

HIGH RESOLUTION INFRARED SPECTROSCOPY OF THE CO<sub>2</sub>-CO DIMERS AND (CO<sub>2</sub>)<sub>2</sub>-CO TRIMER

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Infrared spectra in the carbon monoxide CO stretch region ( $\approx 2150\text{ cm}^{-1}$ ) are assigned to the previously unobserved O-bonded form of the CO<sub>2</sub>-CO dimer (“isomer 2”), which has a planar T-shaped structure like that of the previously observed C-bonded form (“isomer 1”). Results will also be reported for both isomers of the <sup>12</sup>C<sup>18</sup>O<sub>2</sub>-substituted form of the dimer. In addition, we have observed two combination bands for each isomer yielding the first experimental determinations of intermolecular frequencies for the planar T-shaped structures. Within both of the fundamental bands, weak “satellite bands” are observed. These are tentatively assigned to the trimer He-CO<sub>2</sub>-CO. To the higher side of the fundamental for “isomer 1”, we have observed a weaker b-type band which we have assigned to (CO<sub>2</sub>)<sub>2</sub>-CO trimer. This trimer has a “pin wheel” structure with C<sub>2</sub> symmetry and the derived experimental structural parameters match well with those obtained from *ab initio* calculations.