AM3D), the only event in the AM marketplace designed exclusively for the Engineering Community. Over three days attend in-depth technical sessions, listen to dynamic panels and participate in exciting networking functions where you’ll gain perspectives from cross-industry AM leaders.

MARK YOUR CALENDAR: AUGUST 21 - 24, 2016 CHARLOTTE, NC

2015 Organizations:

America Makes
AutoDesk Research
Carl Zeiss IMT
Clemson
Honeywell Aerospace
GE Global Research
Voxel8
Parmalat
Senvol
Alcoa
Fraser Advanced LS

Don’t get lost in the crowd, like many larger tradeshows!

Drill down into key AM applications-based topics and converse in an intimate setting only provided at AM3D:

- Design for additive manufacturing using topology optimization
- Considerations for materials selection and certification
- Equipment selection and investment analysis
- Process monitoring technologies to improve results
- Post production qualification methods
- How Standards development will increase demand
- The future of AM and distributed manufacturing

WILL YOU JOIN THE RANKS, OR BE LEFT BEHIND?

Emerging trends and applications in DIGITAL MANUFACTURING AND DESIGN

go.asme.org/3dprinting
Additive manufacturing (AM) provides unprecedented freedom for designing and fabricating parts in entirely new ways. Building parts layer-by-layer enables novel designs to be explored for a wide array of uses and applications in aerospace, consumer goods, energy, medical, oil and gas, and space industries, among others. For example, components can be light-weighted with topology optimization and lattice structures, complex assemblies can be consolidated into single 3D printed geometries, and multi-material fabrication techniques available with several AM processes enable never before seen functionally-graded materials. As a result, AM is changing not only what we design but how we design. This Special Issue explores the latest theories, methods, tools, and guidelines in Designing for Additive Manufacturing (DFAM) that are empowering engineers to design and realize new parts, products, and systems that leverage AM to its fullest. Topics of interest include, but are not limited to:
Journal of Mechanical Design
Special Issue: Designing for Additive Manufacturing

- New design theories, principles, and guidelines for AM parts
- DFAM methods (conceptual design tools, generative design, etc.)
- New insights into opportunistic DFAM vs. restrictive DFAM
- Analysis, synthesis, and optimization methods for AM parts
- Multifunctional or multi-material design methods for AM parts
- Accounting for design-material-process interactions in AM design
- Impact of post-processing and qualification on AM part design
- Design contributions based on novel case studies and applications
- New techniques and practices for DFAM education and training
Submission Instructions
Please submit your paper at http://journaltool.asme.org/Content/index.cfm and email the Editor, Dr. Shapour Azarm at editor@asmejmd.org (with a copy to: assistant@asmejmd.org), to alert him that your paper is intended for the special issue. Information about the journal can be found at http://www.asmejmd.org/. Note that submissions selected for publication are subject to ASME’s voluntary and mandatory page charges: https://journaltool.asme.org/Help/AuthorHelp/WebHelp/JournalsHelp.htm

Publication Target Dates
Submission of papers by: 31 January 2017
Initial review completed by: 15 March 2017
Publication of special issue by: October 2017
Early submissions are strongly encouraged. Papers submitted by the deadline will be reviewed in time for inclusion in the special issue. Papers received after that date may still be considered for the special issue, space and time permitting. In certain circumstances, papers that are not ready for production in time for inclusion in the special issue may be considered for a regular issue of the journal.

Guest Editors
Timothy W. Simpson, Pennsylvania State University, tws8@psu.edu Jesse Boyer, Pratt & Whitney, jesse.boyer@pw.utc.com, Christopher B Williams, Virginia Tech, cbwilliams@vt.edu, Carolyn Seepersad, University of Texas, Austin, ccseepersad@mail.utexas.edu, Paul Witherell, NIST, paul.witherell@nist.gov,
Emerging S&C Advanced/Additive Manufacturing Initiatives – Under Standardization & Testing Board

Y14.46 Subcommittee on Product Definition for Additive Manufacturing

Charter: Standardization of dimensioning and tolerancing methods, systems, and indications on engineering product definition digital data sets promotes uniform practices and should facilitate a common interpretation of these requirements. A broadly accepted national standard which incorporates international practices and symbology to the maximum acceptable extent will enable American companies to produce product definition digital data sets understandable throughout the world for additive manufacturing designs. It will help to ensure that wherever parts are produced from such product definition digital data sets they will satisfy the dimensional requirements. This standard will supplement the requirements of Y14.5 for additive manufacturing designs.

