Special Issue

Laser Techniques for Surface and Interface Engineering: Protocols and Applications in Materials Science

Message from the Guest Editors

Laser-based techniques have revolutionized surface and interface engineering, enabling unprecedented precision in modifying material properties for advanced applications. This Special Issue explores cutting-edge protocols and the applications of laser processing in materials science, emphasizing innovations in surface functionalization, micro/nano-structuring, and hybrid manufacturing. Contributions will address laser ablation, cladding, texturing, alloying, and shock peening, alongside emerging methods like ultrafast laser patterning and AI-driven process optimization. We seek research elucidating the mechanisms of laser-matter interaction, in situ monitoring, and post-processing effects on microstructure, tribology, corrosion resistance, and biocompatibility. Submissions covering multi-scale characterization (SEM, TEM, XRD, AFM) and computational modeling of laser-induced phenomena are encouraged. This Issue aims to bridge fundamental research with industrial applications in aerospace, energy, biomedicine, and electronics, fostering solutions for wear-resistant coatings, adhesive joints, catalytic surfaces, and smart interfaces.

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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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