

“EFFECT OF EXCITATION MIGRATION AND UPCONVERSION IN HIGHLY ERBIUM-DOPED GLASS MICROSPHERE LASERS”

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TÓM TẮT:

Excitation migration and up conversion process in the erbium-doped silica-alumina glass microsphere laser with concentration of 2500-4000ppm were investigated in detail. The experiment shows that under 976nm excitation, the intense of up-conversion emission at 523,546 and 567nm, corresponding to the transition $2H_{11}/24I_{15}/2$, $4S_3/24I_{15}/2$ and $4F_9/24I_{15}/2$, respectively depend on the erbium content, migration of excitation and pump power. The excitation migration has strongly influenced on the threshold and red shift of lasing wavelength and migration-assisted up-conversion process lead to degraded amplification performance of microsphere lasers made by silica-alumina glasses with different contents of Er-ions.