



Rubidium Recycling in a High Intensity Short Duration Pulsed Alkali Laser (Paperback)

By Woody S Miller

Biblioscholar, United States, 2012. Paperback. Condition: New. Language: English . This book usually ship within 10-15 business days and we will endeavor to dispatch orders quicker than this where possible. Brand New Book. Laser induced fluorescence was used to study how pump pulse duration and alkali recycle time effects maximum power output in a Diode Pumped Alkali Laser (DPAL) system. A high intensity short pulsed pump source was used to excited rubidium atoms inside a DPAL-type laser. The maximum output power of the laser showed a strong dependence upon the temporal width of the pump pulse in addition to the input pump intensity. A linear relationship was observed between the maximum output power and the pulse width due to the effective lifetime of the excited state, defined as the time it takes for the alkali to be excited to the $2P_{3/2}$, relax down to the $2P_{1/2}$ state, and finally lase. This effective lifetime, calculated to be 0.139 ns, allowed for a calculation of the number of times each alkali atom in the pump volume could be used for lasing during a pulse. The number of recycles ranged from approximately 15 during the shorter 2 ns pulses up to 50+ times...



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