BROADBAND CHIRPED-PULSE FOURIER TRANSFORM MICROWAVE SPECTROSCOPY AND MOLECULAR STRUCTURE OF THE ARGON-*(Z)*-1-CHLORO-2-FLUOROETHYLENE COMPLEX

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A chirped-pulse Fourier transform microwave spectrometer is used to obtain the 6–18 GHz rotational spectrum of the gas-phase complex formed between argon and *(Z)*-1-chloro-2-fluoroethylene. Both the ^{35}Cl and ^{37}Cl isotopologues are observed in natural abundance, and analysis of these spectra provides predictions for both singly-substituted ^{13}C species with sufficient precision to allow their observation with minimal searching using the more sensitive narrow band Balle-Flygare cavity technique. The non-planar structure of the complex is similar to previously observed argon-fluoroethylene complexes with the argon atom closer to the fluorine than to the chlorine. In contrast to the argon-vinyl chloride and argon-*cis*-1,2-difluoroethylene complexes, tunneling of the argon atom between the two equivalent, non-planar geometries is not observed.