

Corrosion and Degradation of Materials

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The corrosion and degradation of materials, i.e., deteriorating materials via chemical/electro-chemical reactions with their surrounding environments, is extremely common and costly. The global cost of corrosion is estimated to be 3%–5% of the global gross domestic product (GDP), not including individual safety or environmental consequences. To reduce the corrosion cost and to avoid catastrophic corrosion consequences, abundant corrosion studies [1–23] have been performed and effective corrosion control practices [18–22] have been used to understand the corrosion fundamentals, to inspect the corrosion performance of structural components or materials, to evaluate the safety issues, to analyze and report the corrosion failure, and to develop advanced corrosion control techniques. This benefits the selection and design of the corrosion-resistant materials used in modern society, and their safety assessment. It can not only facilitate the development of new corrosion mechanisms of the materials in service, but can also improve the integrity and longevity of the materials and eventually decrease corrosion loss.

This Special Issue of *Coatings*, entitled “Corrosion and Degradation of Materials”, was intended to consolidate recent findings related to the corrosion and degradation of materials and to provide an opportunity for researchers to publish the latest results, reviews, methodology, and failure case reports to understand or solve material corrosion issues.

With the great efforts of the Guest Editor team, the enthusiastic support of the Editorial Board and the valuable contribution of the participants, this Special Issue has reached a milestone, successfully publishing 31 peer-reviewed papers. It covers a series of research areas ranging from the microstructure characterization of the studied materials which has a great impact on their corrosion performance [11,12], the corrosion behaviors and mechanisms of the structural or novel-designed materials in potential service environments [13–17], the development of new coatings acting as corrosion barriers to protect the materials [18–22], the corrosion model built to predict the corrosion progress of the material investigated [23], and other related areas [24–27].

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