



CALL FOR PAPERS

Track 19—Advances in Multidisciplinary Engineering

ASME 2015 International Mechanical Engineering Congress and Exposition

Houston, Texas

November 13-19, 2015

	PURPOSE AND SCOPE OF TRACK	
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Innovative solutions to large-scale, complex engineering problems are no longer confined to a particular discipline of science or engineering. Optimal solutions often require a multidisciplinary, iterative approach that draws on various concepts and knowledge base. The objective of this Special Track on Advances in Multidisciplinary Engineering is to highlight the importance of the multidisciplinary approach. This Track celebrates half a century of contributions made by Professor Nam Pyo Suh to cross- and multidisciplinary engineering, originated in the era when engineering research based on traditional disciplinary lines. The symposium is focused on topics that comprise Prof. Suh's contributions to engineering and technology that began with Mechanical Behavior of Materials and progressed over the decades to Tribology, Cutting Tools and Machining, Polymer Processing, Axiomatic Design, Complexity Theory and culminating in On-Line Electric Vehicles, Mobile Harbor and Multidisciplinary Engineering Education. While this Track is focused on such topics, all contributions to Multidisciplinary Engineering are welcomed and encouraged.

Technical Topics

19-2 Tribology: The basic mechanisms of friction and wear; multi-scale surface mechanics; solid, boundary and hydrodynamic lubrication; role of surface texturing at various scales; wear of metals, polymers and composites; wear and lubrication of ceramics; novel tribological materials and coatings; micro-, nano- and biotribology; micro-probe based techniques; accelerated testing; and failure analysis of tribological components and systems.

19-3 Manufacturing and Productivity: Advances and innovations in manufacturing processes, equipments and systems toward higher quality, production rate, cost effectiveness and flexibility; metal-working processes, net shape and additive processes, integrative and hybrid processes, and micro- and nano-scale processes; measurements, control and automation; and factory design and scheduling, supply chain and sustainability.

19-4 Polymer Processing: All steps in the production of products from synthetic and biologically-based polymers; processing fundamentals for reaction injection molding, spin coating, fiber spinning, mixing, molding (including micro- and nano-molding), extrusion, forming, microcellular foams and nano-foams, biofoams, composites, nano-composites and meta-materials; sustainability of polymer materials and processes, recycling and re-use; and process modeling, processing/structure/property predictions, process and equipment design and quality control.

19-5 Axiomatic Design and Complex Systems: Principles of design, scientific foundations of axiomatic design, integrative study of design theories, tools & methods; innovative thinking process and applications in multidisciplinary systems, large-scale and multi-scale system design (macro to nano), design of complex systems; applications of axiomatic design

in multi-domain systems including manufacturing, design for quality, health care, large-scale software development, business management, organization and policy design, emergency and disaster management, civil and environmental engineering, urban planning and architectural systems.

19-6 Multidisciplinary Engineering Education: Teaching and learning for multidisciplinary engineering, engineering education through massive open online courses (MOOCs), interactive teaching models, teaming, international cooperation, cross-disciplinary subjects, teaching by example, teaching factories, problem- and project-based learning.

Prospective authors should submit a 400-650 word abstract via the ASME 2015 IMECE website at <http://www.asmeconferences.org/IMECE2015>.

See conference website for detailed publication schedule.

	TRACK ORGANIZER	
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