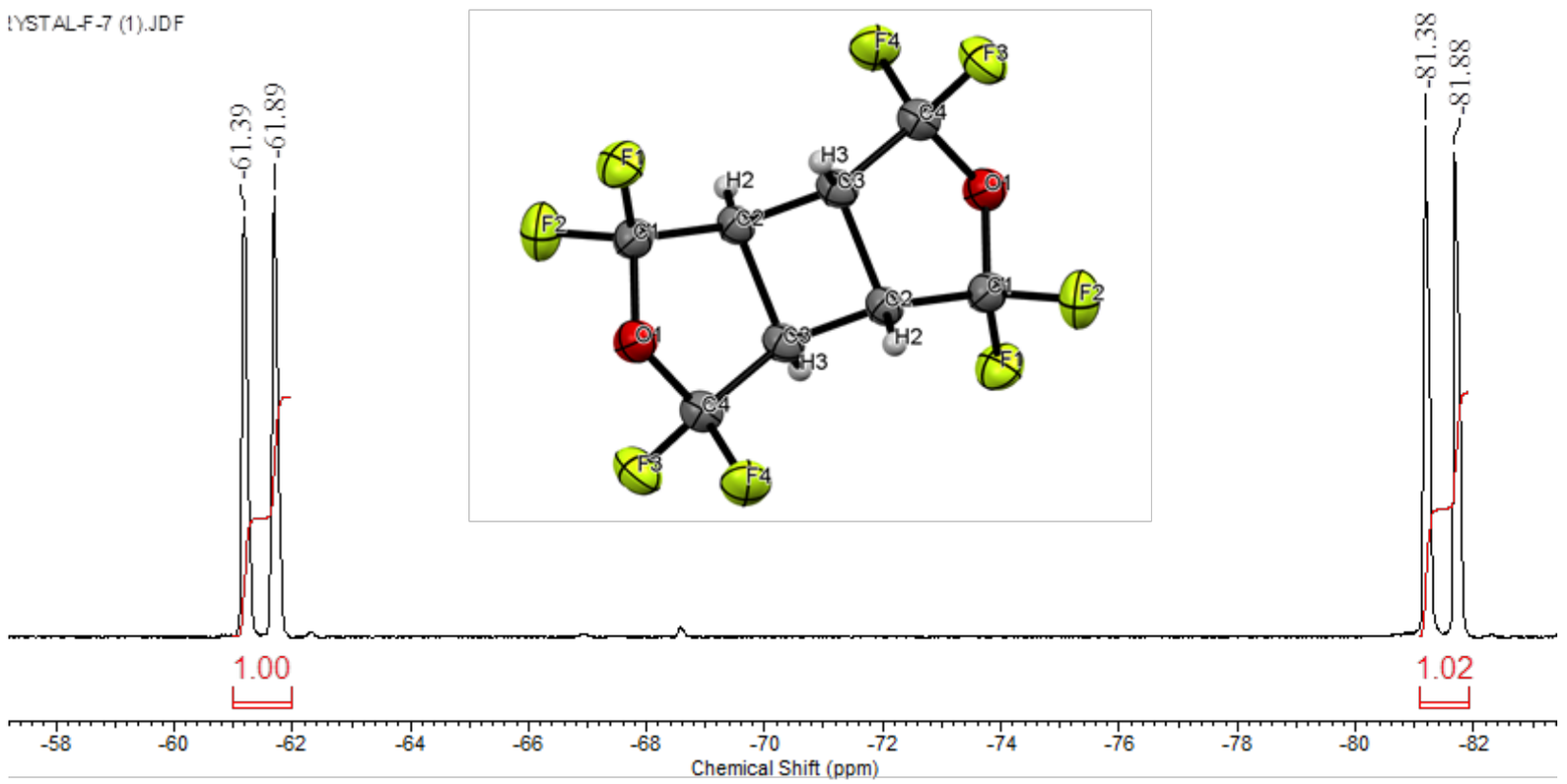
NMR is Science



It is a cyclic dimer formed by 2,2,5,5-tetrafluoro-2,5-dihydrofuran under UV radiation. It has a chair-shaped conformation, and the four carbons in the middle are in the same plane with four hydrogen atoms pointing at opposite directions, which results in different chemical environment of the two fluorine atoms on each CF2 group giving an AB pattern in 19F NMR spectrum.

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Field strength: 7.0586 T

Why is this your favorite spectrum?

The precursor for synthesizing this tricyclic diether 2,2,5,5-tetrafluoro-2,5-dihydrofuran was the most challenging reaction at the beginning of my PhD program, and overcoming this synthesis helped me build up the confidence to complete my study. This tricyclic diether compound was the first interesting result from 2,2,5,5-tetrafluoro-2,5-dihydrofuran compound. It is also rare to see a structure with four-membered carbon rings connected to two five-membered rings. It was prepared in our laboratory by UV radiation of 2,2,5,5-tetrafluoro-2,5-dihydrofuran. Besides this method, treatment of *cis,trans,cis*-1,2,3,4-cyclobutanetetra-carboxylic acid with SF4 at 145-150 °C also yields the same tricyclic diether compound.[1]

1. Pustovit, Y.M.; Ogojko, P.I.; Nazaretian, V.P. **1994**. Reactions of Cycloalkanecarboxylic Acids with SF4. III. Fluorination of Cycloburane- and Cyclopentane-tetracarboxylic Acids with SF4. *J Fluorine Chem, 69,* 237-240.