Abstract Submitted
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Standoff Detection of Volatile Organic Compounds In Air Using Laser Induced Fluorescence[1] JERRY CLARK, ALONZO ALEXANDER, Florida A&M University, DELONIA WIGGINS, University of Wisconsin-Madison, SYDNEY WILLIAMS, CHARLEMAGNE AKPOVO, EPHREM MEZONLIN, JOSEPH A. JOHNSON III[2], Florida A&M University, CENTER FOR PLASMA SCIENCE AND TECHNOLOGY (CEPAST) TEAM — The use of laser-induced fluorescence has proven to be an excellent method of detecting important intermediates in turbulent systems. However, Acetylene detection in air at ambient temperatures has proven more challenging. Molecular spectra were collected in laser induced acetylene plasmas using a 250 mJ Nd:YAG laser and an optical parametric oscillator (OPO) to achieve the 260 nm wavelength and greater than 3 mJ energy necessary to excite acetylene molecules. The acetylene laser-induced fluorescence excitation was observed at the 228 nm wavelength. Using various concentration ratios, acetylene was mixed with air to specifically determine the capabilities of standoff acetylene detection at atmospheric pressure. These results will lead to further research and development of turbulence based battlefield ready detection devices.

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