EXTENSION OF THE MEASUREMENT, ASSIGNMENT, AND FIT IN THE GROUND STATE OF THE TWO-TOP MOLECULE METHYL ACETATE

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New spectroscopic data were recorded for the two-top molecule methyl acetate with a chirped-pulse Fourier transform microwave spectrometer at room temperature and a jet cooled sub-millimeterwave spectrometer. More than 650 new lines with J up to 35 and K up to 15 were assigned. In total, approximately 1500 lines were fitted with 34 parameters using the program BELGI-C_s-2tops to a standard deviation close to the measurement error. More precise determinations of the top-top interaction and the J, K dependent parameters as well as the influence of the total rotation on the top-top interaction were carried out. The extension of the ground state spectrum of methyl acetate is a necessary step before searching for the first torsional excited transition in both torsional modes in the room temperature spectrum.