

DEVELOPMENT OF AN ELECTRONIC POWER SUPPLY, BASED ON A IONIZATION SIMMER CURRENT CIRCUIT FOR A YAG:Nd⁺⁺⁺ PULSED LASER

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ABSTRACT

This work introduces the implementation of a simmer current circuit applied to a Xe flash lamps, for excitation of a YAG: Nd⁺⁺⁺ crystal type. Low-cost commercial elements were used for designing and dimensioning of this circuit. The advantage of using the simmer circuit involves the application of high voltage (about 20 kV) only once, to ionize the flash lamp and keep ionized continuously, with a minimum current of 40 mA. This flash lamp work regime permits working with frequencies shooting above 10 Hz. The application of this circuit inside the power source for YAG: Nd⁺⁺⁺ type laser systems, not only adopts an important security measure, avoiding the frequent use of high voltage but also lengthens the lifetime of the lamps used, and increases stability of the optical output from laser pulses.

Keywords: Simmer Current, Development of Laser Technology, Pulsed Lasers.