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Sub-wavelength custom reprogrammable active photonic platform for high-resolution beam shaping and holography

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Abstract

We provide insight into the operation and driving mechanism of an electro-optic spatial light modulator based on a Barium Titanate waveguide and an optically transparent electrode cladding layer. We employ electric field simulations, non-linear optics and techniques found in signal analysis to achieve sub-wavelength refractive index modulation of the waveguide. Our generic approach is applicable to Pockels and Kerr cells as well as liquid crystals and is capable of high-quality beam shaping and sensing. In this presentation, we focus on the operation of a reprogrammable Active Photonic Platform in the context of high-quality video holography.