

Special Issue

Microstructural Evolution, Corrosion, and Performance of Metallic Materials

Message from the Guest Editors

Recent advances in materials science and engineering are driving new demands on metallic materials used in aggressive environments, whether in energy, petrochemical, marine, or biomedical applications. This Special Issue of *Processes* invites contributions that advance understanding of the links between microstructure, phase transformations, and corrosion behaviour, and how these influence the long-term performance and integrity of metallic materials. We especially welcome original research and reviews on stainless steels (martensitic, duplex, superduplex, etc.), surface and subsurface modifications, residual stress and magnetic Barkhausen noise (MBN) analysis, electrochemical and environmental degradation, non-destructive inspection techniques, and modelling of corrosion–microstructure–property relationships. By integrating microstructural characterisation (EBSD, EDS, microscopy), phase transformation science and corrosion engineering, the aim is to highlight mechanisms, mitigation strategies and predictive tools for durable metallic systems. Submissions exploring novel alloys, coatings, inspection methods, and lifecycle assessment are strongly encouraged.

Guest Editors

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