



Microstructures and Properties of Martensitic Materials

Guest Editor:

Dr. Cyril Cayron

Swiss Federal Institute of
Technology EPFL, Lausanne,
Lausanne, Switzerland

Deadline for manuscript
submissions:

closed (15 November 2018)

Message from the Guest Editor

Martensite was evidenced in steels at the end of the 19th century. It is a particular complex microstructure made of isolated or intricate laths or plates built by the collective displacements of atoms during a diffusionless phase transformation. It can be observed in many materials, such as cobalt, titanium, zirconium, shape memory alloys, in some gold alloys, brasses and other copper alloys, and in some ceramics and polymers. Their extraordinary mechanical and physical properties, used in many industrial domains, explain why these materials have been extensively studied for the last century. The phenomenological theory, developed in the 1950s, filled a gap in our understanding regarding their crystallography, morphologies and mechanical properties, but many questions remain unsolved or prone to controversies. The way that atoms move, the correlation with phonon softening, the effect of chemical composition, the link with other types of microstructures (for example, Widmanstätten ferrite, bainite, or massive phases), and the role of the dislocations/disclinations, all these issues are still open to discussions and debates.





an Open Access Journal by MDPI

Editor-in-Chief

Prof. Dr. Alessandra Toncelli

Department of Physics, University
of Pisa, 56126 Pisa, Italy

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.

Author Benefits

Open Access: free for readers, with [article processing charges \(APC\)](#) paid by authors or their institutions.

High Visibility: indexed within [Scopus](#), [SCIE \(Web of Science\)](#), [Inspec](#), [CAPus / SciFinder](#), and [other databases](#).

Journal Rank: JCR - Q2 (*Crystallography*) / CiteScore - Q2 (*Condensed Matter Physics*)

Contact Us

Crystals Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland

Tel: +41 61 683 77 34
www.mdpi.com

mdpi.com/journal/crystals
crystals@mdpi.com
[X@Crystals_MDPI](#)