

Fourier Transform Emission Spectra of the 4051 Å Band of C₃

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The 4051 Å group ($A\ ^1\Pi_u - X\ ^1\Sigma_g^+$) of C₃ have been identified in various astronomical objects. In the laboratory, the band system is often observed in various chemical reactions such as flames and discharge plasmas in hydrocarbons. Recently McCall et al. re-investigated the (000)-(000) band by using cavity ring down spectroscopy [1]. They reassigned the $R(0)$ line previously identified by Gausset et al.

In the present investigation, the band system was recorded in emission with a Bruker IFS 120HR Fourier transform spectrometer at University of Waterloo. The band was excited by a microwave discharge in iso-propanol diluted in helium. Analysis of our new spectrum combined with the data by McCall et al. confirmed the lower J levels in the A state were perturbed as reported by Gausset et al. [2]. The unidentified lines observed by McCall et al. can be assigned to extra transitions originated from the perturbing state.

- [1]. B.J. McCall, R.N. Casaes, M. Ádámkóvics and R.J. Saykally, *Chem. Phys. Lett.* **374**, 583-586 (2003)
- [2]. L. Gausset, G. Herzberg, A. Lagerqvist and B. Rosen, *Astrophys. J.* **142**, 45-76 (1965)