1. Subject

Special Issue on Forefronts in Nonlinear Metasurfaces and Ultrafast Nanophotonics

2. Submission Deadline:

December 31 2024.

3. Illustration

This featured issue is cooperated with "MetaFUN2024" - Metasurface and Forefront in Ultrafast Nanophotonics workshop (23-26 July 2024, Parlermo IT) and journal Light: Science & Applications. It aims to highlight the most fascinating research works that has been at the core of the "MetaFUN2024" workshop gathering international experts on metasurfaces and ultrafast photonics.

4. Brief introduction of Metasurface and Forefront in Ultrafast Nanophotonics

Over the past decade, the concept of metasurfaces has captured significant attention within the optics community, presenting novel possibilities for creating optical components with unexpected functionalities. Such interfaces, composed by subwavelength-scale optical resonators strategically patterned to harness the scattering properties, represent a powerful tool to control various light properties, such as amplitude, phase, polarization, and light dispersion, particularly in the mid-infrared and optical wavelengths. The possibility to fine tune light degrees of freedom triggered the development of devices including holograms, polarimeters, cameras, lasers with customizable wavefronts, polarization-sensitive imaging tools, as well as nonlinear and quantum optical components with expanded capabilities.

More recently, the growing interest in temporal modulation of metadevices has brought into contact the fields of ultrafast photonics and metasurfaces, paving the way to new possibility to manipulate light in space and time with unprecedented versatility.

Within this framework, "MetaFUN" (Metasurface and Forefront in Ultrafast Nanophotonics) workshop aims at bringing together the academic community engaged in these two fields by exploring fundamental principles and technological applications of metasurfaces with an additional emphasis on uncovering new phenomena and advanced optical functionalities enabled by ultrafast dynamics.

5. The types of invited papers (Only by invited)

Research Article /Review/Perspective

6.Topics

The particular interest within the Featured Issue's scope include, but are not limited to, those listed below:

- Metasurface and reconfigurable metadevices
- Ultrafast Photonics at the nanoscale
- Metamaterials and Engineered Materials for Novel Wave Phenomena
- Nonlinear metamaterials and metasurfaces

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7. Guest Editors-in-Chief

- Professor **Costantino DE ANGELIS,** University of Brescia, Italy

Prof. Costantino De Angelis is Full Professor of Electromagnetic Fields and Photonics since 2004. He is the head of the NORA group at the University of Brescia (https://nora.unibs.it/home) and his current research interest includenonlinear optics, nanophotonics, and optical metamaterials.

- Professor **Giuseppe Leo**, Université de Paris, France

Prof. Giuseppe Leo is a full professor at Université de Paris (formerly Université Paris Diderot), where he has coordinated the Nonlinear Optical Devices group of MPQ Laboratory since 2006 (6 permanent research staff and ≈20 PhD/postdocs). OSA Fellow since 2019. His research domain is nonlinear nanophotonics, with a focus on semiconductor integrated optics, and presently my main interests are in nonlinear and quantum metasurfaces, and optical parametric generation in AlGaAs nanostructures.

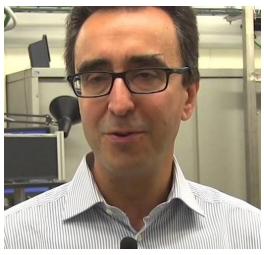
- Professor **Patrice Genevet**, Colorado School of Mines, USA

Prof. Patrice Genevet is a Professor of Physics at the Colorado School of Mines. He did five years as a research fellow (2009-2014) in the Capasso group (SEAS, Harvard University) in collaboration with Prof. M.O. Scully (Texas A&M University). His research interests fields mainly focus on Metasurfaces/Meta-Optics/Antennas/Metamaterials/Transformation optics.

- Professor **Arseniy Kuznetsov**, Institute of Materials Research and Engineering (IMRE), Singapore

Arseniy Kuznetsov is a Principal Scientist and Head of the Advanced Optical Technologies department at A*STAR ' s Institute of Materials Research and Engineering (IMRE). He was a research fellow at leading research institutes in Germany and Russia before joining A*STAR in 2011. His research interests include nanophotonics, flat optics, dielectric nanoantennas and nanotechnology.

- Professor **Giulio Cerullo**, Politecnico di Milano, Italy



Prof. Giulio Cerullo is a Full Professor at the Physics Department, Politecnico di Milano, where he leads the Ultrafast Optical Spectroscopy laboratory. His research activity focuses on the generation of tunable few-optical-cycle light pulses and on their application to the study of primary photoinduced processes in molecules, nanostructures and two-dimensional materials.

- Professor **Zhigang Chen**, Nankai University, China & San Francisco State University, USA

Prof. Zhigang Chen is a professor at San Francisco State University and also a specially-appointed professor at Nankai University, China. His research interests fields mainly focus on Nonlinear optics/topological photonics/beam shaping/optical manipulation/ photonic lattices.