

(infrared spectrometry)

electromagnetic)
(speed of light) (wavelength) (radiation
(λ) (C)
: (v) (frequency)

$$(\lambda) \times (v) = C$$

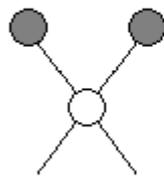
(vibration)

(rotation)

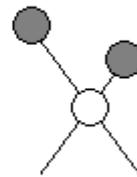
(dipole moment)

Stretching: Change in inter-atomic distance along bond axis

Stretching vibrations



Symmetric

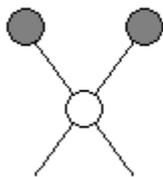


Asymmetric

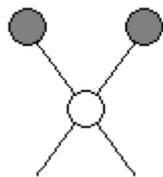
Bending: Change in angle between two bonds. There are four types of bend:

- Rocking
- Scissoring
- Wagging
- Twisting

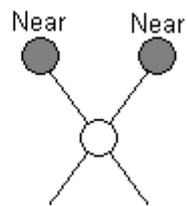
Bending vibrations



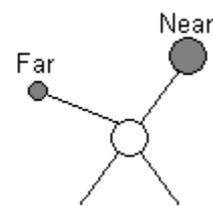
In-plane rocking



In-plane scissoring



Out-of-plane wagging



Out-of-plane twisting

(IR spectrometer)

(IR source)

(detector)

(Sample holder)

(polystyrene)

(acetone)

(methanol)

