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Photolysis Of 4-oxo-2-pentenal At 193, 248, 308, And 351 Nm

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Unsaturated dicarbonyls such as 4-oxo-2-pentenal are important products of the photochemical oxidation of aromatics hydrocarbon in the atmosphere. To get a better understanding of the atmospheric fates of aromatics, we have studied the photolysis of 4-oxo-2-pentenal by using laser photolysis combined with cavity ring-down spectroscopy. Absorption cross-sections of 4-oxo-2-pentenal at 193 nm and 248 nm are $(4.91 \pm 0.39) \times 10^{-18}$ and $(4.09 \pm 0.79) \times 10^{-19}$ cm²/molecule. The HCO radical is observed as the photodissoication product at 193 nm and 248 nm. The corresponding HCO quantum yields are 0.11 ± 0.02 and 0.013 ± 0.003 , independent of 4-oxo-2-pentenal pressure and nitrogen buffer gas pressure. End products from the photolysis of 4-oxo-2-pentenal at 193, 248, 308, and 351 nm have been determined using FTIR.