SPECTRAL LINE PARAMETERS INCLUDING LINE MIXING AND SPEED DEPENDENCE IN THE P- AND R-BRANCHES OF CO_2 AT 6227 cm^{-1}.

D. CHRIS BENNER, V. MALATHY DEVI, *Department of Physics, The College of William and Mary, Williamsburg, VA 23187-8795*; LINDA R. BROWN, CHARLES E. MILLER, ROBERT A. TOTH, *Jet Propulsion Laboratory, California Institute of Technology, Pasadena, California 91109*.

In addition to accurate line center positions and absolute intensities, air- and self- broadening, pressure shifts, line mixing coefficients and speed dependence parameters in the P-and R-branches of the 30013←00001 parallel band have been measured from high-resolution (0.01 cm^{-1}) room temperature ($\sim$ 294 K) absorption spectra of CO_2 in the 6120 to 6280 cm^{-1} region. These parameters were retrieved by a single fit covering the entire spectral region with a total of 26 spectra simultaneously by using our multispectrum nonlinear least squares technique.[a] The data were recorded with the McMath-Pierce Fourier transform spectrometer and the 6-m base path White-type cell available at the National Solar Observatory on Kitt Peak, AZ. The path lengths used in the experiments range between 25 and 121 m and the total gas pressures varied from 11 to 900 Torr. High accuracies in the retrieved rovibrational constants (G, B, D . . .) and intensity parameters (line and band intensity and Herman-Wallis factors) were achieved using position and intensity constraints. Line mixing effects were determined using the relaxation matrix formalism. The analyses were performed using a Voigt line profile modified with line mixing and speed dependence. The results will be compared to values reported in the literature[b] and with our recent measurements of the 30012←00001 band.[c]

[a] D. Chris Benner et al. *JQSRT* **53**, 705-721, 1995.
[b] R. A. Toth et al. *JMS* **239**, 221-242 and 243-271, 2006.
[c] V Malathy Devi et al. *JMS* accepted, 2007.