

Design and Constriction of Tunable Solid- State Dye Laser Pumped by Flashlamp

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Received: May 03, 2022, Editor Assigned: May 04, 2022, Reviewed: May 08, 2022, QC No. OLP- AA0001;
Proceeding No: Volume: 10, 2022 Published: June 20, 2022, Invoice No. 87840EEB-0001

Abstract

Dye laser technology has advanced significantly over the last five decades. Several research groups are working around the world to develop dye laser technology for a wide range of applications. Nowadays the use of solid matrices containing laser dyes are coming as an attractive alternative to the conventional liquid dye solutions. In this research, designed and built a tuneable solid dye laser device and studied its efficiency. Where this device consists of three main parts: the active material producing the laser beam, which is a polymer rod (Glycidyl Methacrylate Polymer) doped with the laser dyes pyrromethene (PM-597) and Nile blue (Nb-6900). Pump source: It is a linear flash lamp filled With Xenon gas at low pressure. In addition to the optical resonator, it is a stable semi-spherical optical resonator. The results showed the efficiency of the laser device that was manufactured.