

Special Issue

Physical Mechanism of Welding of Metallic Materials (2nd Edition)

Message from the Guest Editors

Welding is a process of interaction between a specific heat source and a specific material system, involving a series of complex thermal and mechanical phenomena, such as heat and mass transfer, fluid flow, electromagnetic action, melting, solidification, microstructure evolution, and plastic deformation. The deep understanding of the welding physical mechanism is helpful in optimising welding process, controlling welding quality, and improving welding efficiency. The application of new materials and technologies also continuously proposed new requirements for the new welding approaches, mechanisms, and technologies. This Special Issue aims to collect the recent discoveries in physical welding mechanisms, both from experimental characterisation and numerical modelling. Topics covered in this Special Issue include but are not limited to the following: new discoveries in traditional welding processes, physical mechanisms of novel welding processes, novel welding materials and structure design, state-of-the-art scientific developments in welding metallurgy, material weldability, and the evaluation of welding joints.

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Message from the Editor-in-Chief

Welcome to *Crystals*, the journal dedicated to the fascinating world of crystallographic research! Crystals are more than mere decorative elements; they hold the key to understanding the fundamental structure of matter. Our mission is to explore the crucial significance of this research across various fields. From medicine to technology, chemistry to geology, crystals play a vital role. Their structure provides insights into new advanced materials, innovative drugs, and groundbreaking technologies. Through *Crystals*, we delve into the microscopic world to discover solutions that will shape the future. Join us on a journey through the *Crystals*, where science merges with beauty and innovation.

Editor-in-Chief

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