

Abstract Submitted
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Measurement of the fourth O-H overtone absorption cross section in acetic acid using cavity ring-down spectroscopy¹ SOLOMON BIBILIGN, ISRAEL BEGASHAW, MARC M. FIDDLER, Department of Physics, North Carolina A&T State University — We report the measured absorption cross sections of the fourth vibrational O-H overtone in acetic acid using cavity ring-down spectroscopy. The cross sections enable the calculation of the reaction rate J for O-H overtone initiated reactions, such as dissociation and decarboxylation. The contributions to the acetic acid spectrum from the monomer and dimer have been separated. The absorption of acetic acid monomer peaks at about 615 nm and has a peak cross section of $1.84 \times 10^{-24} \text{ cm}^2 \text{ molecule}^{-1}$. Between 612 and 620 nm, the integrated cross section for the acetic acid monomer is $(5.23 \pm 0.73) \times 10^{-24} \text{ cm}^2 \text{ molecule}^{-1} \text{ nm}$ or $(1.38 \pm 0.19) \times 10^{-22} \text{ cm}^2 \text{ molecule}^{-1} \text{ cm}^{-1}$

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