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CHEMISTRY OF MODEL COMPOUNDS

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We have been investigating the synthesis and chemistry of model compounds of general structure $R_F(CH_2CF_2)_nR_F^i$ and unsaturated compounds derived from these systems. In the course of this work we have observed some very unusual chemistry as exemplified by the following:

- 1. Cyclisations involving fluoride with crowded systems.
- 2. Novel diene and polyene syntheses, using ${\rm SbF}_5$,

e.g.
$$[(CF_3)_2CFCH_2CF_2]_2 + SbF_5 \xrightarrow{120^{\circ}C} [(CF_3)_2C=CH-CF_2]_2$$

Ouant.

3. Cyclisations involving electrophilic substitution at a σ-bond

4. Formation of some remarkably long-lived fluorinated carbocations.

$$(CF_3)_2 CF(CH_2 CF_2)_2 CH_2 CF_3 \xrightarrow{\text{xs SbF}_5} (CF_3)_2 CFCH_2 CF_4 CFCH_2 CF_3$$

These and other systems will be discussed.