

Special Issue on
Novel Phenomena and Applications of Complex Photonic Structures

CALL FOR PAPERS

Light matter interaction in complex photonic media is an extensively studied topic for both fundamental reasons as well as for practical applications ranging from sensing, biomedical imaging, energy harvesting, new light sources to lasers, and magnetic domain imaging. The complexity of the light matter interaction in complex media originates from the spatially varying refractive index profile of the photonic medium.

The refractive index profile in complex photonic media can be spatially uncorrelated for random media, periodic for metasurfaces and photonic crystals, stripe phases in magnetic materials and ferroelectrics, or a more complex anisotropic behavior due to topological defects and phase transitions in liquid crystals and complex transparent oxides. While random media are extensively studied for applications ranging from biomedical imaging, lasing to energy harvesting, periodic structures, such as metasurfaces, have made it possible to control light matter interactions in ways that were not possible before, thereby opening possibilities for numerous new applications.

In this special edition, our focus will be on the advances in the areas of controlling light matter interactions in complex media. Our definition of complex media encompasses photonic media ranging from randomly disordered structures, structures with correlated disorder, and structures admitting topological defects to periodic structures such as metasurfaces and photonic crystals. We are seeking submissions in the form of original research articles or review papers addressing recent advancements in the field of light matter interaction in complex media.

Potential topics include but are not limited to the following:

- ▶ Control and study of light transport through random media
- ▶ Employing adaptive wavefront shaping techniques for controlling light transport and for imaging applications in turbid media
- ▶ Photonic and sensing applications using correlated disordered structures
- ▶ Wavefront control, sensing, nonlinear optical effects, and novel optical phenomena using metasurfaces and metamaterials
- ▶ Photonic crystals
- ▶ Topological and non-reciprocal photonics
- ▶ Non-Hermitian optics and parity-time symmetric systems
- ▶ Phase-change materials for photonic applications
- ▶ New materials for tunable photonics
- ▶ Photonics with atomically thin materials
- ▶ Spatially resolved imaging of complex index of refraction
- ▶ Light optics coherent diffraction and microscopy for photonic applications

Authors can submit their manuscripts through the Manuscript Tracking System at <https://mts.hindawi.com/submit/journals/ijo/lmi/>.

Papers are published upon acceptance, regardless of the Special Issue publication date.

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Submission Deadline

Friday, 21 June 2019

Publication Date

November 2019