Special Issue

Corrosion and Surface Modification of Metallic Materials

Message from the Guest Editor

Metallic materials are those materials most used on a daily basis and at the engineering level due to their versatility, resistance, and easy recyclability. One of the examples is steel, mainly used in various applications and environments to withstand extreme conditions such as weight support and temperature. Likewise, most industrial processes involve materials making contact with different types of fluids. This is how the parts exposed to the action of these fluids can present oxidation, thus rapidly reducing the usefulness of the pieces. Due to the relative movement of a corrosive fluid in contact with the metallic surface, the iron rust added to mechanical effects accelerates the corrosion rate of the metal. Additionally, if the fluid contains solids and suspended particles, the degradation effects on the material increase. As such, in recent years, advancements worldwide have made it possible to generate coatings that improve the properties of metals or maintain the integrity of the material under the effects of an aggressive medium that causes corrosion. This allows coatings to become the solution to this problem that impacts great economic losses worldwide.

Guest Editor

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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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