应用光学 2009, 30(5) 827-830 DOI: ISSN: 1002-2082 CN: 61-1171/O4

论文

光纤陀螺在转台测试中的应用

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摘要：

光纤陀螺是一种速率陀螺，其适合用来对转台作低速测试。根据转台所用编码器的参数，分析了转台不同角速率下光纤陀螺所需的数据刷新率及陀螺零偏稳定性对测量结果的影响。用光纤陀螺测量了转台以1°/s角速率转动时的角速率波动，对陀螺输出数据作了功率谱分析，并与示波器直接测量的结果进行了对比，结果表明光纤陀螺的测量结果是正确的；应用光纤陀螺对转台以(0.05°/s，1°/s)范围内固定角速率转动时的角速率波动进行了测量，通过对测量结果的分析表明：光纤陀螺可以用于转台的测试，它能测量出转台低速转动时的角速率波动；最后给出了光纤陀螺对转台角速率测试的下限。

关键词： 光纤陀螺；转台测试；低转速

Application of FOG in table test

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Abstract:

Fiber optic gyroscope (FOG) is a rate gyro suitable for table test at low angular rate. Based on the parameter of table's encoder, the data updating rate requirements of FOG at different angular rates and the influence of FOG's bias stability on measurement were analyzed. The table was tested at angular rate of 1°/s by FOG. The frequency spectrum of the FOG output was analyzed and compared with oscilloscope measurement. The result showed the measurement of FOG was correct. The table was tested at angular rates between 0.05°/s and 1°/s by FOG. The test results show that FOG can be used for table test, and the angular rate fluctuation of table test at low angular rate can be measured by FOG. And the minimum angular rate of the test was given.

Keywords: fiber optic gyroscope rotation table testing low angular rate

收稿日期 修回日期 网络版发布日期

DOI:

基金项目:

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