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Sintering and Grain Growth Behavior of Ceramics

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Deadline for manuscript
submissions:

closed (30 June 2021)

Message from the Guest Editor

Dear Colleagues,

Sintering can be defined as the application of thermal energy to a shaped powder body to increase its strength by the formation of interparticle bonds and the elimination or control of porosity. Sintering is an essential step in the production of ceramics ranging from traditional applications such as porcelain and whitewares to high-performance applications such as bearings, microwave devices, fuel cells, capacitors, dental implants, and transducers. Although it is one of our oldest manufacturing technologies, sintering has only been studied scientifically since the 1940s. The two basic processes which take place during sintering are densification and grain growth. High density is desirable to improve the mechanical, electrical, and optical properties of ceramics. Grain size has a strong effect on the mechanical, electronic, magnetic, and optical properties of ceramics. Therefore, the control of both processes is vital in order to produce ceramics with the desired properties.

This Special Issue will focus on sintering and grain growth behavior in ceramics, as well as on the relationship between microstructure and properties.



mdpi.com/si/21422

Special Issue



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Message from the Editor-in-Chief

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