Alexander Gaydardzhiev, Dimitar Draganov, Ivan Buchvarov, Anton Trifonov, Torsten Fiebig. A COMPACT ND:YAG SLAB AMPLIFIER FOR MINIATURE SOLID STATE Q-SWITCHED LASERS

A compact sub-nanosecond Nd:YAG based high-energy kilohertz Master Oscillator Power Amplifier (MOPA) system has been developed. The system is seeded by two alternative master oscillators: a microchip laser emitting 80 μJ, 600 ps at 1 kHz and a Q-switched miniature oscillator with 1.6 mJ, 6.5 ns pulses at 1 kHz. We have developed a compact, five-pass gain module with slab design, pulsed pumped by four 50 W collimated laser diode bars. The amplified output energy is 0.9 mJ at 1 kHz, when seeded with the microchip laser and 8 mJ with the other master oscillator.

Keywords: solid state lasers, diode pumped, high energy, sub-nanosecond, slab and rod amplification

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