Special Issue

Ultrafast Polaritonics

Message from the Guest Editor

Ultrafast polaritonics is a rapidly emerging field at the intersection of quantum optics, condensed matter physics, and ultrafast laser science. By hybridizing photons with matter excitations (excitons, phonons, plasmons, and magnons), polaritons offer a unique platform to explore coherent light–matter interactions. Understanding and controlling these hybrid states on their intrinsic femtosecond-to-picosecond timescales opens up transformative opportunities across quantum technologies, nanophotonics, and non-equilibrium physics. In this Special Issue, original research articles and reviews are welcome. Research areas may include (but are not limited to) the following: exciton-polariton condensation and superfluidity; phonon– and magnon–polariton dynamics; strong coupling in 2D and van der Waals materials; ultrafast pump–probe and THz spectroscopy of polaritons; coherent control and nonlinear polariton optics; vibrational strong coupling and cavity-modified chemistry; Floquet polaritonics; and polariton-based devices and neuromorphic computing. We look forward to receiving your contributions.

Guest Editor

Dr. Pavel Kolesnichenko
HPI, Potsdam, Germany

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Photonics
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
photonics@mdpi.com

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Message from the Editor-in-Chief

You are invited to contribute a research article or a comprehensive review for consideration and publication in *Photonics* (ISSN 2304-6732). *Photonics* is an online open access journal covering both the fundamental and applications of optics and photonics. *Photonics* strives to provide an avenue to allow authors to disseminate their scientific findings—both theoretical/ simulations and experimental works—in highly accessible peer-reviewed journal publications. The manuscript in *Photonics* will be handled with quick turnaround production processing time. We welcome authors to submit their manuscripts for publications in *Photonics*. Our goal in *Photonics* is to enable fast dissemination of high impact works to the scientific community.

Editor-in-Chief

Prof. Dr. Nelson Tansu
School of Electrical and Electronic Engineering (EEE), The University of Adelaide, Adelaide, SA 5005, Australia

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