HIGH RESOLUTION INFRARED DIODE LASER SPECTROSCOPY OF $X^2\Pi$ CBr

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The infrared spectrum of the $X^2\Pi$ state of CBr from 680 - 750 cm^{-1} has been measured using diode laser absorption spectroscopy. The CBr radicals were produced by 193 nm excimer photolysis of bromoform. Transitions belonging to the v = 1 $\leftarrow$ 0, 2 $\leftarrow$ 1, 3 $\leftarrow$ 2 and 4 $\leftarrow$ 3 bands of both isotopomers, $C^{79}Br$ and $C^{81}Br$ have been identified. Employing $case(a)$ matrix elements, spectroscopic parameters were obtained from a least squares fit where the transition frequencies of both isotopomers were fitted simultaneously. The results were used to obtain a Rydberg-Klein-Rees (RKR) potential. Additionally, the kinetics of the CBr + O_2 reaction were investigated. This is the first recording of vibrational spectra of CBr.

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