

THE MICROWAVE SPECTRA AND MOLECULAR STRUCTURES OF THE GAS-PHASE HETERODIMERS, (*Z*)-1,2,3,3,3-PENTAFLUOROPROPENE-ARGON AND (*Z*)-1,2,3,3,3-PENTAFLUOROPROPENE-ACETYLENE

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(*Z*)-1,2,3,3,3-pentafluoropene results from the formal replacement of one of the two geminal fluorine atoms in 1,1,2-trifluoroethylene (the one located *trans* to the fluorine on the singly halogenated carbon) with a trifluoromethyl group. Structures for the gas-phase heterodimers of (*Z*)-1,2,3,3,3-pentafluoropene with argon and with acetylene are obtained from the analysis of the microwave spectra of each complex. While the binding of argon to the two olefins is similar in both cases, with argon locating in the FC=CF cavity, but away from the olefinic plane, the predicted structures of the corresponding heterodimers with acetylene show the possibility of distinct differences.