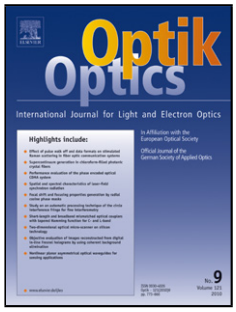

Title: Energy transfer studies<!–<query id="Q2">The author names have been tagged as given names and surnames (surnames are highlighted in teal color). Please confirm if they have been identified correctly.</query>–> for the liquid and solid state materials of Rhodamine B and Styryl 7 dye

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Energy transfer studies for the liquid and solid state materials of Rhodamine B and Styryl 7 Dye

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Abstract

Samples of dye doped Rhodamine B and Styryl 7 with MMA in solid state and the dye mixture in liquid state were prepared. Frequencydoubled Nd-YAG laser was used to evaluate solid and liquid dye samples laser emission. Using dye cell and dye-coated prism setup, distributed feedback dye laser(DFDL) activity was initiated. The dependence of pulse widths, and output power on acceptor - donor concentrations and pump power were analyzed in theoretical form. The resulting output energy of DFDL for liquid and solid sampling were checked at high emission levels of donor and acceptor dyes for various pump powers and acceptor-donor concentrations and were compared with theroretical results. To identify the thermal stability of solid pattern, the differential thermal analysis(DTA) and Thermogravimetric analysis(TGA) were performed. By adjusting the prism arrangement, for liquid and solid samples continuous tunability was observed from 570 to 727nm .

Keywords: Rhodamine B; Styryl 7; Distributed Feedback Dye Laser; Methyl methacrylate.

Introduction

In physics, biology, photochemistry and radiation, the concept of transfer of energy has a vital aspect. The transmission of radiationless energy might take place in solid, liquid and gas states [1]. In order to increase the performance of dye lasers and spectral range, the energy trnasfer in laser dye mixture was examined[2-6]. The two main collaborating molecules in the