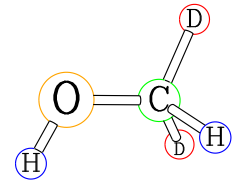
Global analysis of the CD_2HOH molecule rotation-torsion spectrum



- New assignments are carried out in the submillimeter wave, terahertz, and FIR spectra of the non-rigid CD_2HOH molecule.

- The assigned rotation-torsion transitions allow us to characterize torsional states with $0 \leq K \leq 12$.

- Three line position analyses of the new data are performed.
  1. In the first one, 4501 lines corresponding to 72 torsional subbands are fitted computing the rotational energies of each torsional state with a $J(J+1)$ expansion.

  2. In the second one, 124 torsional subband centers are reproduced with an RMS of $0.048\,\mathrm{cm}^{-1}$ using 13 parameters. The hindering potential, kinetic energy parameters, and distortion coefficients are determined.

  3. At last, we perform a global analysis of 5722 MW and FIR rotation-torsion transitions with $K \leq 12$, $0 \leq v_t \leq 2$, and $J \leq 26$.