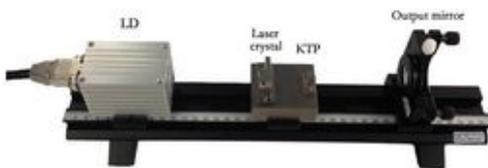


Diode pumped solid-state laser (OEDPSSL)

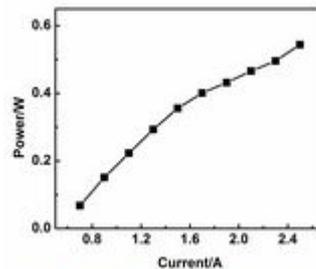
Introduction

Diode-pumped solid-state laser has great application prospect in optical communications, laser radar, laser medicine, laser processing and so on with its advantages of high conversion efficiency, compact size and long life. It will be the trend of solid-state laser development.

This is the typical experiment of Principles and Technology of lasers. In the experiment, there is 1064nm laser output with LD pumped Nd:YAG, then adding KTP into the cavity to obtain frequency doubling laser of 532nm. The students can learn the principle of diode pumped solid-state laser, structure and adjusting of resonant cavity and the factors that effect the laser output.



Experiment Device



Power along with the change of electric current (P-I)

Main points

- The principle of diode pumped solid-state laser
- Resonant cavity adjusting of solid-state laser
- Intracavity frequency doubling of solid-state laser
- Research of slope efficiency and output power

Related Courses

Principles&technology of lasers, Non-linear Optics, Laser Optics, Laser device, Photoelectronics, All Solid State Laser and Nonlinear Optical Frequency Conversion Technology.

Basic Configuration

Name	Specifications
LD	Wavelength:808nm (Include current source)
Laser crystal	Nd: YAG (Nd:YVO ₄ , Nd: YLF selectable)
Frequency doubling crystal	KTP, II phase matching (LBO, I phase matching, selectable)
Output mirror	R=50mm, with high-reflectivity film of 1064nm and high transmittance film of 532nm (different radius of curvature selectable) (different wavelength of film selectable) (different transmissivity selectable)
Others	Collimator, slideway, crystal base, adjusting bracket, Infrared display card, laser goggle, baffle etc. (Q-switched crystal, power meter, spectrometer selectable)

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Expand the Experiment

- 355nm/266nm UV laser output experiment
- External cavity frequency doubling and sum frequency experiment
- Diode pumped passively Q-switched laser output experiment
- Research on beam characteristics of solid state laser

Instrument Application

- Teaching experiment and research applications
- Laser membrane optics
- Spectroscopy application
- Nonlinear optical frequency conversion technology