基于**FMCW**技术的光纤光栅振动解调系统

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摘　要：

基于FMCW技术及2×2、3×3耦合器的原理，设计了一种光纤光栅振动解调系统.对系统复用特性进行了理论分析，并通过仿真实验分析了传感光栅位置系数 、调制频率的最大值 、压控振荡器的控制参量 对系统复用特性的影响，同时构建了相应的系统，对所设计的系统进行了实验验证。

关键词：连续波调频技术；波长解调；光纤光栅 ；分布式系统

DESIGN OF FBG VIBRATION DEMODULATION SYSTEM BASED ON FMCW AND MULTIPLEXING CHARACTERISTICS ANALYSIS

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Abstract:

In this paper，a FBG vibration demodulation system based on the FMCW and the principle of 2×2、3×3 coupiers have been designed。The theoretical analysis of the multiplexing characteristics system has also been carried out. The influence of the sensing grating position factor 、the max of modulation frequency and the control parameters of VCO on multiplexing characteristics was analysed through the simulation experiment。A corresponding system was built to validate the designed system same time.

Keywords: FMCW；Wavelength demodulation；Fiber Bragg Grating；Distributed Systems