GLOBAL VIBRATION-ROTATION ANALYSIS IN ACETYLENE: $^{12}C_2H_2$

S. ROBERT, M. HERMAN, *Service de Chimie quantique et Photophysique, CP160/09, Université Libre de Bruxelles (U.L.B.), Ave. F.-D. Roosevelt, 50, B-1050, Bruxelles, Belgium*; and A. FAYT, *Laboratoire de Spectroscopie Moléculaire, Université Catholique de Louvain, Chemin du Cyclotron 2, B-1348 Louvain-La-Neuve, Belgium.*

All known vibration-rotation absorption lines of $^{12}C_2H_2$ are being gathered from the literature and sometimes extended. They are being fitted simultaneously to J-dependent Hamiltonian matrices exploiting the well known vibrational polyad or cluster block-diagonalization, in terms of the pseudo quantum numbers $N_s = v_1+v_2+v_3$ and $N_r = 5v_1+3v_2+5v_3+v_4+v_5$, and accounting also for l-parity and e/f symmetry properties. The anharmonic interaction coupling terms known to occur from a pure vibrational fit in this acetylene isotopologue are included in the model. The results will be presented and discussed. Emphasis will be set on spectral simulations under extreme temperature conditions in the bending range.