

Subaperture-based Digital Aberration Correction for Optical Coherence Tomography

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Abstract

In this talk, we consider subaperture-based approaches for the digital aberration correction (DAC) of optical coherence tomography (OCT) images. In particular, we introduce a mathematical framework for describing this class of approaches, which results in a new understanding of the previously introduced subaperture-correlation method. Furthermore, based on the insight gained by this mathematical description, we present a novel DAC approach requiring only minimal statistical assumptions on the spectral phase of the scanned object. Finally, we demonstrate the applicability of our novel DAC method via numerical examples based on both simulated and experimental OCT data.