Special Issue

Reliability Aspects of Lead-Free Solder Alloys Used in Electronics

Message from the Guest Editor

Lead-free solder alloys are used in numerous electronic devices and systems and becoming more important in our everyday lives. In many fields, electronic devices need to operate in harsh environments, so not only the quality but the long-term reliability of the applied alloys is also critical. There is a strong need to investigate the temperature- and humidity-induced failure mechanisms in these alloys, such as electrochemical migration, corrosion, intermetallic formation, and microstructural changes, and their effects on alloy properties, which affect the life-time of electronic devices. It is also necessary to examine the possible surface-preservation methods of the applied material systems against the most frequent failure mechanisms (e.g., oxidation, dendrite, and whisker growth). This Special Issue is dedicated to disseminating the recent topics and the latest results on reliability in electronics. We invite colleagues to contribute to this Special Issue with works addressing the aforementioned topics and following keywords in the form of full papers, short communications, and reviews.

Guest Editor

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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.

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