

Special Issue

Durability and Reliability of Sustainable Materials: Mechanisms, Applications, and Future Directions

Message from the Guest Editors

This Special Issue addresses the durability and reliability of sustainable materials, from microstructural mechanisms to applications. It bridges materials science, engineering, and policy to promote resource efficiency, circular economy, and safe lifecycle design. We welcome original research, reviews, and perspectives on:

- Degradation and damage mechanisms of sustainable and recycled materials;
- Durability assessment, aging, and long-term performance in various application domains;
- Reliability analysis, failure prediction methods, and standardization efforts;
- Advanced monitoring techniques (e.g., acoustic emission, non-destructive testing, digital twins);
- Sustainable material design, lifecycle assessment, and environmental/socio-economic impacts;
- Data-driven approaches, artificial intelligence, and digitalization in durability prediction;
- Interdisciplinary and multiscale studies integrating materials science, engineering, and environmental/economic analysis;
- Policy, regulatory frameworks, and challenges for the adoption of sustainable materials;
- Visionary reviews outlining the significant challenges and future research directions.

Guest Editors

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About the Journal

Message from the Editor-in-Chief

I encourage you to contribute a research or comprehensive review article for consideration for publication in Sustainability, an international open access journal which provides an advanced forum for research findings in areas related to sustainability and sustainable development. The journal publishes original research articles, reviews, conference proceedings (peer reviewed full articles) and communications. I am confident you will find the journal contributes to enhancing understanding of sustainability and fostering initiatives and applications of sustainability-based measures and activities.

Editor-in-Chief

Prof. Dr. Steve W. Lyon

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