

Special Issue

Failure Mechanisms and Fatigue Life Prediction of Engineering Structures

Message from the Guest Editors

Fatigue caused by constant or time-varying cyclic loading represents one of the most important types of failures to which materials, structural components, and structures are subjected during service life that can finally result in a sudden and unexpected fracture.

Fatigue life prediction of materials and structural details can be modeled by deterministic and probabilistic analyses. Fatigue damage in metals generally initiates near the surface and spreads perpendicularly to the loading direction; this behavior is linked to cyclic plasticity and isotropic mechanical properties. On the other hand, composites with a polymer matrix exhibit orthotropic mechanical properties, favoring far more complex fatigue damage than in metallic materials, including matrix cracking, delamination, fiber rupture and failure occurring in a synergic, cumulative and random manner.

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Message from the Editor-in-Chief

Materials (ISSN 1996-1944) was launched in 2008. The journal covers twenty-five comprehensive topics: biomaterials, energy materials, advanced composites, advanced materials characterization, porous materials, manufacturing processes and systems, advanced nanomaterials and nanotechnology, smart materials, thin films and interfaces, catalytic materials, carbon materials, materials chemistry, materials physics, optics and photonics, corrosion, construction and building materials, materials simulation and design, electronic materials, advanced and functional ceramics and glasses, metals and alloys, soft matter, polymeric materials, quantum materials, mechanics of materials, green materials, general. *Materials* provides a unique opportunity to contribute high quality articles and to take advantage of its large readership.

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