**Laser Spectroscopy of the $A^3\Pi_{1u} \leftarrow X^1\Sigma_g^+$ System of $I_2$ in the 11650–12300 $\mathrm{cm}^{-1}$region**

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The Doppler limited electronic absorption spectrum in the $A^3\Pi_{1u}$–$X^1\Sigma_g^+$ system was measured in the 11650–12300 $\mathrm{cm}^{-1}$region using a Ti:sapphire ring laser (Coherent 899-21) pumped by an argon ion laser (Coherent Innova 90). The Q-branch lines of $J = 10$ to 100 belonging to the $v' \leftarrow v'' = (29\sim 31)' \leftarrow 0''$, $(21\sim 30)' \leftarrow 1''$ and $(22\sim 31)' \leftarrow 2''$ progressions were assigned. The hyperfine splittings of these lines could not be resolved. The wavelength measurements were done using a wavelength-meter (Anritu MF9630A) with an accuracy of $\pm 0.5$ ppm. Using a least squares fitting procedure, the spectroscopic constants of $\nu_Q^0$, $B'_{vf} - B''_v$, $D'_{vf} - D''_v$ and $H'_v - H''_v$ were determined. The standard deviations were smaller than 0.003 $\mathrm{cm}^{-1}$. By using the Dunham's coefficents of the $X$-state reported by Tromp and Le Roy (*1*), the spectroscopic constants of $T'_v$, $B'_{vf}$, $D'_{vf}$ and $H'_{vf}$ suitable for $v' = 21' \sim 31'$ of the $A$-state were determined by a global least squares fits. The rotational constant of $B'_{vf}$ at the $v' = 21$ agreed with that reported by Ishikawa et al. (*2*) within the standard error, while the discrepancy of 0.1 $\mathrm{cm}^{-1}$was found at the value of $T'_v$.

(*1*) J. W. Tromp and R. J. Le Roy, *J. Mol. Spectrosc.* **109**, 352–367(1985).
(*2*) T. Ishikawa, H. Takekawa and K. Obi, *J. Mol. Spectrosc.* **159**, 443–457(1993).