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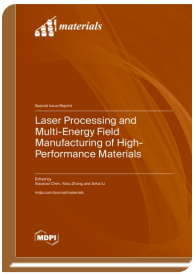
Special Issue Reprint

Laser Processing and Multi-Energy Field Manufacturing of High-Performance Materials



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The scope of “Laser Processing and Multi-Energy Field Manufacturing of High-Performance Materials” is the processing mechanism, machining quality, material property evolution, and material preparation of lasers and other energy fields. This reprint summarizes recent advances in the fields of laser processing and multi-energy field composite manufacturing. It covers a variety of topics, including laser cladding, laser coating, laser-based directed energy deposition, laser cutting, laser grooving, laser drilling, electric discharge machining, ultrasonic burnishing, and ultrasonic-vibration-assisted pressing process methods. The effects of lasers, vibrations, electricity, and other energies on the properties and processing techniques of various high-performance materials, such as medium-entropy alloys, refractory high-entropy alloys, high-temperature alloy Inconel 718, carbon-fiber-reinforced composites, ceramic-based composites, diamond materials, aluminum alloys, and hard alloys, are fully analyzed and discussed.

This reprint aims to showcase the latest achievements in the fields of laser processing and multi-energy field composite manufacturing; solicit the most important discoveries; highlight the challenges of processing mechanisms, theories, and technologies; and provide a basis for researchers to anticipate future development trends.

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