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Spark Plasma Sintering of Metals and Metal Matrix Nanocomposites

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Message from the Guest Editor

Spark plasma sintering (SPS) is a rapid sintering technique combining the simultaneous use of a pulsed direct current with a uniaxial pressure to consolidate powder materials. The main improvements of SPS are the shorter sintering times needed to obtain highly dense bulk materials with limited grain growth. Therefore, this technique is particularly suitable to process nanostructured materials with good densification and outstanding mechanical properties.

This Special Issue will address and gather the advances achieved in different metals and metal matrix nanocomposites processed by SPS, from both experimental and theoretical (modelling and simulation) perspectives. In particular, articles from the academic community or industry including advanced microstructural and mechanical characterization techniques (SEM, TEM, FIB, EBSD, TKD, EELS, AFM, APT, tomography, nanoindentation tests, in situ mechanical tests, small punch tests, etc.) assessing processing–structure–properties relationships are welcome. Articles related to the sintering of parts with a complex shape are also desirable.

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Message from the Editorial Board

Metallic materials play a vital role in the economic life of modern societies; contributions are sought on fresh developments that enhance our understanding of the fundamental aspects related to the relationships between processing, properties and microstructure – disciplines in the metallurgical field ranging from processing, mechanical behavior, phase transitions and microstructural evolution, nanostructures, as well as unique metallic properties – inspire general and scholarly interest among the scientific community.

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