

基于Fabry—Perot腔阵列光谱传感器的集成化研究

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摘要：

本文提出了一种微型集成化光谱传感器，其结构包括不同腔长的Fabry—perot腔阵列，光电探测器阵列、读出电路几部分。一个光谱探测单元包括一个Fabry—perot腔和其下的光电探测器，各Fabry—perot腔腔长的不同，可实现对不同波长的检测。该光谱传感器无可动部件，结构性能稳定，用CMOS工艺和MEMS工艺实现体集成，制作体积为mm量级。文章中将详细阐述该传感器的各部分结构设计和工艺实现等问题。

关键词：MEMS、Fabry—perot腔、光电探测器、读出电路

Study on Integrated spectral sensor based on Fabry-Perot-type cavity array

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Abstract:

This paper introduces a micro-integrated spectral sensor which is composed of an array of Fabry-perot cavity with different length, a photoelectric detector array, ROIC and so on. Each spectral detection unit consists of a Fabry-perot cavity and a photoelectric detector locating below the cavity. With different length of the Fabry-perot cavity spectral sensor can detect different wavelength. Meanwhile, its structure is stable because of no moving components in it. The spectral sensor is integrated by the CMOS technology and the MEMS technology with a total volume of just several mm. In this paper, the structural designing and technology realization will be introduced in great detail.

Keywords: MEMS, Fabry-perot cavity, photoelectric detector, ROIC

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