Special Issue

Corrosion Control in Materials Engineering and Statistical Modeling

Message from the Guest Editor

This Special Issue invites high-quality contributions focused on advanced methods for corrosion control and materials degradation modeling in energy, marine, and aerospace applications. Emphasis is placed on novel metallic and non-metallic coatings, electrochemical characterization, and intelligent materials design to enhance durability and performance under harsh operating conditions. We also welcome studies incorporating statistical and data-driven modeling, including design of experiments (DoE), machine learning, and numerical simulations to predict corrosion behavior, optimize coating systems, and guide material selection. Topics of interest include but are not limited to:

- Corrosion-resistant coatings for PEM fuel cells and electrolyzers
- Degradation mechanisms of alloys and composites
- Electrochemical impedance and polarization modeling
- Predictive modeling of corrosion using statistical or machine learning tools
- Sustainable materials for hydrogen and electric propulsion systems
- Design and optimization of materials using DoE or response surface methods

Guest Editor

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Message from the Editor-in-Chief

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