# Special Issue

# Electron Transport, Spintronics and Giant Magnetoresistance Effects in Low-Dimensional Materials

## Message from the Guest Editors

This Special Issue, entitled “Electron Transport, Spintronics and Giant Magnetoresistance Effects in Low-Dimensional Materials”, aims to put the spotlight on the latest research in electron transport, spintronic effects, as well as GMR in materials such as 2D layers, quantum dots, nanowires, and thin films. We encourage the submission of contributions that delve into theoretical models, experimental techniques, novel material synthesis, and cutting-edge device applications within this domain. We invite submissions of original research articles, review articles, and short communications focused, but not limited to:

Spin-dependent electron transport in low-dimensional materials;
Giant magnetoresistance (GMR) and tunneling magnetoresistance (TMR) effects;
Spin hall effect and Rashba effect in 2D materials;
Novel spintronic devices and their applications;
Quantum transport in topological insulators and superconductors;
Magnetic properties of low-dimensional systems;
Electron spin resonance (ESR) and related spin-based characterization techniques;
Spin injection, detection, and manipulation of nanostructures;
Surface carrier transport and molecular nanoprobe (MONA) techniques.

## Guest Editors

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## Deadline for manuscript submissions

20 August 2025

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# About the Journal

## 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

Prof. Dr. Alessandra Toncelli
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