THE MICROWAVE SPECTRUM OF METHYL VINYL KETONE REVISITED

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A chirped-pulse Fourier transform microwave spectrometer was used to record the rotational spectrum of methyl vinyl ketone (MVK, 3-butene-2-one) from 6 to 18.9 GHz. Two stable conformations were identified: the previously documented *anti*periplanar (*ap*) conformer and *syn*periplanar (*sp*), which is reported for the first time in this microwave study. Methyl torsional analysis with XIAM resulted in V_3 barrier heights of 433.8(1) and 376.6(2) cm^{-1} for *ap*- and *sp*-MVK, respectively. Heavy atom isotopic species were detected in natural abundance allowing bond lengths and angles of the molecular frames to be calculated through Kraitchman analysis. A comparison with *ab initio* calculations is included.