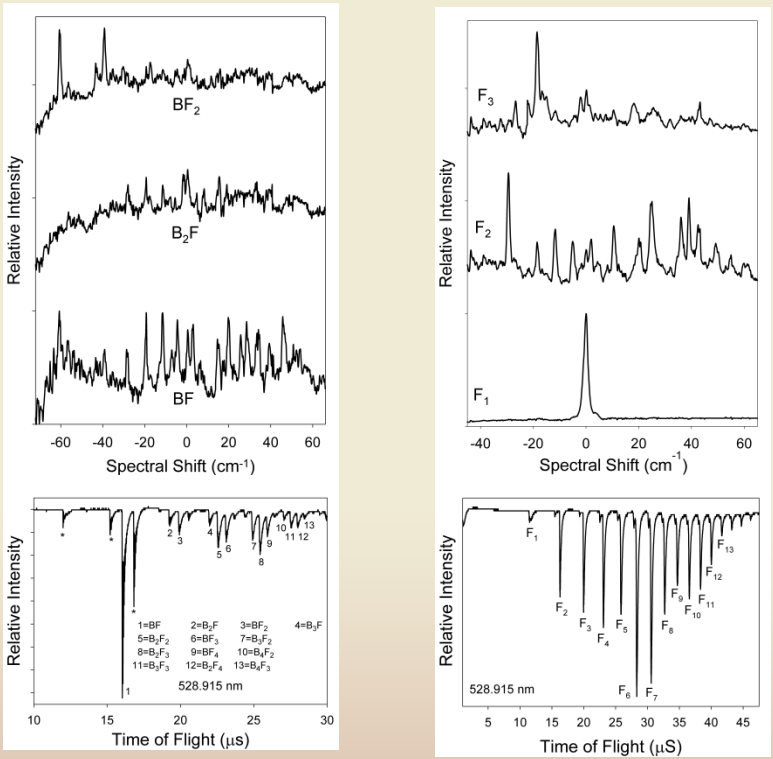
# Spectroscopy, Monte Carlo, and Electronic Structure Studies of Benzene-Derivative Solvation Clusters

*David C. Easter*

Texas State University-San Marcos







*R2PI* spectra of mixed benzene-fluorobenzene (left) and neat fluorobenzene (right) dimers and trimers. Spectral shifts are relative to fluorobenzene's $B_2 \leftarrow A_1$ $0^0_0$ origin at 37813 $cm^{-1}$. The time-of-flight mass spectrum is shown below each set of ultraviolet spectra

*All spectra through the trimer show a limited number of reproducible sharp features*. After correcting for fragmentation of $F_3$, the $F_2$ spectrum reveals evidence of four van der progressions at 4.1, 6.1, 14.6, and 16.2 $cm^{-1}$.

MP2 calculations are under way to determine structures and van der Waals frequencies consistent with the spectra.

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