

Solid-State Spatial Light Modulator



Overview

Here we present an all-solid-state, electrically tunable and reflective metasurface array that can generate a specific phase or a continuous sweep between 0 and 360° at an estimated rate of 5.4 MHz while independently adjusting the amplitude. Spatial light modulator (SLM) is a general term describing devices that are used to modulate amplitude, phase, or polarization of light waves in space and time. A simple example is an overhead projector transparency. The device operates by encoding spatial information in frequency bins via a broadband optical phase modulator, and decoding them via a first-of-its-kind, high-resolution 2D spectrometer. With the push towards miniaturization of optical components, static. The SPIE Digital Library offers a comprehensive collection of research articles, conference papers, and technical documents focused on spatial light modulators (SLMs), reflecting the breadth and depth of this rapidly evolving technology.



Article Content

All-solid-state spatial light modulator with independent phase and ...

Spatial light modulators are essential optical elements in applications that require the ability to regulate the amplitude, phase and polarization of light, such as digital holography, optical communications

Spatial light modulators

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All-solid-state spatial light modulator with independent phase and ...

By controlling two voltage gates separately from one another, a spatial light modulator has been made that can continuously vary the phase of 360 degrees while independently adjusting the amplitude.

A Route to Ultra-Fast Amplitude-Only Spatial Light Modulation using ...

The device, in principal, could operate as a fast, solid-state, non-volatile and energy efficient amplitude-only spatial light modulator. The device is designed with ease of fabrication in

All-solid-state spatial light modulator with independent phase and ...

Here we present an all-solid-state, electrically tunable and reflective metasurface array that can generate a specific phase or a continuous sweep between 0 and 360° at an estimated rate of 5.4 MHz while

All-solid-state spatial light modulator with independent

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A 10 Megahertz Spatial Light Modulator

Here we introduce a new class of spatial light modulator that provides both 2D pixel geometry and high speed. The device operates by encoding spatial information in frequency bins via a broadband

ITO-based spatial light modulators for potential integrations with

This all-solid-state spatial light modulator (SLM) modulates both the phase and amplitude of incoming light around the 1550 nm wavelength by utilizing an ITO layer and a periodic metallic

A low-voltage high-speed terahertz spatial light modulator using active ...

An all solid-state metamaterial based terahertz (THz) spatial light modulator (SLM) is presented which uses high mobility 2DEG to manipulate the metamaterial resonant frequency (0.45

Phase-only transmissive spatial light modulator based

Abstract Rapidly developing augmented reality, solid-state light detection and ranging (LIDAR), and holographic display technologies require

The Potential of Spatial Light Modulators (SLMs) in Advanced Optical ...

The Essence of Spatial Light Modulators At their core, SLMs are dynamic optical elements that manipulate light in a

Spatial light modulator

A spatial light modulator (SLM) is a device that can control the intensity, phase, or polarization of light in a spatially varying manner. A simple example is an overhead projector transparency. Usually when

Spatial Light Modulators

HOLOEYE's Spatial Light Modulator systems are based on translucent (LCD) or reflective (LCOS) liquid crystal microdisplays. The use of LC materials in SLMs

Novel Solid-State Spatial Light Modulator on Integrated Circuits for ...

Novel solid-state spatial light modulator (SLM) is developed. An electro-optic spatial ligNovel solid-state spatial light modulator (SLM) is developed. An electro-optic spatial light modulator (EOSLM) has

Mastering Spatial Light Modulators

Discover the principles, types, and applications of Spatial Light Modulators in optics, including their role in beam shaping and holography.

A review of liquid crystal spatial light modulators: devices and ...

<p>Spatial light modulators, as dynamic flat-panel optical devices, have witnessed rapid development over the past two decades, concomitant with the advancements in micro- and opto-electronic

Spatial Light Modulators

Our high-power SLMs are recommended for these applications. Thorlabs' Exulus® Spatial Light Modulators (SLMs) employ Liquid Crystal on Silicon (LCoS)

ITO-based spatial light modulators for potential ...

This all-solid-state spatial light modulator (SLM) modulates both the phase and amplitude of incoming light around the 1550 nm wavelength by utilizing an ITO layer and a periodic metallic grating ...

Nano-electromechanical spatial light modulator enabled by

Spatial light modulators (SLMs) play essential roles in various free-space optical technologies, offering spatio-temporal control of amplitude, phase, or polarization of light.

High performance electrically-derived single-pixel magnetophotonic ...

Abstract Spatial light modulators (SLMs) utilize components such as magnetophotonic crystals (MPCs) to alter specific characteristics of a light beam in space. In magneto-optical (MO)

All-solid-state spatial light modulator with independent

By controlling two voltage gates separately from one another, a

Electro-optic spatial light modulator from an engineered ...

Spatial light modulators (SLM) provide tailored light fields for many applications. Here, the authors present an SLM device based on an organic electro-optic material that manipulates the ...

High resolution multispectral spatial light modulators based ...

A spatial light modulator is demonstrated based on Fabry-Perot nanocavity resonances, enabling micrometer-sized pixels and efficient full phase control at multiple wavelengths

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For more information, pricing, or custom solutions, please contact us:

Website: <https://www.truhopeco.za>

Email: sales@truhopeco.za

Phone: +27 64 987 3021

Address: 22 Loop Street, Cape Town, 8001, South Africa

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