TORSIONALLY OFF-DIAGONAL HOT BAND TRANSITIONS IN THE OH-VIBRATION OF METHANOL

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In the course of our assignment work for the very weak CH-stretch-torsion combination band transitions in the Fourier transform spectrum of methanol, we came across reasonably strong series of lines in the region between the strong CH stretch fundamental and the OH-stretch fundamental. We recorded this region at higher sensitivity and with our experience with the assignments of off-diagonal torsional vibrational transitions [1-2] we identified a large number of new series of transitions originating from the first and second excited torsional states in the ground state to the ground and first excited torsional states in the OH fundamental state. The identification not only provides new transitions but also gives an opportunity to search for the weaker transitions in the region corresponding to the low K combination bands for the torsionally inverted asymmetric CH stretch mode. The results will be presented in terms of energy expansion model and the extension of the continued work on the CH stretch-torsion combination band.

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