LASER SPECTROSCOPY OF THE $B^1\Pi_\text{u} \leftarrow X^1\Sigma^+_g$ SYSTEM OF Cs$_2$ IN THE 12700–13150 cm$^{-1}$ REGION

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The electronic vib-rotational transitions of the $B^1\Pi_\text{u} \leftarrow X^1\Sigma^+_g$ system have been observed and assigned by U. Diemer et al. (1). In the present work, we report the assignments of 5000 lines and the improved spectroscopic constants. The Doppler limited $P$, $Q$ and $R$ branch absorption lines of $J = 20$ to 270 belonging to the $\nu' \leftarrow \nu'' = (0 \sim 5) \leftarrow (0 \sim 11)$ progressions were measured in the 12700–13150 cm$^{-1}$ region using a Ti:sapphire ring laser (Coherent 899-21). The $\nu' \leftarrow \nu'' = 1 \leftarrow 4, 1 \leftarrow 5$ and $2 \leftarrow 6$ bands were measured using a technique of polarization spectroscopy. The wavelength measurements were done using a wavelength-meter (Anritsu MF9630A) with an accuracy of ±0.5 ppm, which was calibrated against the two photon signal of Rb at 788 nm (2). The Dunham’s coefficients of the $\nu'_J$ ($J = 0 \sim 4$, $m = 0 \sim 4$) of the $B$-state were determined by a global least squares fitting by using the constants of the $X$-state reported by W. Weickenmeier et al. (3).