Beam Shape in Multimode Fibers

The numerical results validate our approach of utilizing highly multimode excitation to mitigate nonlinear effects in high-power fiber amplifiers and performing input wavefront shaping to ...

We validated these models by successfully achieving 3D beam shaping through a highly multimode fiber and examined their inference capability, specially their capability to produce target ...

In this paper, we propose a new method for learning the complex transmission matrix of a multimode fiber from a set of speckled output patterns without interferometric setup.

In some applications, an alternative beam distribution such as a top hat or donut is desired instead of the inherent Gaussian distribution provided by typical optics. Here we investigated the effect of changing ...

The text also covers the evolution of beam profiles during propagation and discusses key limitations of multimode beams, such as their poor beam quality (high M2 ...

In this work, a weak light beam propagating along a multimode fibre has its shape modified by a high-power co-propagating guided beam at a different wavelength.

Here, we demonstrate the ability to use a standard multimode fiber patch cable as a relatively inexpensive method to modify the input Gaussian profile into a top hat and donut profile with minimal ...

The text also covers the evolution of beam profiles during propagation and discusses key limitations of multimode beams, such as their poor beam quality (high M2 factor) and incompatibility with single ...

We propose an approach to shape light beams through multi-mode multi-core fiber using the optical transmission matrix. Complex beam shaping through a 50-mode, 7-core fiber, including fiber modes ...

The beam profile exiting a multimode fiber is strongly dependent on how the light interacts within the fiber and is often very different from that of a single-mode fiber - it might even change with time and ...

In this paper, we propose a new method for learning the complex transmission matrix of a multimode fiber from a set of speckled output patterns ...

In this work, we propose an effective strategy to directly generate ultrafast flat-top beams with an all-fiber multimode laser without additional beam shaping.

Control over the light beams in complex spatiotemporal multi-mode systems is no easy task. Current methods

such as OAM or machine learning in imaging or non-linear beam shaping with ultrashort ...

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