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ASME *Journal of Mechanical Design*

Special Issue on Design for Advanced Manufacturing

Design and manufacturing are intimately coupled in the conceptualization and realization of products. Engineering design is regularly a key component of innovation and successful product development, yet promising designs that are very costly or challenging to manufacture may never be realized in practice. Advancement of manufacturing technologies tends to lower barriers to realization and expands design freedom, but may also introduce unique restrictions on the design space.

New design methods and design tools are therefore needed to help engineers navigate the novel design space created by advanced manufacturing. Examples of opportunities created by advanced manufacturing include design of multifunctional, multi-material, multi-physics and/or multiscale components and systems, while such designs must take into account manufacturability, materials evolution through the manufacturing process, and manufacturing induced imperfections. This Special Issue aims to report state-of-the-art design research supporting advanced manufacturing such as additive manufacturing, hybrid manufacturing, advanced CNC machining, improved injection molding, and advanced sheet metal forming processes.

Topic Areas

The following is a non-comprehensive list of representative topics within scope of this Special Issue.

- Design for additive manufacturing
- Design for manufacturable hollow structures, cellular structures, multiscale structures, multi-material structures and composite structures
- Design optimization methods such as topology optimization, size optimization, and shape optimization to support advanced manufacturing
- Design cognition to support designers in adopting advanced manufacturing technologies
- Design for heterogenous materials systems using hybrid manufacturing
- Geometric modeling to support design of complex artifacts for advanced manufacturing
- Uncertainty analysis and design for mitigating the impact of manufacturing imperfections
- Design for reducing manufacturing and life cycle cost such as incorporating cost analysis and optimization at design stages
- Integration of manufacturing processing effects into design methodologies
- Design principles and guidelines for advance manufacturing
- Education of design for advanced manufacturing

Publication Target Dates

Paper submission deadline	**April 25, 2022**
Initial review completed	**June 15, 2022**
Final decision	**September 1, 2022**
Special Issue publication date	**December 2022**

Submission Instructions

Papers should be submitted electronically to the journal at journaltool.asme.org. If you already have an account, log in as author and select **Submit Paper** at the bottom of the page. If you do not have an account, select **Submissions** and follow the steps. In either case, at the **Paper Submittal** page, select the ASME *Journal of Mechanical Design* and then select the Special Issue **Design for Advanced Manufacturing.**

Papers received after *April 1, 2022,* may still be considered for the Special Issue, if time and space permits. Early submissions to this Special Issue once accepted will be published online first.

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