

[本期目录](#) | [下期目录](#) | [过刊浏览](#) | [高级检索](#)[\[打印本页\]](#) | [\[关闭\]](#)**论文****基于动态多段温度标定的分布式光纤Raman测温系统**

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摘要:

温度标定是分布式光纤喇曼测温系统重要组成部分.本文设计了一种基于半导体制冷模块的多温度参考标定装置,采用了新颖的动态多段光纤温度标定方法,并通过实验验证了该标定方案的可行性与准确性.结果表明,随着外界环境温度的变化,传感光纤所处任一处的温度都能够精确解调,其温度解调结果更加准确,测量误差小于1 °C.系统性能更加稳定,更能够适应复杂的环境变化.

关键词: 分布式测温 喇曼散射 动态标定 温度解调**Distributed Optical Fiber Raman Temperature Measurement System Based on the Dynamic Multi-section Temperature Calibration****JIN Zhong-xie,CUI Hai-jun,NING Feng,LI Xiao-qin,ZHU Yong**

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Abstract:

A new temperature calibration equipment is designed based on the thermoelectric cooler module, and a novel temperature calibration method using dynamic multi-section optical fiber is applied and its feasibility and accuracy are verified by experiments. With the changing of external temperature, the temperature at any point along the optical fiber can be sensed and demodulated accurately. This temperature demodulation method is accurater, more stable and suitable for the applications under the complex practical environment. The error of the multistage temperature calibration is less than 1 °C.

Keywords: Distributed temperature measurement Raman scattering Dynamic calibration Temperature demodulation

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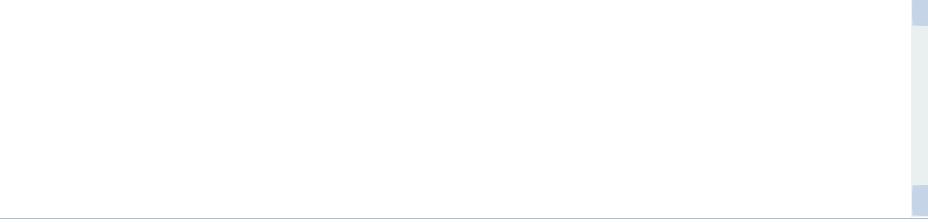
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