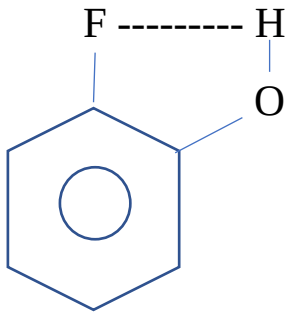
Intramolecular hydrogen bonding:

Intramolecular (within the molecule) hydrogen bond is appeared as sharp and well defined. Its is not affected by dilution.



Example:

N – H stretching 3500 cm^{-1}

Dilute solution 3300 cm^{-1}

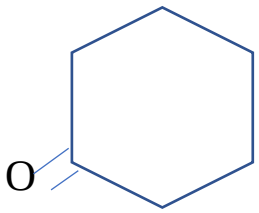
H – bonded O-H group 3600

Free O-H group 3350

iv) Bond angle:

Less bond angle compounds are occupied in higher wave number.

- C – CO – C -



Bond angle > 120°

Low frequency

< 120°

high frequency

- The sample and reference beam are fall into mirror (M) with the help of M_1 and M_2.
- The chopper M rotates at definite speed reflects the sample and reference beams to monochromator grating (B).
- This grating rotates and slowly it sends individual frequency to detector thermophile (D), it converts IR energy to electrical energy it amplifies to amplifier (A).
- Amplifier is coupled with motor (E) which drives an optical wedge (F).
- The movement of wedge is coupled with pen recorder, calibration is carried out using polystyrene.

FINGERPRINT REGION:

The region between **400 – 1500 cm^{-1}** in IR spectrum is called finger print region.

In this region contains large number of peaks, this identify the individual peaks is difficult. So, the compound is unique and it can be distinguish between compounds.