

The role of fiber optic arrays under a microscope



Overview

A fiber optic array (FOA) can be used as an alternative or a supplement to the lens in a microscope due to its large magnification, high coupling efficiency and extremely low distortion. Based on our previous research, this paper first demonstrated the resolution and field-of-view (FOV) of the. Optical fiber arrays provide a powerful substrate for creating high-density sensing systems that can address a variety of biological problems.



The role of fiber optic arrays under a microscope



High resolution, as a core feature of compact microscopes, holds irreplaceable value in point-of-care testing (POCT) and the prevention and management of various infectious diseases. However, a ...



A fiber optic array (FOA) can be used as an alternative or a supplement to the lens in a microscope due to its large magnification, high coupling efficiency and extremely low distortion.



However, this type of microscope is limited by the relative long working distance, large chromatic aberration and complex structure. As an alternative to the lens, fiber optic array (FOA) can ...



Here, we report a scalable new optical fiber array approach using small-diameter fibers capable of measuring and manipulating robust signals from ...



To resolve this issue, we have developed a novel method using optical fiber bundles of various lengths to confine the diffraction of propagating light waves and to create a time multiplexing...



A portable high-resolution microscope based on combination of fiber-optic array (FOA) and pre-amplification lens, which can overcome the magnification limit of FOA, was developed.



Here, we report a scalable new optical fiber array approach using small-diameter fibers capable of measuring and manipulating robust signals from multiple fluorescent sensors at over 100 ...



The goal in this thesis is to study the method to improve the optical performance such as resolution and field of view etc. in a fiber bundle micro-endoscope. The approaches are physically reshaped the tip ...



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Optical fiber arrays provide a number of advantages for array fabrication and biosensing: (i) they are readily available; (ii) they contain a high-density of features; and (iii) they can be configured to ...



Schematic of a fiber photometry system, in the typical configuration used for monitoring neuronal activity via fluorescence.

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