

Special Issue

Metal Material Failure Analysis and Optimization

Message from the Guest Editors

Failure analysis not only uncovers the fundamental mechanisms behind failures but also provides essential data to support scientific material selection, process optimization, and service life prediction. Thus, it remains a focus of widespread interest in both academic and industrial communities. This Special Issue highlights recent advances and emerging trends in the field of metal material failure analysis, covering—but not limited to—the following key themes:

- Failure mechanisms and typical failure modes in metal materials, such as fatigue, fracture, corrosion, and wear;
- Common causative factors, including design, processing, and environmental elements;
- The role of advanced structural and microstructural characterization techniques in failure analysis;
- Failure prevention strategies and material performance enhancement informed by failure analysis;
- Application of computational materials science in failure analysis of metal components;
- Typical case analysis of metal component failure.

We welcome original research and review papers related to various metals and their alloys and failure analysis.

Guest Editors

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About the Journal

Message from the Editor-in-Chief

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.

Editor-in-Chief

Prof. Dr. Yong Zhang

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