

Abstract Submitted  
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**Time-Resolved Photoluminescence of Undoped and Bismuth Doped CdWO<sub>4</sub>**<sup>1</sup> J.A. KOTONIAS, Department of Physics and Engineering, Sweet Briar College, Sweet Briar, VA 24595, H.M. YOCHUM, Department of Physics and Engineering, Sweet Briar College, Sweet Briar, VA 24595 — Cadmium tungstate (CdWO<sub>4</sub>) is a scintillating crystal used for detecting x-rays, particularly for use in medical applications. In an effort to characterize the photoluminescence properties and to investigate multi-photon absorption in both bismuth doped and undoped samples, we measured the photoluminescence spectra (400 nm – 800 nm) and their time kinetics using the harmonics of a Q-switched Nd:YAG laser (355 nm and 266 nm). In both doped and undoped samples, excitation with above band gap light at 266 nm causes emission peaked at 500 nm with a single exponential lifetime of ~10 microseconds. Excitation at 355 nm, which excites Bi ions in the doped sample, results in emission peaked at 570 nm with a lifetime of ~1 microsecond. In the undoped sample this below band gap excitation at 355 nm causes emission which peaks at ~500 nm and has a decay time similar to that caused by 266 nm excitation.

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