

Special Issue

Nondestructive Testing Methods for Metallic Material

Message from the Guest Editor

Structural safety is crucial in piping, bridge construction, and other industrial fields. Defects in metallic materials compromise performance, posing risks to structural health and safety. To prevent economic losses and ensure safety, effective nondestructive testing and evaluation (NDT&E) is essential. NDT inspects materials without impairing their performance, using physical and chemical principles to evaluate continuity, integrity, reliability, and physical properties. It detects defects, assessing their size, shape, orientation, and distribution. Even when no significant defects are found, NDT provides insights into material structure, stress states, and mechanical properties. Common NDT methods include ultrasonic, radiographic, magnetic particle, liquid penetrant, and eddy current testing. Ultrasonic and radiographic testing are especially effective for internal defects, with advanced techniques like ultrasonic C-scans, TOFD, phased arrays, and guided waves widely studied. NDT is evolving into nondestructive evaluation (NDE), which not only detects defects but also predicts material properties, performance, safety, and lifespan, offering comprehensive assessments.

Guest Editor

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About the Journal

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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