激光技术

被动调Q激光器输出特性的实验研究

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摘要 被动调Q晶体Cr:YAG对激光器的性能起着重要的作用。对Cr:YAG被动调Q Nd:YAG激光器进行了实验研究。着重研究了抽运功率、腔长、输出镜透过率以及初始透过率等因素对激光输出脉冲序列的重复率、脉冲宽度以及输出功率的影响。实验结果表明,抽运功率是影响重复率的最大因素,抽运功率的增大可以提高重复率,

并减小脉冲宽度;它对腔长的影响效果刚好相反;存在一个可使输出功率最大的最佳输出镜透过率;不同的初始透过率对输出有一定的影响。分析表明被动调Q技术适用于DPL。

关键词 激光技术 被动调Q 重复率 Cr:YAG 最佳输出镜透过率

分类号

Experimental study on output characteristics of passively Q switched laser

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Abstract The experimental study on Nd: YAG laser passively Q switched by Cr: YAG is carried out. The focus is given to the influence of pumping power, cavity length, the output coupler transmission and initial transmission on the repetition rate, pulse width and output power of laser output. The experiment results were analyzed and discussed. It can be observed from the curve that an increase of pumping power results in an increase of repetition rate and decrease of pulse width, but the impact of cavity length is on the contrary side. There is an optimized output coupler transmission which can maximize the output power. Different initial transmittances have certain effects on the output. The analyses show that the passive Q switching technology is applicable to DPI.

Key words laser technology passive Q switching repetition rate Cr: YAG optimized output coupler transmission

DOI:

扩展功能

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