

计量测试

## 量热式激光能量计热损失系数测定方法的研究

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**摘要** 在长脉冲激光照射下, 由于热损失的影响, 致使传统数据处理方法所得到的量热式激光能量与实际激光能量有较大的差距。以能量计探头在激光照射下的温度变化分布为实验模型, 考虑热辐射和热传导等因素, 提出一种表征能量计热损失程度的热损失系数的测定方法, 并用实验验证了该测定方法的正确性。所得的热损失系数可作为评价量热式激光能量计性能的一个重要参数。

**关键词** [量热式激光能量计](#) [热损失系数](#) [测定方法](#)

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## Measurement method of thermal loss coefficient of calorimetric laser energy meter

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**Abstract** With the illumination of the long pulse laser, the calorimetric laser energy obtained by the traditional data processing differs significantly from the actual laser energy due to the thermal loss. To solve this problem, the mathematic model of temperature distribution of the energy probe under laser illumination was established. Taking heat conduction and radiation into consideration, a measurement method of the thermal loss coefficient for characterizing the extent of thermal loss of the laser energy meter is proposed. The validity of the measurement method was verified by experiments. The obtained thermal loss coefficient can also be taken as an important parameter to evaluate the calorimetric laser energy meter.

**Key words** [calorimetric laser energy meter](#) [thermal loss coefficient](#) [method of energy measurement](#)

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