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Huijue Multimode Spectrometer

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High-resolution optical spectroscopy using multimode

Multimode interference spectroscopy is suitable in a variety of device geometries, including planar waveguides in a broad range of transparent materials.

Single-Pixel Multimode Fiber Spectrometer via Wavefront Shaping

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Applications of multimode fibers for spectroscopy and polarization control

A multimode fiber spectrometer is developed with ultrahigh resolution and extreme broad bandwidth. Shaping the input wavefront enables an effective control of output polarization states of a multimode

Multimode fiber based spectrometer

A multi-mode fiber functions as a high-resolution, low-loss spectrometer. Wavelength-dependent speckle patterns are used for spectrum recovery. Record-high resolution and extremely broad range of

Broadband multimode fiber spectrometer

A general-purpose all-fiber spectrometer is demonstrated to overcome the trade-off between spectral resolution and bandwidth. By integrating a wavelength division multiplexer with five

On-chip Imaging Spectrometer using Multi-mode Interference

A novel on-chip spectrometer based on top-down imaging of a multi-mode interference waveguide is introduced. Accurate wavelength identification with 0.5 nm resolution is demonstrated using a

Compact silicon multimode waveguide spectrometer with enhanced

Abstract Compact, broadband, and high-resolution spectrometers are appealing for sensing applications, but difficult to fabricate. Here we show using calibration data a spectrometer based on a

High-resolution optical spectroscopy using multimode

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TFMMI_140723 - arXiv

Figure 1 Figures of merit of several compact spectrometers employing detector arrays, including the tapered fiber multimode interference (TFMMI) spectrometer that is described in this work.

[1602.06278] Broadband multimode fiber spectrometer

A general-purpose all-fiber spectrometer is demonstrated to overcome the trade-off between spectral resolution and bandwidth. By integrating a wavelength division multiplexer with five

Compact Spectrometer Based on a Multimode Silicon Waveguide Device

A highly compact spectroscopic measurement schem is proposed based on a fabricated on-chip silicon device that consists of a multimode interference waveguide containing randomly distributed

Multimode optical fiber based spectrometers

Furthermore, the fiber-based spectrometer requires only a multimode fiber and a monochrome CCD camera to record the speckle patterns. Compared to traditional spectrometers, optical fibers are

Multimode fiber spectrometer with scalable bandwidth

Multimodefiber(MMF)spectrometerssufferfromtheresolution-bandwidthtrade-offdue to the limited spatial speckle information used for spectral

Broadband and Ultrahigh Resolution Spectrometer Based on a

The invention is a monolithic, compact spectrometer based on multimode interference (MMI) and can simultaneously achieve high resolving power and bandwidth in a simple-to-couple and compact device.

10.1117/2.1201403.005414 Multimodefiberforlow-lossand high

Multimode fiber for low-loss and high-resolution spectrometry Brandon Redding and Hui Cao Calibrating wavelength-dependent speckle patterns enables a multi-mode optical fiber to function as a

Mode division multiplexing reconstructive spectrometer with an all

AbstractThisstudypresentsahigh-accuracy,all-fibermodedivisionmultiplexing(MDM) reconstructivespectrometer(RS).TheMDMwasachievedbyutilizingacustom-designed 3 × 1 mode-selective

Using a multimode fiber as a compact, high-resolution spectrometer

We demonstrate that a multi-mode fiber can operate as a high-resolution spectrometer after calibrating wavelength-dependent speckle patterns. A 100m fiber provides 1pm resolution and a 4cm fiber

Compact silicon multimode waveguide spectrometer with enhanced

Compact, broadband, and high-resolution spectrometers are appealing for sensing applications, but difficult to fabricate. Here we show using calibration data a spectrometer based on a

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Multi-mode interference waveguide chip-scale

MMI spectrometer. (a) Schematic overview of the approach. A continuous or discrete

spectral signal is coupled into a chip with a multi-mode

Design Study of Broadband and Ultrahigh-Resolution

A compact broadband and ultrahigh-resolution imaging spectrometer (CBURIS) is presented, which comprises a microlens array, multiple fiber

Single-Pixel Multimode Fiber Spectrometer via Wavefront Shaping

When light passes through a multimode fiber, two-dimensional random intensity patterns are formed due to the complex interference within the fiber. The extreme sensitivity of speckle

High-resolution optical spectroscopy using multimode interference in a

Herewe introduce a compact spectrometer based on multimode inter-ference (MMI) that simultaneously achieves high resolving power of R4104 (R4105) in the visible (near-infrared) spectrum, and

Using a multimode fiber as a high resolution, low loss spectrometer

These spectrometers, however, afford only modest spectral resolution, while suffering high insertion loss and/or low signal to noise ratio (SNR). In this letter, we demonstrate that a conventional multimode

High-resolution optical spectroscopy using multimode

While desirable for compact solutions, the miniaturization of spectrometers comes at the cost of spectral resolution and operating range. Here, Wan et al. propose a tapered fibre multimode

Single-Pixel Multimode Fiber Spectrometer via

Single-Pixel Multimode Fib er Spectrometer via W av efront Shaping S ¸ ahin K¨ urek ci *1, 2, S. S ¨ uleyman Kahraman 1, 3, and Emre Y ¨ uce 1, 2

AI-assisted spectrometer based on multi-mode optical fiber speckle

Speckle patterns at the output end of a multi-mode fiber (MMF) are generated by the interference of eigenmodes propagating along the fiber. A MMF can

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