

COLLISION-INDUCED ABSORPTION IN PURE O₂, CO₂, AND N₂

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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 N₂ as well as the CO₂ Fermi dyad are currently under investigation. Preliminary results indicate that the temperature dependence of the band intensity of the nitrogen CIA parallels that of O₂. In contrast, the integrated intensities of the 10⁰0/02⁰0 Fermi dyad in CO₂ 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.