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Time Resolved Analysis of the C, (C_2) Swan and (CN) Violet Systems from Dicarboxylic Acids from Laser Induced Breakdown Spectroscopy STACI BROWN, CHARLEMAGNE AKPOVO, JORGE MARTINEZ, DAWN LEWIS, LEWIS JOHNSON[1], Florida A&M University — Laser Induced Breakdown Spectroscopy (LIBS) was used as a method for the detection of carbon, carbon-carbon and carbon- nitrogen molecular bonds from atmospheric recombination. Ablated samples were comprised of a series of dicarboxylic acids with an increasing number of carbon in their molecular structure from 2 to 7 (ex. Oxalic Acid, Malonic acid, Succinic Acid, etc). Accumulated pulses of a focused Nd:YAG q-switched laser beam operated at 532nm and an energy of approximately 5mJ at a repetition rate of 20 Hz were used to generate a plasma. The LIBS spectra were acquired using a high-resolution Czerny-Turner image spectrometer with an intensified charge-coupled device. Through a time resolved analysis of the emission spectra, we demonstrate the effects of the change in gate delay on the emission of the vibrational headbands for the Swan (C_2) and Violet (CN) spectroscopic systems. We also, illustrate the effects that these constraints have on the peak intensities of the individual headbands in relation to each other and those of ionic Carbon and Nitrogen.

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