$A^2\Pi \to X^2\Sigma^+$ INTERACTION PARAMETERS FOR $^{12}\text{C}^{16}\text{O}^+$, $^{13}\text{C}^{16}\text{O}^+$ AND $^{14}\text{C}^{16}\text{O}^+$ FROM DEPERTURBATION ANALYSES OF $A^2\Pi(v') \to X^2\Sigma^+(v'')$ BANDS

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Several $A^2\Pi \to X^2\Sigma^+$ emission bands of CO$^+$, for which the $A$-state vibrational level is perturbed, have been recorded photographically. The well known $A(v' = 0) \to X(v^* = 10)$ and $A(v' = 5) \to X(v^* = 14)$ perturbations between the $A^2\Pi$ and $X^2\Sigma^+$ states of $^{12}\text{C}^{16}\text{O}^+$, previously analysed by Coxon and Foster$^a$, have been reinvestigated by analysis of the 0 - 2 and 5 - 0 bands. The standard deviations of the least squares fits are typically about 0.02 cm$^{-1}$. Similarly, the $A(v' = 1) \to X(v^* = 11)$ interaction in $^{13}\text{C}^{16}\text{O}^+$, first identified by Jakubek$^b$ in an analysis of the 0 - 1 band of the $B^2\Sigma^+ \to A^2\Pi$ system, has been studied by a deperturbation analysis of the rotational structure in the $A^2\Pi(v' = 1) \to X^2\Sigma^+(v'' = 0)$ band. For $^{14}\text{C}^{16}\text{O}^+$, the corresponding $A(v' = 2) \to X(v^* = 11)$ interaction has been observed for the first time by analysis of the 2 - 0 and 2 - 1 bands of the $A \to X$ system. The expected isotopic self-consistency of the interaction parameters $\alpha$ and $\beta$ from individual bands of the three isotopomers is discussed.