

Abstract Submitted
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Time-Resolved Transient Absorption Spectroscopy and Luminescence in Undoped YVO_4 ¹ H.M. YOCHUM, Department of Physics and Engineering, Sweet Briar VA 24595, L. GRIGORJEVA, D. MILLERS, V. PANKRATOV, Institute of Solid State Physics, University of Latvia, Riga, Latvia LV-0163, M.C.S. YOCHUM, Department of Physics and Engineering, Sweet Briar VA 24595, K.T. STEVENS, Northrop Grumman-Synoptics, Charlotte NC 28273 — Yttrium orthovanadate (YVO_4) is currently used as a solid-state laser host material and as a polarization component for fiber optic applications but suffers from crystal uniformity and discoloration problems. In an effort to increase our understanding of electron-hole traps and their role on the optical properties of YVO_4 , we have measured transient absorption spectra (1.1 eV - 3.5 eV) and relaxation kinetics following electron-hole pair generation induced by 270 keV, 10 ns electron pulses for probe delays 10 ns–10 microseconds. These experiments were completed on four Czochralski grown YVO_4 samples with different levels of as-grown absorption in the 380 nm – 430 nm region. For all samples, we find three transient absorption bands with similar energies. We have also measured the luminescence kinetics induced by ns electron pulses and by light pulses at 355 nm and 420 nm – 600 nm.

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