Chair: Jennifer Herron, Action Engineering
Vice Chair: Paul Witherell, NIST
ASME Staff Contact: Donnie Alonzo

Current Progress:
- Twenty-one Members on Subcommittee and one alternate
- Twenty Members on Y14 SC 46 Support Group
- Holds two to three In-Person meetings a year (two in conjunction with other Y14 Committees)
- Hold teleconferences every two weeks
- Subcommittee was formed in October 2014
- Draft is about 90%
- Expect it to be ready for Y14 Subcommittee and Standards Committee review and comment by November 2016 (following Subcommittee meetings in October 2016)

Expect the document to be a Guide
**Y14.41.1 Subcommittee on 3D Model Data Organization Schema**

Charter: This standard establishes a schema for organizing information in a model within a digital product definition data set. The schema defines a common practice to improve design productivity and to deliver consistent data content and structure to consumers of the data. An alternate method of data organization may be used as long as a cross-reference is provided to the schema.

Chair: Roy D. Whittenburg, MBD 360 LLC  
Vice Chair: Edwin H. Barrie, The Boeing Company  
ASME Staff Contact: Fred Constantino

Current Progress:

- Twenty-two Members on Subcommittee  
- Six Members on Y14 SC 41.1 Support Group  
- Subcommittee was formed in October 2013  
- Hold two In-Person meetings a year in conjunction with other Y14 Committees  
- Hold teleconferences in between meetings  
- Note: This proposed purpose charter is intended to meet an immediate need of the DoD. Once completed a second phase could expand the scope to further define the full digital product definition package (Technical Data Package, TDP) and standardize its requirements and presentation.  
- Draft was balloted and Subcommittee spent May 2016 meeting going over comments. About half way through the comments. Will hold one or more teleconferences to try and address comments received. Hope to re-ballot Committee before the next meeting in October 2016.
Proposed New Y14.x Subcommittee on Direction Indicator and Load Indicator

Background:
ASME product definition data standards lack a robust tool to define directions. There are methods for 2D drawings and 3D models, but none of these work on actual as-produced parts; they only work on perfect geometry in the product definition. We need tools that bridge the world of perfect geometry of drawings and models and apply to actual imperfect as-produced parts and assemblies.

ASME Staff Contact: Fred Constantino

ASME product definition standards also lack a robust tool to define loads, forces, and related phenomena. We need tools to symbolically define loads and forces in product definition datasets that also work on imperfect as-produced parts and assemblies.

A volunteer has prepared an initial draft which is about 50% complete. A separate teleconference was held on August 17, 2016 to discuss the proposed new Subcommittee in more detail. The majority of members present felt it’s a good idea. We expect to vote on the proposed Y14 Subcommittee during the next Y14 Standards Committee meeting on October 21, 2016.
V&V-50 Subcommittee on Verification and Validation of Computational Modeling for Advanced Manufacturing

Charter: To provide procedures for verification, validation, and uncertainty quantification in modeling and computational simulation for advanced manufacturing.* *Advanced Manufacturing, as defined in the PCAST report: “Advanced manufacturing is a family of activities that (a) depend on the use and coordination of information, automation, computation, software, sensing, and networking, and/or (b) make use of cutting edge materials and emerging capabilities enabled by the physical and biological sciences, for example nanotechnology, chemistry, and biology. It involves both new ways to manufacture existing products, and the manufacture of new products emerging from new advanced technologies.” —President’s Council of Advisors on Science and Technology Report to the President on Ensuring American Leadership in Advanced Manufacturing

Chair: Sudarsan Rachuri, DOE
Vice Chair: Mark Benedict, AFRL Mantech
ASME Staff Contact: Marian Heller

Current Progress:
- Thirty-three Members on Subcommittee and one contributing member (non-voting)
- Holds two or three In-Person meetings a year, one in conjunction with V&V Symposium
- Holds teleconferences every few weeks
- Subcommittee was formed in March 2016
- They have identified four areas of focus
  - Terminology, concepts, relationships, taxonomy for VVUQ in Advanced Manufacturing
  - V&V for Additive Manufacturing
  - Manufacturing Technologies and Problems - VVUQ for Data-centric/driven Modeling in Advanced Manufacturing (includes issues/problems the manufacturing industry tackles, especially in subtractive manufacturing)
  - V&V Interactions with the Model Life Cycle

