

HIGH-RESOLUTION LASER SPECTROSCOPY OF $A^3\Pi_{1u} \leftarrow X^1\Sigma_g^+$ SYSTEM OF Br_2

N.NISHIMIYA, T.YUKIYA, and M.SUZUKI, *Tokyo Polytechnic University, System Electronics and Information Technology, Iiyama 1583, Atsugi-City, 243-0297 Kanagawa, Japan.*

Doppler limited vib-rotational spectrum of the $A^3\Pi_{1u} \leftarrow X^1\Sigma_g^+$ system of $^{79}\text{Br}_2$, $^{81}\text{Br}_2$, and $^{79}\text{Br}^{81}\text{Br}$ have been measured using a titanium sapphire laser. We adapted the two-tone modulation method to detect the absorption spectrum¹. Measurements were made at room temperature in the region of $13000 - 13700 \text{ cm}^{-1}$ and at 150°C in the region $12000 - 13000 \text{ cm}^{-1}$, as determined using a wavelength meter (Burleigh WA-1500) calibrated to the two-photon spectrum of Rb at 778 nm. The wavenumber accuracy measurement was estimated to be 0.005 cm^{-1} . About 10,000 lines of *P*, *Q*, and *R*-branches from $20 \leq J \leq 100$ were assigned and spectroscopic constants of $^{79}\text{Br}^{81}\text{Br}$ for $v' = 4 - 9$ were determined using a global least-squares fit to all lines of the three isotopic species by taking the reduced mass ratios into consideration. The details of the results will be presented.

1. D.E.Cooper and R.E.Warren, *J.Opt.Soc.Am.B*, **4**, 470 (1987).