

— **Call for Papers** —
A Symposium on
Advances in Composites Manufacturing Processes

Sponsored by the ASME Manufacturing Engineering Division's
Textile and Composites Engineering Technical Committee
2017 ASME International Manufacturing Science and Engineering Conference (MSEC)*
June 4-8, 2017
University of Southern California

Technical Focus

Composite materials usage is accelerating in a range of industries as enabling material systems. As the application space has broadened beyond aerospace, industry is pushing for faster, cheaper, better, and more robust material systems, processes and production methods. These end goals require coordinated efforts throughout the manufacturing supply chain. Raw materials (fiber, resin, core) are typically expensive and prone to highly variable process requirements that affect final performance. Composite manufacturers are driving material suppliers to provide higher quality materials with enhanced performance at lower cost to expand use in high production volume products. The need for shorter cycle times and lower labor costs in part production is driving industry towards automation. This includes raw material production, tooling and fixturing, material handling, process monitoring and control, and post production processes. In addition, cost and sustainability concerns are forcing manufacturers to reduce the amount of raw materials, waste, energy and consumables used in processing, and to consider end-of-life concerns.

This symposium will focus on the research advances in manufacturing processes for advanced and engineering polymeric matrix composites that deal with preparing raw materials, forming materials into shape, solidification/curing of these materials, post-processing, and life-cycle effects of manufacturing. Specific topics of interest include, but are not limited to:

- Automated reinforcement cutting and kitting.
- Pre-impregnation of reinforcement with resin (prepregging).
- Automated fabrication of preforms for liquid composite molding.
- Resin formulation and mixing.
- BMC/SMC compounding.
- Hand lay-up.
- Thermoforming.
- Stamping.
- Automated Fiber Placement / Automated Tape Laying.
- Filament winding.
- Robotic wet lay-up.
- Compression, transfer, and injection molding.
- Liquid composite molding.
- Pultrusion.
- Additive manufacturing.
- Autoclaving.
- Out-of-Autoclave (OoA) and autoclave alternatives.
- Acceleration of resin cure cycles.
- Snap-cure resins (heat, UV, electron beam, X-ray).
- CNC Machining, laser cutting, abrasive waterjet cutting.

Paper Submission

Authors are encouraged to submit an abstract and full manuscript for review by **November 03, 2016** via the conference website. Final revised manuscripts must be submitted by **March 08, 2017**. The copyright transfer form must be filled out and the presenting author must pre-register by April 06, 2017 or the paper will be withdrawn from the conference. Authors may also consult www.asme.org/divisions/med/call/ for updates. **No papers are to be submitted to the organizers; submissions will only be accepted via the conference website at www.asmeconferences.org/msec2017/.**

Additional Symposium Activities

To highlight advancements in this technical area, symposium organizers will:

- organize a state-of-the-art paper that will draw from the U.S. NIST AMTech industry roadmaps on composites manufacturing
- convene a panel on routes to advance and expand the use of automation in lower cost application spaces

Organizers:

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The conference is collocated with NAMRI/SME's 45th North American Manufacturing Research Conference (NAMRC45) and JSME's International Conference on Materials and Processing (ICMP 2017), both of which have a separate call-for-papers. Please note that submissions of the same paper to more than one conference are not permitted.