DUAL-COMB SPECTROSCOPY OF THE ν_1+ ν_3 BAND OF ACETYLENE: INTENSITY AND TRANSITION DIPOLE MOMENT

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The ν_1+ν_3 vibration band of $^{12}C_2H_2$ is recorded with a homemade dual-comb spectrometer [b]. The spectral resolution and the accuracy of frequency determination are high, and the bandwidth is broad enough to take spectrum of the whole band in one shot. The last remarkable competence enables us to record all the spectral lines under constant experimental conditions. The linewidth and line strength of the P(26) to R(29) transitions are determined by fitting the line profile to Lambert-Beer's law with a Voigt function. In the course of analysis, we found the ortho-para dependence of the pressure-broadening coefficient [cd]. This time, we have determined the transition dipole moment of the ν_1+ν_3 band. It is noted that the transition dipole moment determined from the ortho lines agrees with that from the para lines.

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