



## Characterization of Metal Matrix Composite Coatings and Gradient Porous Materials

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### Message from the Guest Editor

The modification of various materials to improve their existing properties is very important. The appropriate treatment of materials may affect, among other things, the reduction of energy consumption during a process or the reduction of its negative impact on the environment. Currently, there is interest in processes that use high-energy energy sources such as laser processing or spark plasma sintering.

These technologies make it possible to perform precise operations with efficiency and accuracy, significantly exceeding the methods of traditional processing.

Interesting methods in laser processing include laser alloying and laser metal deposition, where new chemical elements or compounds are added to substrate material during the interaction of the laser beam. This interaction causes many coexisting phenomena which influence the crystallization process and ultimately the properties of the treated material.

The second method worth noting is the production of gradient porous materials using spark plasma sintering. In both cases, it is possible to obtain a material with variable properties on the cross section.

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