THE ULTRAVIOLET SPECTRUM OF THE FeF RADICAL

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Two band systems of the FeF radical have been recorded at Doppler-limited linewidths by Laser Induced Fluorescence. The (0,0) band of the $^6\Pi - X^6\Delta$ was recorded at 323 nm. The system at 330 nm consisted of an overlap of the (1,0) band of the $^6\Pi - X^6\Delta$ system and the (0,0) band of the $^6\Phi - X^6\Delta$ system.

FeF was produced in a continuous flow by the reaction of fluorine atoms, produced by a microwave discharge of fluorine in helium, with iron pentacarbonyl. This reaction provides data for the lowest four sub-bands of each system, considerably extending our knowledge of these two electronic transitions compared with previous work by Pouilly *et al.*[a]. The temperature of the sample in our experiments is slightly above ambient, about 450 K.

The results have been analysed and combined with the millimeter-wave spectra[b] for the ground state, $^6\Delta$, to produce better parameters for the excited states.

[a] B. Pouilly, J. Schamps, D. J. W. Lumley and R. F. Barrow, *J. Phys B: Atom. Molec. Phys.*, **11**, 2289, (1978).

[b] M. D. Allen and L. M. Ziurys, *J. Chem. Phys.*, **106**(9), 3494 (1997).