THE NO VIBRATIONAL FUNDAMENTAL BAND: O_2-BROADENING COEFFICIENTS

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Rovibrational spectra of the vibrational fundamental of nitric oxide at 1875 cm^{-1} have been recorded under O_2-broadening conditions at 296 K and 0.0056 cm^{-1} resolution using the Solar McMath FTS at the Kitt Peak National Observatory. The use of a flow system, which maintains the NO_2 at trace levels, has enabled the first measurement of these broadening coefficients. The broadening of the trace contaminant, N_2O, allowed checks of the measured pressures. The least-squares analysis of the spectra includes the nuclear hyperfine structure in addition to λ doubling. We observed differential broadening between the e and f λ components of $^2\Pi_{1/2}$ transitions as well as larger differences in broadening observed between respectively the $^2\Pi_{1/2}$ and $^2\Pi_{3/2}$ transitions.