

In the lecture, we considered the Fermi Resonance of the C=O stretch of cyclopentanone. Let's look at that in some more detail.

First, suggest what type of a methylene overtone or combination does in fact do the "Fermi thing". Look up typical frequencies and check whether their multiples do approach the expected C=O stretching frequency.

Second, let's look at the band in more detail. The Fermi band is shown as recorded in different solvents. Try to explain the different splitting in the four cases.

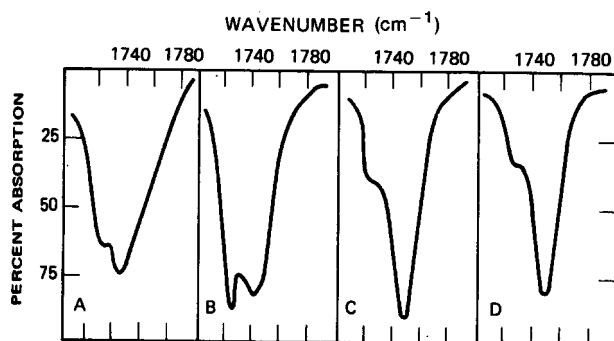


FIGURE 3.3. Infrared spectrum of cyclopentanone in various media. A. Carbon tetrachloride solution (0.15 *M*). B. Carbon disulfide solution (0.023 *M*). C. Chloroform solution (0.025 *M*). D. Liquid state (thin films). (Computed spectral slit width 2 cm^{-1} .)

(from Silverstein, page 95)