Special Issue

Laser Assisted Processes and Thermal Treatments of Materials

Message from the Guest Editors

Laser is a coherent beam of electromagnetic radiation which can spatially propagate with negligible divergence and lowest power loss over a long distance. When a laser beam irradiates the surface of a material, the latter can efficiently absorb the provided thermal energy. This interaction can induce photochemical or photothermal reactions, which generate a confined temperature increase within a desired area. This mechanism is used in many material processing technologies, such as stereolithography, selective laser sintering, selective laser melting, and laser-engineered net shaping. However, the use of this localized heat input can cause the formation of residual stresses in the processed parts. Heat treatments can be performed in order to release these internal residual stresses. The aim of this Special Issue is to publish original research data, review articles, communications that focus on the use of laser-assisted technologies for processing advanced materials or to induce their modifications in term of properties and functions. Then, of particular interest is the investigation of specifically designed thermal treatments of starting powders or final components.

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Message from the Editor-in-Chief

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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