SELF- AND AIR-BROADENING, SHIFTS AND LINE MIXING IN THE P- AND R-BRANCHES OF THE 14^01-(00^00) AND THE 22^01-00^00 BANDS OF CO_2

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Self- and air-broadened widths, shifts and line mixing coefficients in the P and R branches of the two combination bands of CO_2, 14^01-(00^00) and 22^01-00^00, have been measured from spectra near 6300 cm^{-1}. These spectra, recorded at room temperature and pressures between 11 and 900 torr, were of samples contained in a White-type absorption cell with path lengths varying from 25 to 121m. Line mixing effects using the off diagonal relaxation matrix elements are determined for the first time in parallel bands of CO_2. The spectral line parameters are measured with a Voigt profile as well as with a Voigt profile modified with speed dependence and line mixing by applying a multispectrum nonlinear least squares technique.[a] The spectra were recorded at a resolution of 0.011-cm^{-1} using the McMath-Pierce Fourier transform spectrometer of the National Solar Observatory on Kitt Peak. Presents results will be compared with other available measurements.

[a] D. Chris Benner et al., *JQSRT* **53**, 705-721 (1995).