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Localized Corrosion of Metals and Alloys

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Message from the Guest Editors

Localized corrosion is one of the most pervasive forms of attack impacting virtually all engineering metals and alloys that derive their resistance from the spontaneous development of a passive layer. Localized corrosion remains as a recurrent, costly, and difficult-to-detect phenomenon affecting a range of materials from the plenitude of stainless steels, to nickel-based alloys, and non-ferrous systems. Localized corrosion is a commonplace in diverse industry segments such as the resources, power, aerospace, water, maritime, and biomedical sectors.

The goal of this Special Issue is to present state-of-the-art research on passivity and localized corrosion phenomena, with emphasis on the interplay between microstructure and performance. Research linking localized and mechanically assisted corrosion is also encouraged. We welcome original research articles, theoretical and modeling studies, historical failure investigations, and review papers aimed at pushing the frontiers of corrosion science and engineering. Articles focused on issues affecting the oil and gas, mining, nuclear, defense, automotive, infrastructure, and biomedical industries are of particular interest.

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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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