Special Issue

Fabrication and Performance of Brazed Diamond Abrasive Tools

Message from the Guest Editors

Active brazing has been recognized as a promising fabrication method for diamond abrasive tools, because of the superior bonding strength formed through the interface reaction between bonding metals and diamond grits. Recently, attempts to reveal the bonding and wetting mechanisms of synthetic diamond abrasive at relatively low temperatures have provided a possibility to develop novel diamond grinding and cutting tools that are conventionally fabricated by sintering or electroplateing techqniues, i.e. dicing blades or diamond saws with fine grits size. This Special Issue aims to explore the latest progress with a focus on (1) bonding mechanisms of brazed synthetic diamond; (2) development of brazing methodologies and instruments for diamond abrasive tools; (3) evaluation of grinding performance of brazed diamond abrasive tools, especially the wear mechanisms of brazed diamond grits. Last but not least, the fabrication and characterization of diamond metal matrix composites for thermal management of modern electronic devices is also welcomed.

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Deadline for manuscript submissions

closed (30 April 2022)

Metals

an Open Access Journal by MDPI

Impact Factor 2.5
CiteScore 5.3

mdpi.com/si/85113

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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.

Editor-in-Chief

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