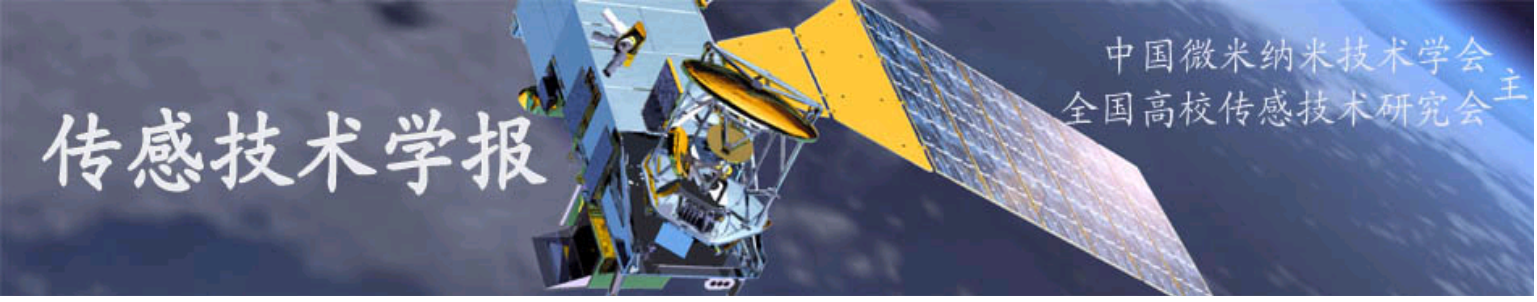

LabVIEW实现光纤光栅传感解调

作　者：沈小燕，林玉池，付鲁华，王为

单　位：天津大学精密测试技术及仪器国家重点实验室，天津，300072

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摘　要：

结合虚拟仪器技术和光纤光栅传感技术,自行设计了一套光纤光栅传感解调系统。系统采用匹配解调法实现波长编码传感信号的解调，匹配光栅由压电陶瓷驱动压电陶瓷上施加了正弦电压，从而传感信息转换为解调信号在一个正弦周期内相邻两波谷之间的时间间隔。LabVIEW解调程序是解调系统的关键部分，实现数集控制，解调信号提取，过程运算和结果显示。通过线性标定实验得到系统的传感特性，系统用于应变测量，应变分辨力为1 。

关键词：FBG传感系统，匹配光栅， LabVIEW，应变传感，线性标定

A New FBG Demodulation System Based On LabVIEW

Author's Name: SHEN Xiao-yan, LIN Yu-chi，FU Lu-hua, Wang Wei

Institution: State Key Laboratory of Precision Measuring Technology and Instruments, Tianjin University, Tianjin 300072, China

Abstract:

A new FBG demodulation system based on LabVIEW and the technology of fiber Bragg grating sensing is designed. The wavelength-coded information is demodulated matched FBG controlled by PZT which is put on a sine-wave voltage, and so the sensing information can be known from the time-interval between two wave valleys of tl demodulating signal in a sine-signal period. LabVIEW demodulating program which is the most important part in this system can control data acquisition, extract and calculate the sensing signal , display the demodulation result of the sensing signal. From linear calibration, the characteristics of the system are obtained when applied to strain sensing, with the resolution of 1 . Key words：FBG sensing system, matched FBG, LabVIEW, strain sensing, linear calibration

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