Laser Diode Experiment Report

Overview

Diode Laser Lab Anthony Mannino Lab Partners: Adam Keegan, Chris Dahdouh Abstract: The purpose of the following four experiments were to observe the properties of the 808 nm diode laser using such equipment as a function generator, an oscilloscope, and the Nd:YAG material . Diode Laser Lab Anthony Mannino Lab Partners: Adam Keegan, Chris Dahdouh Abstract: The purpose of the following four experiments were to observe the properties of the 808 nm diode laser using such equipment as a function generator, an oscilloscope, and the Nd:YAG material . umerous applications in the world today. These include the medical and scientific fields for processe such as laser spectroscopy and surgery. A Nd:YAG laser can be optically pumped using lasers of several different wavelengths. Diode lasers have been called “wonderful little devices. The laser operation occurs at a p-n junction that is the boundary region. In this experiment, you will learn the characteristics and the operation of one of the most commonly used and increasingly popular lasers (Light Amplification by Stimulated Emission of Radiation) in chemical instruments: a semiconductor laser. 650nm laser diode and mount, collimating lens mounted on translation stage, injection current circuitry box,

9V DC transformer, DC power supply (Unilab), two multimeters, optical power meter. The device consists of one meter long optical bench with two transversal saddles for laser and slit mount and one transversal saddle with micrometer for detector.

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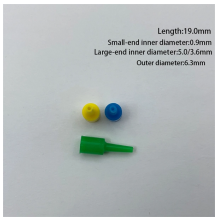
This is the first and most fundamental experiment of a series of semiconductor laser based chemical analyses to be implemented in this department. The emphases are on the operation of the laser itself ...



The diode laser diffraction pattern is closely studied using a detector mounted on translation stage. In the present setup, the intensity in the terms of current or voltage is noted at closed intervals by ...

Explore diode laser properties, power-current relationships, temperature effects, and Nd:YAG fluorescence in this detailed lab report.

Figure 1 shows the output characteristics of a laser diode as a function of input current. At low values of the input, the device acts as a light-emitting diode (LED), producing a relatively small amount of ...

In this experiment, you will learn the basic working principle of laser diodes.

This is a preliminary guide to the laser spectroscopy experiment. It will direct you to sections of other documents that will help you understand and carry out the experiment.

Lab Report - Free download as PDF File (.pdf), Text File (.txt) or read online for free. This report describes experiments conducted on a diode-pumped Nd:YAG laser system.

Wavelength of a Red Diode Laser Date: 2025, July 17, 19:00 Abstract In this experiment, the wavelength of a red diode laser was determined using diffraction patterns formed by a slitfilm plate.

The temperature of the laser diode also has an impact on the absorption peak of the Nd:YAG, hence it is important to set the temperature of the laser diode to 22°C at 808 nm to optimize it according to ...

Now that we have briefly established an idea as to how the laser works and the functions of each individual component, we can discuss the operation of the laser.

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