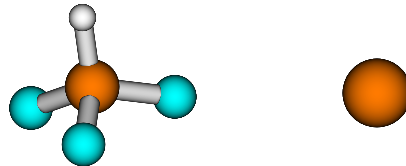


## AN UNUSUAL INTERNAL ROTATION: THE THREE-MINIMA MOTION OF AR IN TRIFLUOROMETHANE-AR

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The rotational spectrum of Trifluoromethane-Ar ( $\text{CHF}_3\text{-Ar}$ , see Fig. on the right) has been observed by free jet absorption millimeter wave spectroscopy. The near prolate top spectrum of the adduct suggests that: i) the location of Ar is out of the  $\text{C}_{3v}$  axis of  $\text{CHF}_3$ ; ii) the barrier to internal rotation of Ar is not negligible. The rotational lines are split in equally intense A E component lines for the low  $\text{K}_{-1}$  transitions, and in triplets lines for the high  $\text{K}_{-1}$ , transitions (doubly overlapped because of the near prolate degeneracy) with intensities 2:1:1 for  $\text{A:E}^+:\text{E}^-$  components. Such a behaviour is in accord with Hersbach theory for internal rotation.<sup>a</sup>



<sup>a</sup>D. R. Herschbach and J. D. Swalen *J. Chem. Phys.* **29**, 761 (1958).