

## FAR-INFRARED LASER STARK SPECTROSCOPY OF $^{13}\text{CD}_3\text{OD}$

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The Stark spectrum of  $^{13}\text{CD}_3\text{OD}$  has been investigated in the far-infrared region using the HCN and DCN lasers. The spectra were taken at room temperature for both parallel and perpendicular polarizations using electric fields up to  $60\,000 \frac{\text{V}}{\text{cm}}$ . An extensive series of absorption lines observed with the  $337 \mu\text{m}$  line has been assigned to the  $J = 9$  to  $15$  members of the  $K = 5 \leftarrow 4 E_2$  Q-branch in the  $\nu_t = 1$  torsional state<sup>a</sup>. Further analysis of this Q-branch multiplet has yielded the branch origin,  $\nu_0 = 882\,847.7$  MHz, and expansion coefficients,  $a = 93.6785$  MHz and  $b = -0.2689$  MHz. An R-branch transition observed at  $337 \mu\text{m}$  has been assigned as  $J_K = 9_7 \leftarrow 8_6 A \nu_t = 0$ . Two families of resonances observed with the  $195 \mu\text{m}$  line have been tentatively identified as members of the Q-branch multiplet  $J_K = J_7 \leftarrow J_8 E_2 \nu_t = 2$  for  $J = 11$  and  $12$ . Zero-field frequencies for all assigned transitions are given with improved accuracy over those calculated from the available molecular constants.

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<sup>a</sup>M. Jackson, G. R. Sudhakaran, E. Gansen, *J. Mol. Spectrosc.*, **176**, 439-441 (1996).