

## Special Issue

# Optomechanical Systems and Phononic Applications

### Message from the Guest Editor

The emerging field of high-frequency vibrations in bulk semiconductors and low-dimensional systems is rapidly growing in close connection to optomechanics, surface acoustic waves (SAWs), and phonons and their coupling to photons and charge carriers. The dynamic modulation of semiconductor structures by high-frequency mechanical waves can provide a powerful tool for the control of the material properties required for novel functionalities in nanophotonics, nanoelectronics, and quantum information processing. This Special Issue aims to address - but is not limited to - the experimental and theoretical/computational issues related to the characterization of mechanical waves and their possible interplay with other physical quantities, such as electromagnetic waves and charges, in a multiphysics framework. In particular, we welcome research articles as well as review articles on the significant recent progress of both computational methods and innovative experimental approaches.

- Optomechanical interaction
- Photonic cavities
- Phononic cavities
- Surface acoustic waves
- Phonon synchronization
- Phonon generation and detection
- Multiphysics analysis
- Photonic crystals

---

### Guest Editor

Dr. Davide Mencarelli

Dipartimento di Ingegneria dell'Informazione, Università politecnica delle Marche, Via Brecce Bianche, 1, 60131 Ancona, AN, Italy

---

### Deadline for manuscript submissions

closed (30 November 2021)



## Applied Sciences

---

an Open Access Journal  
by MDPI

---

Impact Factor 2.5  
CiteScore 5.3



[mdpi.com/si/61868](https://mdpi.com/si/61868)

*Applied Sciences*  
MDPI, Grosspeteranlage 5  
4052 Basel, Switzerland  
Tel: +41 61 683 77 34  
applsci@mdpi.com

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





# Applied Sciences

---

an Open Access Journal  
by MDPI

---

Impact Factor 2.5  
CiteScore 5.3



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



## About the Journal

### Message from the Editor-in-Chief

As the world of science becomes ever more specialized, researchers may lose themselves in the deep forest of the ever increasing number of subfields being created. This open access journal Applied Sciences has been started to link these subfields, so researchers can cut through the forest and see the surrounding, or quite distant fields and subfields to help develop his/her own research even further with the aid of this multi-dimensional network.

---

### Editor-in-Chief

Prof. Dr. Giulio Nicola Cerullo  
Dipartimento di Fisica, Politecnico di Milano, Piazza L. da Vinci 32,  
20133 Milano, Italy

---

### 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, CAPIus / SciFinder, and other databases.

#### Journal Rank:

JCR - Q1 (Engineering, Multidisciplinary) / CiteScore - Q1 (General Engineering)