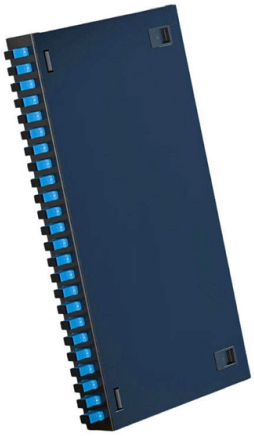
# Fiber Optic Liquid Crystal Temperature Sensor



## Overview

In this study, a temperature sensor with a wide measurement range, high sensitivity, and simple fabrication process was proposed by directly integrating polymerizable cholesteric liquid crystal (CLC) films onto the end face of optical fibers. A wideband. Here, we propose a CLC device fabricated by vertically forming the helical axis of the CLC between the cross-sections of two optical fiber ferrules. Due to the periodic structure of CLC, it can function as a resonant microcavity and generate laser light under the gain of the. Chenlu Wang a,b,c, Perry Ping Shum a, b*, Dora Juan Juan Huc* Zhilin Xud, Shuhui Liue, Yongwei Zhuc Yu Zheng a, b, Baocheng Li a, b, Chen Yang f,g, Weijun Tongf,g, Yue Mengf,g, Georges Humberth a CINTRA CNRS/NTU/THALES, UMI 3288, 639798, Singapore; b School of Electrical and Electronic Engineering.

## Article Content

A compact, highly sensitive optical fiber temperature sensor based on

In this study, a temperature sensor with a wide measurement range, high sensitivity, and simple fabrication process was proposed by directly integrating polymerizable cholesteric liquid crystal

High-sensitive and linear temperature sensor based on liquid-filled ...

Abstract This study introduces a temperature sensor based on solid-core photonic crystal fiber that exhibits insensitivity to polarization. The coupling condition between the core and defect modes is

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Nematic Liquid Crystal-Embedded Optical Fiber Cryogenic

Abstract: Accurate cryogenic temperature sensing is critical for superconductivity, space technology, and low-temperature biomedicine. We present a high-sensitivity fiber-optic cryogenic

Fiber-Optic Temperature Sensor Using Cholesteric

Here, we propose a CLC device fabricated by vertically forming the helical axis of the CLC between the cross-sections of two optical fiber ferrules.

(PDF) Fiber-Optic Temperature Sensor Using

Here, we propose a CLC device fabricated by vertically forming the helical axis of the CLC between the cross-sections of two optical fiber ferrules.

Fiber-Optic Temperature Sensor Using Cholesteric Liquid Crystals on

Here, we propose a CLC device fabricated by vertically forming the helical axis of the CLC between the cross-sections of two optical fiber ferrules. An optical fiber temperature sensor was successfully

Liquid crystal-embedded fiber optic fabry perot temperature sensor ...

A miniature LC temperature sensor was made by using an optical fiber Fabry-Perot interferometer (FPI). To compensate for and attenuation of LC and improve the contrast of the FPI, silver films are coated

High-sensitivity miniature fiber-optic temperature probe

This paper presents a method for cholesteric liquid crystal (CLC)-filled miniature optical fiber liquid crystal probes to achieve highly sensitive temperature detection.

Temperature sensor based on selective liquid-filled twin-core

In this letter, we proposed an ultra-sensitive temperature sensor based on RIMO infiltration into the central airhole of the TCPCF. The central liquid-filled waveguide acted as a bridge, leading to

DTSX3000 Distributed Temperature Sensor

What Is Distributed Temperature Sensing? Distributed temperature sensing (DTS) measures temperature distribution over the length of an optical fiber cable using

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Sensors and Transducers

Analogue and Digital Sensors and Transducers Analogue Sensors Analogue Sensors produce a continuous output signal or voltage which is generally

Liquid crystal-embedded fiber optic fabry perot temperature sensor ...

An optical temperature sensing method with ultra-high sensitivity and a wide measurement range is proposed. The performance enhancements come from the high thermos

Highly sensitive temperature sensor based on a liquid crystal ...

This article proposes a temperature sensor based on liquid crystal selectively filled two-core photonic crystal fiber featuring high sensitivity and c

Liquid Crystal-Embedded Hollow Core Fiber

An optical fiber temperature sensor based on Mach–Zehnder interferometer and thermo-optic effect of the liquid crystal (LC) in fiber ring laser

Fiber-Optic Temperature Sensor Using Cholesteric

Cholesteric liquid crystals (CLCs) can be applied to various physical and chemical sensors because their alignment structures are changed by

Highly Sensitive Miniature Optical Fiber Liquid Crystal Sensor for ...

Cholesteric liquid crystals (CLCs), due to their structural rearrangement under external stimulation, offer the potential for various physical and chemical sensing applications. Herein, we propose and

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