

## LINE SHIFT AND LINE BROADENING IN FUNDAMENTAL BANDS OF DIFFERENT ISOTOPOMERES OF CARBON MONOXIDE

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In this paper we present results concerning line shift and line broadening in the fundamental band of different isotopomers of carbon monoxide near  $2058\text{ cm}^{-1}$ . The study includes lines of  $^{12}\text{C}^{16}\text{O}$  and for the first time lines of  $^{13}\text{C}^{16}\text{O}$ ,  $^{12}\text{C}^{18}\text{O}$ ,  $^{13}\text{C}^{18}\text{O}$ , and  $^{13}\text{C}^{17}\text{O}$  perturbed by  $\text{N}_2$ ,  $\text{O}_2$ ,  $\text{H}_2$ ,  $\text{D}_2$ , He, Ne, Ar, Kr, and Xe. The results for Kr,  $\text{H}_2$ , and  $\text{D}_2$  represent the first experimental data for the  $(1\leftarrow 0)$  band of CO. For all perturbers except helium all line-shift coefficients are negative. Within the experimental uncertainties the data show no significant dependence on the isotopomere. As known for  $^{12}\text{C}^{16}\text{O}$  for collisions with noble gases the absolute value of the line-shift coefficients increase with increasing mass of the perturber. Lines from R-branches show smaller shift coefficients compared to P-branch lines. Our absolute values for the line-shift coefficients for the  $(1\leftarrow 0)$  band confirm the trend that the effect for this band is smaller compared to the  $(2\leftarrow 0)$  band as known from former experimental data by Bouanich *et al.*<sup>a</sup>. The nitrogen broadening will be compared to previous measurements for  $^{13}\text{C}^{16}\text{O}$  by Voigt *et al.*<sup>b</sup>.

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<sup>a</sup>J.-P. Bouanich, D. Bermejo, J. L. Domenech, R. Z. Martinez, *J. Mol. Spectrosc.* **179**, 22 (1996)

<sup>b</sup>S. Voigt, S. Dreher, J. Orphal, J. P. Burrows, *J. Mol. Spectrosc.* **180**, 359 (1996)