Abstract Submitted
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Measurement and Analysis of C_2 Swan Spectra Following Breakdown of Nitro Compound Simulants M. WITTE, C.G. PARIGGER, University of Tennessee Space Institute, Tullahoma, TN, N.A. BULLOCK, J.A. MERTEN, S.D. ALLEN, Arkansas State University, Jonesboro, AK — Recent measurements of micro-plasma following laser-induced optical breakdown on 3-nitrobenzoic acid show well developed molecular spectra during the first several hundreds of nanoseconds. Analysis of Carbon Swan spectra for well-above breakdown threshold energy/pulse is accomplished using an accurate line strength file. Moreover, presence of hydrogen-beta allows us to infer electron density in the plasma evolution. Computational challenges include accounting for background variation and appropriate modeling of hydrogen embedded in molecular spectra. Recorded and computed spectra agree nicely for time delays on the order of 1600 ns from optical breakdown when using a single temperature for local thermodynamic equilibrium plasma.

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