

Abstract Submitted  
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**Characterization of Guided Mode Resonance Filters for Wavelength Stabilization of Thulium Fiber Lasers**<sup>1</sup> TANY DAX, Angelo State University Department of Physics, MARTIN RICHARDSON, ANDREW SIMS, Univeristy of Central Florida-College of Optics and Photonics — Stable, eye-safe lasers are important for use in medical environments and atmospheric propagation. A Guided Mode Resonance Filter (GMRF) consists of a waveguide between a layer of substrate and a diffractive layer. The GMRFs are produced at UNC Charlotte. The Thulium (Tm) doped fiber used consists of an octagonal undoped fiber with a doped core, and is the gain medium of the fiber laser. The Laser Plasma Laboratory at the UCF College of Optics and Photonics performed the necessary characterization of the output spectra and damage thresholds of the GMRF when used as the feedback element of the Thulium fiber lasers. This summer's Research Experience for Undergraduates project aided in this characterization. The laser reached 10W of stabilized output. Further, the GMRFs withstood thermal changes and focused power with no damage or change in output spectra.

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