STATUS ON THE GLOBAL VIBRATION-ROTATION MODEL IN ACETYLENE

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We have developed a global model to deal with all vibration-rotation levels in acetylene up to high vibrational excitation energy, typically up to 9000 wavenumbers. It has been applied to a number of isotopologues, considering all known vibration-rotation lines published in the literature, for various purposes such as line assignment[a] and astrophysical applications[b b]. Coriolis interaction is now systematically being introduced in the model. Recent results concerning the analysis of hot emission FTIR spectra recorded around 3 microns by R. Georges et al. at the University of Rennes (France) and of CW-CRDS spectra recorded around 1.5 microns by A. Campargue et al. at the University of Grenoble (France) will help illustrate the role of this vibration-rotation coupling in the global polyad scheme.

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[b] A. Jolly, Y. Benilan, E. Cané, L. Fusina, F. Tamassia, A. Fayt, S. Robert, and M. Herman, J.Q.S.R.T., 109, 2846 (2008).