Special Issue

Advancements in Friction Stir-Based Solid-State Additive Manufacturing: Mechanisms, Microstructures, and Properties

Message from the Guest Editors

Solid-state additive manufacturing presents a promising alternative to traditional subtractive methods and certain additive techniques, facilitating the creation of complex geometries with reduced waste and enhanced material efficiency. Friction stir techniques, in particular, consolidate materials without complete melting by utilizing the heat generated from friction between a rotating tool and the workpiece. This process helps maintain the microstructural integrity and mechanical properties of alloys and composites. This Special Issue seeks to compile the latest research and advancements in friction-based solid-state additive manufacturing, with an emphasis on process mechanisms, microstructures, and properties. These manufacturing methods have gained prominence due their ability to manufacture components with excellent properties and high efficiency; however, their full potential in the manufacturing arena is still being explored. We encourage submissions that highlight innovative developments, tackle significant challenges, and investigate future applications of these technologies.

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Materials (ISSN 1996-1944) was launched in 2008. The journal covers twenty-five comprehensive topics: biomaterials, energy materials, advanced composites, advanced materials characterization, porous materials, manufacturing processes and systems, advanced nanomaterials and nanotechnology, smart materials, thin films and interfaces, catalytic materials, carbon materials, materials chemistry, materials physics, optics and photonics, corrosion, construction and building materials, materials simulation and design, electronic materials, advanced and functional ceramics and glasses, metals and alloys, soft matter, polymeric materials, quantum materials, mechanics of materials, green materials, general. *Materials* provides a unique opportunity to contribute high quality articles and to take advantage of its large readership.

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