



THE UNIVERSITY OF ARIZONA

Wyant College
of Optical Sciences

INDUSTRIAL AFFILIATES WORKSHOP

STUDENT SPEAKER PROFILE



LINDSEY WILEY, PH.D. STUDENT

Wyant College of Optical Sciences
Advisor: Ronald Driggers & David Brady

Tuesday, February 15, 2022 | 1:51 p.m.

Title: "Target Discrimination in the Extended SWIR Band"

Abstract: Long range target identification is well studied in the Visible (Vis) and Near Infrared (NIR) bands, and more recently in the Short-Wave Infrared (SWIR). The longer wavelength of SWIR (1.1-1.7 μ m) improves target detection for both long ranges and under challenging atmospheric conditions because it is less limited by scattering and absorption in the atmosphere. For these reasons, SWIR sensors are proliferating on military platforms. The extended short wave infrared (eSWIR) band spanning from 2 to 2.5 μ m is not limited by diffraction, and, as a result, the band benefits target acquisition both at long ranges and for degraded visual environments. Theoretical and experimental data compare eSWIR to Vis, NIR, and SWIR for atmospheric transmission, reflectivity, illumination, and sensor resolution and sensitivity. Both the theory and experiment demonstrate advantages of using eSWIR for long range target identification.

Bio: Lindsey Wiley is in her 2nd year of the Ph.D. program working in the Infrared Systems Group under Dr. Ron Driggers and co-advisor Dr. David Brady. She graduated from Colgate University in 2020 with a Bachelor's degree in Physics, where she performed quantum optics research while also playing Division 1 soccer. Her research interests include infrared imaging for long range target identification and studies of the extended shortwave infrared band.



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