

ANALYSIS OF THE HIGH-RESOLUTION JET-COOLED FLUORESCENCE EXCITATION SPECTRA OF THE HIGHER LEVELS IN THE  $29\ 769\ \text{cm}^{-1}$  BAND SYSTEM OF ACETALDEHYDE: FURTHER REFINEMENTS OF THE TORSION-INVERSION POTENTIAL CONSTANTS.

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Acetaldehyde molecules in the first singlet excited state contain two coupled low frequency vibrational modes,  $\nu_{14}$  (inversion) and  $\nu_{15}$  (torsion). In an earlier paper,<sup>a</sup> a two dimensional least squares analysis of the first seven bands in the UV spectrum of acetaldehyde jet-cooled vapor gave an excited state barrier to inversion of  $585.13\ \text{cm}^{-1}$  and a torsional barrier of  $721.43\ \text{cm}^{-1}$ . A discussion of the results of a vibrational and rotational analysis of 12 additional bands beyond this earlier analysis will be presented. The assignment of the  $14_0^2$  band has changed and the inclusion of the higher members of the torsional mode has given refined values for the barriers.

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