

Special Issue

Electron Transport Mechanism in Optoelectronic Materials

Message from the Guest Editor

The functioning of optoelectronic devices as photovoltaic cells, photosensors and light-emitting diodes relies, not only on their coupling with the electromagnetic field but also on how efficiently charges move. Although equally crucial, the latter theme has been much less investigated than the first one due to the stronger theoretical and experimental complexity. Indeed, different processes as band transport and site hopping can be in place and spatial morphology becomes important. Phonons can mediate processes in a more critical way and impurities are pivotal. The aim of this special issue is helping to fill this gap. We encourage experimental and theoretical contributions focusing on electron and hole transport phenomena on the broad range of optoelectronic materials. We encourage also contributions addressing basic aspects of transport measurement and of its simulation including first-principles simulations. A non-exhaustive list includes 3D and 2D organometallic perovskites, organic polymers, nanostructured covalent semiconductors. We welcome also experimental and theoretical methodological advances.

Guest Editor

Dr. Paolo Umari

Department of Physics and Astronomy, University of Padova, Via F. Marzolo 8, 35131 Padua, Italy

Deadline for manuscript submissions

20 July 2026



International Journal of Molecular Sciences

an Open Access Journal
by MDPI

Impact Factor 4.9
CiteScore 9.0
Indexed in PubMed



mdpi.com/si/207197

*International Journal of
Molecular Sciences*
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
ijms@mdpi.com

[mdpi.com/journal/
ijms](https://mdpi.com/journal/ijms)





International Journal of Molecular Sciences

an Open Access Journal
by MDPI

Impact Factor 4.9
CiteScore 9.0
Indexed in PubMed



[mdpi.com/journal/
ijms](https://mdpi.com/journal/ijms)



About the Journal

Message from the Editor-in-Chief

The *International Journal of Molecular Sciences (IJMS)* is an open access journal, which was established in 2000. The journal aims to provide a forum for scholarly research on a range of topics, including biochemistry, molecular and cell biology, and molecular biophysics. *IJMS* publishes both original research and review articles, and regularly publishes special issues to highlight advances at the cutting edge of research. We invite you to read recent articles published in *IJMS* and consider publishing your next paper with us.

Editor-in-Chief

Prof. Dr. José L. Quiles
Department of Physiology, Institute of Nutrition and Food Technology
"Jose Mataix", Biomedical Research Center, University of Granada,
Avda. Conocimiento s/n, 18100 Armilla, Granada, Spain

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), PubMed, PMC, MEDLINE, Embase, CAPus / SciFinder, and other databases.

Journal Rank:

JCR - Q1 (Biochemistry and Molecular Biology) / CiteScore - Q1 (Organic Chemistry)