

## INFRARED EMISSION STUDIES OF THE $A^3\Sigma^- - X^3\Pi$ ELECTRONIC TRANSITION OF SiC

M. N. DEO and K. KAWAGUCHI, *Nobeyama Radio Observatory, Minamimaki, Minamisaku, Nagano, 384-1305, Japan.*

The gas phase infrared emission spectrum of the  $A^3\Sigma^- - X^3\Pi$  electronic transition of SiC has been observed using Fourier transform spectrometer. The SiC radical was generated by a dc discharge in a flowing mixture of  $(\text{CH}_3)_6\text{Si}_2$  and He. Three bands 1-0 ( $4577.8 \text{ cm}^{-1}$ ), 0-0 ( $3723.1 \text{ cm}^{-1}$ ) and 0-1 ( $2769.8 \text{ cm}^{-1}$ ) have been observed, out of these the last two were observed for the first time<sup>a</sup>. Altogether more than 1100 transitions have been assigned and these data were simultaneously least squares fitted and obtained the molecular constants for SiC in the  $A^3\Sigma^-$  and  $X^3\Pi$  electronic states. The vibrational frequency  $\nu_0$  in the A state was determined to be  $854.6994(7) \text{ cm}^{-1}$ , which is close to the matrix result<sup>b</sup>  $854.2 \text{ cm}^{-1}$ .

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<sup>a</sup> $4577.8 \text{ cm}^{-1}$  band was first observed by Brazier et.al.[J. Chem. Phys., 91, 7384(1989)] and they identified it as 0-0 band.

<sup>b</sup>M. Grutter, P. Freivogel and J. P. Maier, J. Phys. Chem. A, 101, 275(1997)