级联长周期光纤光栅氢气传感器

作　者：黎启胜, 张毅, 庄志, 张敏, 杨振

单　位：中国工程物理研究院总体工程研究所

基金项目：

摘　要：

为了监测某些特殊研究领域内狭小密闭空间里的氢气气氛，以防止氢气泄漏对产品和人员产生危害，研究了一种表面镀钯银合金（Pd-Ag）膜的级联长周期光纤光栅氢气传感器。本文简要介绍了检测原理，通过初步实验获得不同氢气浓度下的透射光谱，分析了对应的干涉条纹对比度变化规律，实验结果表明设计的传感器对氢气浓度具有明显的响应特性可以用于监测氢气。

关键词：气体测量；氢气传感器；级联长周期光纤光栅；钯银合金膜；干涉条纹的对比度

Cascaded Long Period Gratings Hydrogen Gas Sensor

Author's Name:

Institution:

Abstract:

In order to monitor hydrogen gas in narrow and airtight space in some especial research fields, a hydrogen gas sensor based on cascaded long period grating with pd-Ag film is developed to prevent hydrogen leakage endangering the safety of product and person. The operation principle is introduced simply in this paper. The transmission spectrums under different hydrogen concentrations are measured and a variation rule of fringe intensity contrast is discussed by preliminary experiment. This designed sensor can be used to monitor the hydrogen concentration with a distinct response, which is testified by the experimental data.

Keywords: Gas measurement;Hydrogen gas sensor;Cascaded long period gratings;Pd-Ag film;Fringe intensity contrast

投稿时间：**2012-10-08**

查看pdf文件