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Adaptive Optics and Wavefront Control for Biological Systems IV

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1 Wavefront Shaping Devices: Deformable Mirrors, Spatial Light Modulators
Thomas G. Bifano, Boston University (United States)

Introduction

High-resolution imaging of biological systems often requires adaptive optics and/or wavefront control to overcome the adverse impact of aberrations and scattering. Tools and techniques described in this conference series have catalyzed new capabilities in biological microscopy and biophotonic sensing, especially by improving resolution, imaging depth, or field of view. Applications enabled by new light-shaping technologies include deep tissue nonlinear microscopy, optical coherence tomography (OCT), retinal imaging, structured illumination imaging, endoscopy, and focusing light through dynamic diffusive media. The conference highlights emerging approaches to microscopy and endoscopy that are based on wavefront control, light shaping, time reversal, phase conjugation, adaptive optics, and transmission matrix optimization. It also serves as a forum for describing new developments and characteristics of deformable mirrors and wavefront controllers, and their use with new algorithms and techniques that can control or modify light transmission through or in complex media.

We would like to thank all of the authors who contributed to this conference.

Thomas G. Bifano
Joel Kubby
Silvain Gigan