COLLISION-INDUCED ABSORPTION IN PURE O_2, CO_2, AND N_2

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Collision-induced absorption (CIA) of the fundamental band of pure oxygen has been obtained over the temperature range -80° to +85°C. The integrated band intensity is at a minimum at 0°C and increases on either side of this temperature. Band intensities of the CIA in the fundamental band of N_2 as well as the CO_2 Fermi dyad are currently under investigation. Preliminary results indicate that the temperature dependence of the band intensity of the nitrogen CIA parallels that of O_2. In contrast, the integrated intensities of the $10^00/02^00$ Fermi dyad in CO_2 increase steadily as the temperature is decreased. The integrated intensities double as the temperature goes from +72° to -80° C. This indicates that at low temperatures the bound dimer is the major species in the gas. The band structure obtained at elevated temperatures will be presented.