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TMS2019

148th Annual Meeting & Exhibition

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March 10–14, 2019
San Antonio, Texas, USA

JOIN US FOR THIS TMS2019 SYMPOSIUM:

ADDITIVE TECHNOLOGIES

Additive Manufacturing for Energy Applications

Additive manufacturing (AM) has emerged as a global disruptive technology in multiple industries for manufacturing complex three-dimensional components by the deposition of ceramics, alloys, or metal precursors within a variety of dimensional space. AM techniques provide a unique advantage for the energy industry due to the shortened development and fabrication times, quality of the product, and repeatability of the process. Not yet commonplace in the energy sector, AM provides new opportunities in the design space during inception of new products (both structural component and material design) due to less limitations on localized design features that could not generally be performed using conventional fabrication processes (e.g., casting, extrusion, etc.) and subtractive fabrication. The advantage of using AM in energy applications will include, but is not limited to, advancement in alloying, design, and efficiency.

This symposium will integrate invited and contributed talks on the use of AM in various energy industries and includes the following topics based on experimental and computational approaches:

- Property-microstructure-processing relationships of AM fabricated materials for structural components (e.g. 316 stainless steel) and fuel systems (e.g. U-Zr) in nuclear and other energy industries
- The scope of AM in nuclear energy enabling advanced sensor and instrumentation
- Advances in AM design concepts such as graded structures and post-processing treatments
- Modeling and simulations for design of high-performance AM fabricated materials and reducing research time and costs
- Development and qualification approaches

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