

论文

高重复频率、单模纳秒脉冲全光纤激光器

高存孝

中国科学院西安光学精密机械研究所

摘要:

报道了一种基于主振荡放大技术的全光纤脉冲激光器。种子激光器使用直接调制的单纵模半导体激光器,其输出波长为1 063.8 nm,重复频率100 kHz~10 MHz连续可调谐,光纤放大器采用了多级放大器级联的方法。在重复频率100 kHz、脉冲宽度5 ns时,激光器获得了平均功率为1.2 W,峰值功率为2.4 kW的单横模激光脉冲输出。

关键词:

High Repetition,Single Mode Nanosecond all Fiber Laser

Abstract:

An all fiber laser source based on the technique of master-oscillator-power-amplifier (MOPA) was reported.The seeder is a single longitudinal mode directly modulated laser diode which operates in wavelength of 1 063.8 nm and tunable repetition rate ranging from 100 kHz to 10 MHz.The multi-stages fiber amplifiers were connected in series for achieving the high power and high quality output pulse.The single-transverse mode laser pulse of the average of 1.2 W and peak power of 2.4 kW was obtained at the repetition rate of 100 kHz and pulsewidth of 5 ns.

Keywords:

收稿日期 2008-11-27 修回日期 2009-02-04 网络版发布日期 2009-10-20

DOI:

基金项目:

通讯作者: 高存孝

作者简介:

参考文献:

- [1] KOROSHETZ J E.Fiber lasers for lidar [C] .Optical Fiber Communication Conference,2005: OFJ4.
- [2] FAN Ya-xian,LU Fu-yun,XIE Chun-xia,et al.Narrow bandwidth linear cavity Q-switched double-clad Nd-doped fiber laser [J] .Acta Photonica Sinica,2003,32(3): 280-282.
- 樊亚仙,吕福云,谢春霞,等.窄线宽线形腔调Q双包层掺钕光纤激光器 [J] .光子学报,2003,32(3): 280-282.
- [3] GAO Cun-xiao,ZHAO Wei,WANG Yi-shan,et al.Actively Q-switched Yb<sup>3+</sup>-doped all fiber ring laser [J] .Chinese Journal of Lasers,2008,35(5): 651-654.
- 高存孝,赵卫,王屹山,等.掺Yb<sup>3+</sup>全光纤环形腔主动调Q光纤激光器 [J] .中国激光,2008,35(5): 651-654.
- [4] FILIPPOV V N,STARODUMOV A N,KIR'YANOV A V.All-fiber passively Q-switched low-threshold erbium laser [J] .Opt Lett,2001,26(6): 343-345.
- [5] LEE G P,NEWSON T P.Diode pumped high power simultaneously Q-switched and self mode-locked erbium doped fiber laser [J] .Electron Lett,1996,32(4): 1685-1686.
- [6] ZHANG Wei,CHEN Guo-fu,ZHAO Wei,et al.Experimental study of figure-of-eight fiber lasers based on nonlinear amplifying loop mirror [J] .Acta Photonica Sinica,2006,35(12): 1808-1811.
- 张伟,陈国夫,赵卫,等.非线性放大环环境“8”字腔光纤激光器的实验研究 [J] .光子学报,2006,35(12): 808-1811.
- [7] CHEN Guo-fu,WANG Xian-hua,LIU Dong-feng,et al.Observation of the stability of all fiber femto-second lamp-house [J] .Acta Photonica Sinica,2001,30(1): 11-14.
- 陈国夫,王贤华,刘东峰,等.稳定的全光纤飞秒激光光源 [J] .光子学报,2001,30(1): 11-14.
- [8] DUAN Yun-feng,HUANG Bang-cai,ZHANG Peng,et al.All-fiber laser pulse amplifier [J] .Chinese Journal of Lasers,2007,34(10): 1379-1382.

扩展功能

本文信息

- ▶ Supporting info
- ▶ [PDF\(1342KB\)](#)
- ▶ [HTML](#)
- ▶ 参考文献

服务与反馈

- ▶ 把本文推荐给朋友
- ▶ 加入我的书架
- ▶ 加入引用管理器
- ▶ 引用本文
- ▶ Email Alert
- ▶ 文章反馈
- ▶ 浏览反馈信息

本文关键词相关文章

本文作者相关文章

- ▶ 高存孝

本刊中的类似文章

文章评论 (请注意:本站实行文责自负, 请不要发表与学术无关的内容!评论内容不代表本站观点.)

反馈人	<input type="text"/>	邮箱地址	<input type="text"/>
反馈标题	<input type="text"/>	验证码	<input type="text" value="4343"/>
反馈内容	<input type="text"/>		