

Holography and Spatial Light Modulator

Overview

This paper aims to provide an overview of the applications of phase-only LCOS in two-dimensional (2D) holography. It begins with a brief introduction to the holography theory along with its development trajectory, followed by the fundamental operating principle of phase-only LCOS. Liquid crystal spatial light modulators (LC-SLMs) have gained substantial interest of the research fraternity due to their remarkable light modulation characteristics in modern imaging applications. Replacing the conventional optical elements from the SLM-based computer-generated holograms (CGHs). GitHub - holodyne/slmsuite: Python package for high-performance spatial light modulator (SLM) control and holography. Supports features from aberration-corrected 3D point clouds to automated Fourier-domain calibrations. · GitHub Add testing github ci/cd. Also check exceptions in tests; remove gpu. Our high-power SLMs are recommended for these applications.



Article Content

Jan 21, 2026

Highly integrated active Spatial Light Modulators – from imaging to ...

Highly integrated active spatial light modulators are explored for applications in imaging and holography, showcasing advancements

Apr 11, 2026

Towards high-resolution all-optical spatial light modulators

Spatial light modulators are currently used to shape wavefronts at micron scales for various applications such as lighting, beam

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High contrast holography through dual modulation

Dual modulation holography combines a low resolution amplitude spatial light modulator (SLM) with a phase SLM to

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High contrast holography through dual modulation

To form an image, holographic displays use a spatial light modulator (SLM), which shapes the incident beam into an

Sep 07, 2025

System Upgrade · Minimal

The website is undergoing a system upgrade and is currently unavailable.

Jun 01, 2026

Spatial Light Modulators

Spatial light modulator (SLM) is a general term describing devices that are used to modulate amplitude,

Oct 01, 2025

Reviving a Spatial Light Modulator for Digital Holography

Over the summer, I produced a Python code and PyQT GUI that could calculate and control digital holograms to be broadcast on the

Aug 01, 2025

Spatial Light Modulators and Their Applications in Polarization

Therefore, it is recommended to calibrate the modulation characteristics of SLMs prior to their implementation for imaging

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Large-area holographic display by depth-multiplexed spatial region ...

We propose a depth-multiplexed holographic display based on spatial region repositioning that expands the effective

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Evolution of spatial light modulator for high-definition

On the other hand, digital holography, which needs electrically addressed spatial light modulators (SLM) 2,

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Spatial Light Modulators and Their Applications in Polarization

Liquid crystal spatial light modulators (LC-SLMs) have gained substantial interest of the research fraternity due to their remarkable

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Spatial light modulator via optically addressed metasurface

A metasurface-based spatial light modulator brings the pixel size down to the submicrometre scale while

Jul 24, 2026

Reviving a Spatial Light Modulator for Digital Holography

Reviving a Spatial Light Modulator for Digital Holography Gisele Habibulla and Eric Jones; Laser Teaching Center; Department of

Jul 08, 2026

From Microchips to Holograms – the Perfect Light Modulation ...

These so-called spatial light modulators (SLM) are micromirror arrays with up to several million mirrors on a

Feb 02, 2026

Multiplane Holographic Imaging Using the Spatial Light Modulator

In recent years, spatial light modulators (SLMs) have gained popularity as programmable devices for dynamic optical

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Shane_BNS_SLM_for_holographic_photostimulation

Spatial light modulators (SLMs) have found widespread application due to their ability to modulate the amplitude and/or phase of

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Spatial light modulator | Description, Example & Application

Spatial light modulator (SLM) is a device that manipulates light spatially using an array of pixels. It has applications in

Aug 11, 2025

Spatial Light Modulator | Resolution, Speed & Applications

Explore how Spatial Light Modulators revolutionize optics with high-resolution, speedy

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spatial light modulator

A spatial light modulator (SLM) is a pixellated liquid crystal device that can individually control the phase value of each pixel. It

Jun 11, 2026

Spatial Light Modulation for Enhanced Holographic Data Processing

Incoherent digital holography with two polarization-sensitive phase-only spatial light modulators and reduced number

Mar 20, 2026

Compact Computational Holographic Display

The typical light modulation devices are spatial light modulators (SLMs) or digital micromirror devices (DMDs). The

Oct 18, 2025

High-Performance Spatial Light Modulator Control and Holography

slmsuite combines GPU-accelerated beamforming algorithms with optimized hardware control, automated calibration, and user

Mar 02, 2026

High Fidelity Spatial Light Modulator Configuration for ...

Spatial light modulators are capable of splitting a single laser beam into multiple points, and optogenetics leverages

Jul 30, 2025

Evolution of spatial light modulator for high-definition digital holography

The desired linear phase modulation characteristic can be obtained by the sophisticated tuning of the input voltage values with

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Spatial Light Modulators

These high-power spatial light modulators have input ports compatible with HDMI* connectors and ship

May 09, 2026

LCOS Spatial Light Modulator for Digital Holography

Abstract—Liquid crystal on silicon (LCOS) spatial light modulator (SLM) is the most widely used optical engine for digital holography.

Apr 17, 2026

[Press Release] Development of High Density Spatial Light Modulator ...

In this work, STRL developed the world's smallest magneto-optic spatial light modulator (MOSLM) *1 and realized a

Apr 19, 2026

Spatial Light Modulators and Their Applications in Polarization Holography

1. Introduction Spatial light modulators (SLMs) are electro-optical devices, pertaining to manipulating the fundamental

Oct 13, 2025

Subwavelength Spatial Light Modulator powering the Next ...

Computer-Generated Holography (CGH) is an emerging display technology that offers unique capabilities, such as

Oct 01, 2025

Optimized dual spatial light modulators holographic display based on ...

The spatial light modulator (SLM) is a crucial optical device in computational holography, normally employing the

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