DIRECT OBSERVATION OF THE $c^3\Sigma_u^+$ STATE OF C_2

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The $d^3\Pi_g - c^3\Sigma_u^+$ system of dicarbon was observed in a discharged supersonic jet of C_2H_2.[a] A spectral survey was carried out based on the result of high-level *ab initio* calculation.[b] LIF excitation spectra of the band system were recorded by detecting fluorescence of the Swan system ($d^3\Pi_g - a^3\Pi_u$). Several molecular constants of the $c^3\Sigma_u^+$ state were experimentally determined from the rotationally resolved spectra. Characterization of the $c^3\Sigma_u^+$ state of C_2 is of importance to astrophysical models of the species.

[a] D. L. Kokkin *et al.*, *J. Chem. Phys.* **125**, 231101 (2006).
[b] D. L. Kokkin *et al.*, *J. Chem. Phys.* **126**, 084302 (2007).