

激光物理与激光器件

飞秒激光脉冲宽度测量研究

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摘要:

为了快速准确地测量飞秒激光脉冲宽度,采用二阶自相关方法,设计了用于测量飞秒激光脉冲宽度的测量系统。结果表明,通过自主设计的系统测得800nm种子激光脉冲宽度为217.6fs,而利用Coherent公司生产的单脉冲自相关仪测得脉冲宽度为199.51fs,两者误差仅为0.43%。由此可见,自主设计的测试系统可以对飞秒激光脉冲宽度进行准确测量。

关键词: 测量与计量 飞秒激光 脉冲宽度 二阶自相关 倍频晶体

Study on measurement of femtosecond laser pulse width

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Abstract:

To measure the pulse width of femtosecond laser rapidly and accurately, a measurement system was designed based on the second order autocorrelation principle. The results show that pulse width of the seed laser at 800nm was 199.51fs tested by the independently designed measurement system and was 217.6fs tested by the single pulse autocorrelation instrument of Coherent company. The error is only 0.43%. The results proved that this independent measurement system can test the femtosecond pulse width precisely.

Keywords: measurement and metrology femtosecond lasers pulses width second order autocorrelation double-frequency crystal

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