

Abstract Submitted
for the OSF15 Meeting of
The American Physical Society

Recombination lifetime measurements in GeSn alloys using transmission modulated photoconductive decay¹ MATTHEW MIRCOVICH, Department of Physics, University of Dayton, Dayton, OH 45469, EMILY ERDMAN, Electro-Optics Program, University of Dayton, Dayton, OH 45469, JAY MATH- EWS, Department of Physics, University of Dayton, Dayton, OH 45469; Electro- Optics Program, University of Dayton, Dayton, OH 45469 — Silicon photonics requires the development of Si-based lasers, modulators, waveguides, and detectors operating in the infrared beyond the band gap of silicon. GeSn alloys represent a possible solution to this problem. The band gap of GeSn is tunable with Sn concentration, and GeSn films are currently being grown on Si platforms. One important metric necessary for the realization of high-efficiency optoelectronic devices from semiconductor films is the recombination lifetime. Unfortunately, lifetime measurements can be quite difficult in thin films. A new system for lifetime measurement, called transmission modulated photoconductive decay (TMPCD) has been proven to be suitable for lifetime measurements in thin films. In this work, we will describe the fabrication of such a system and present preliminary results of measurements performed on GeSn thin film samples.

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Date submitted: 28 Sep 2015

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