The Subcommittee held a meeting in May 2016 in conjunction with 2016 V&V Symposium. The next Subcommittee meeting will be held November 7-8, 2016, at GE Global Research in Niskayuna, NY.
B46.1 Committee on Classification and Designation of Surface Qualities
The Committee had formed a Project Team on Additive Manufacturing to consider what are the needs of this industry.

Chair: Suresh Kumar Ramasamy, Apple
ASME Staff Contact: Remington Richmond

Have recently sent a survey on Surface Finish needs in the Additive Manufacturing field to related Committee members (Y14.46, B46, V&V-50), attendees of the ASME AM3D conference and on Social media. Was also send to America Makes to send to their membership.

Survey results have been compiled and sent to B46 Officers and Project Team Chairman. Working to set up a September teleconference and recruiting additional members.
B5 Technical Committee 65 on Micromachining

Charter: Standardization of manufacturing methods, technologies, equipment, terminology, organizational strategy, and systems for the manufacture of products and/or features concerning dimensions and/or accuracies of less than 100 micrometers.

Chair Nomination: Steve Wallace, Boeing

ASME Staff Contact: Donnie Alonzo

Current Progress:

• Call for Members
• Expect to appoint three members to group in the next month
• Evaluation of Industry Needs and Development of Priority List
Proposed New Standards Committee on Manufacturing and Advanced Manufacturing

Proposed Charter: The development and maintenance of standards and guidelines addressing Manufacturing and Advanced Manufacturing.

Topics to be considered are:

• advanced monitoring, diagnostic, and prognostic technologies for manufacturing
• Green manufacturing
• Digital Manufacturing

The proposal has been Board approved. Needs Council on Standards and Certification approval.

ASME Staff Contact: Fred Constantino
**Proposed New Subcommittee on Model Based Enterprise**

Proposed Charter: The development of standards that provide rules, guidance, and examples for the creation and use of model-based digital datasets, data models, and related topics within a Model-Based Enterprise (MBE). Areas of concentration for these standards include topics such as: types of models and their intended uses; rules for creating semantic PMI and its representation; types of features and data elements for model-based datasets; organizational schemas for datasets; managing links between product definition and process definition datasets; creating, managing and using technical data packages for product definition and process definition; rules governing the data quality of the model; managing discrepancies (between existing standards, data format standards, and other standards that affect model-based definition (MBD) and MBE).

A presentation will be given to the Y14 Executive Committee in October 2016 to see if the Y14 Committee wants to take on this assignment or should it be considered under the new Standards Committee on Manufacturing

ASME Staff Contact: Fred Constantino
Proposed New Subcommittee on Monitoring, Diagnostic, and Prognostic Guidelines to Support Health Management and Control of Manufacturing Systems

Proposed Charter: Develop guidelines that describe and promote advanced monitoring, diagnostic, and prognostic technologies, along with ways of verifying and validating their performance, to enhance maintenance and control strategies within manufacturing operations at the factory-floor.

This proposal was initiated from a NIST proposal.
ASME staff beginning to start the recruiting process.
ASME Staff Contact: Fred Constantino
Under the Pressure Technology Department
BPTCS Project Team on Evaluation of Additive Manufacturing for Pressure Retaining Equipment
Perform gap analysis, evaluate results, and make recommendations to BPTCS for potential incorporation of additive manufacturing (AM) processes in ASME Codes to construct pressure retaining equipment.

Chair George Rawls, SRNL
ASME Staff Contact(s): Gerry Eisenberg and Adam Maslowski

Current Progress:
- Nine Members
- Held a teleconference on December 4, 2015 and January 29, 2016
- A member developed a report on additive manufacturing and materials used in additive manufacturing.
- A member has produced a report containing a preliminary assessment of the extent to which additive manufacturing (AM) processes are covered under ASME BPV and B31 piping codes, and the next steps to be considered to provide adequate coverage for AM in those codes for the construction of pressure components.

Last updated September 27, 2016
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