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# ***High Contrast Metastructures VII***

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*Editors*

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## Introduction

"High Contrast Metastructure" is an artificial optical material formed by a planar array of coupled-resonance structures, which are defined by high refractive index contrast boundaries that have dimensions comparable to the wavelength of interest. In recent years, researchers in the Photonics field have realized that this type of metastructure exhibits many extraordinary properties. For example, a single thin layer of high contrast grating or metasurface can provide very high reflectance or high focusing power, whereas traditional optical material may need orders of magnitude thicker material to achieve the same property. In addition, this type of metastructure may provide new properties such as broad spectral range, slow-light, etc. that traditional material does not have. Since this high contrast metastructure is distinguishable from other optical material research areas such as photonic crystal, nanostructure for quantization, metamaterials, etc., we established this topical conference within SPIE Photonics West eight years ago devoted to this new class of optical structure: high-contrast metastructure.

This conference is the seventh one focused on this theme. We are pleased to see the high participation with excitement and enthusiasm about this topic. The presentations include a wide range of exciting advances, ranging from new physics models, theoretical studies, and proposed new structures to device applications. A very large number of optical devices incorporating high-contrast metastructure/metasurfaces have been presented, including tunable VCSELs, ultra-thin optical lenses and optics, tunable reflectors/filters, integrated photonics including tunable delay-line waveguides, metasurface holographic imaging for ID security, filter and concentrator for solar cell, etc. The trend for future optics and optoelectronics devices is to have smaller size and volume, preferably in a thin, flat or planar format. The commercial industries for cell phones, vehicle automation, drones, etc. are certainly interested in this technology development.

We are grateful to all the attendees for making this conference successful. We would like to express our gratitude to all the authors for their invited and contributed papers. The primary ingredient for this technical conference to be successful is the quality of the work presented by the contributors and the igniting, thought-provoking discussions by the participants. We would like to thank all the committee members and session chairs for their dedicated work. We would like to acknowledge our SPIE coordinator and the support staff for their invaluable help.

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**Weimin Zhou**

