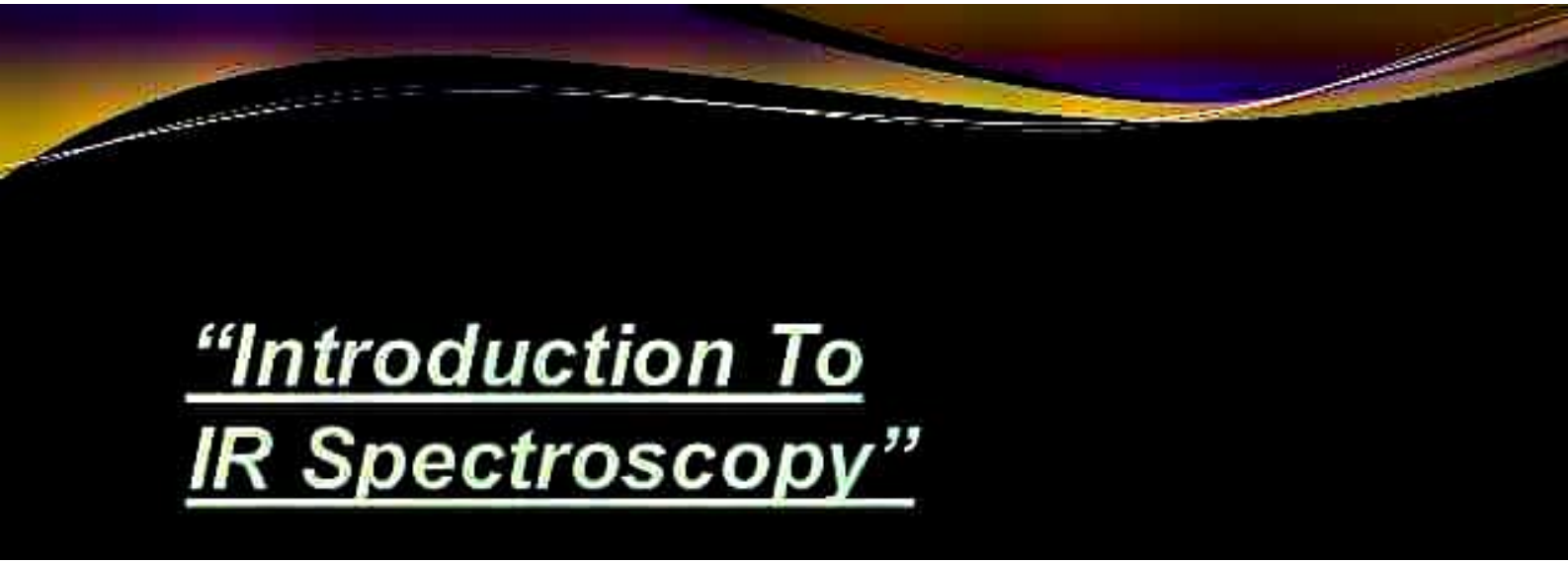
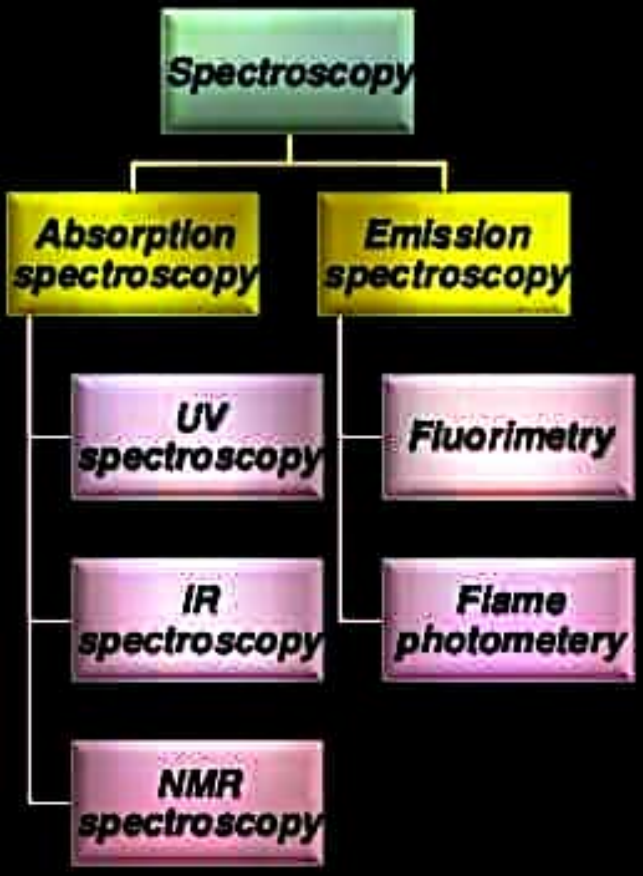
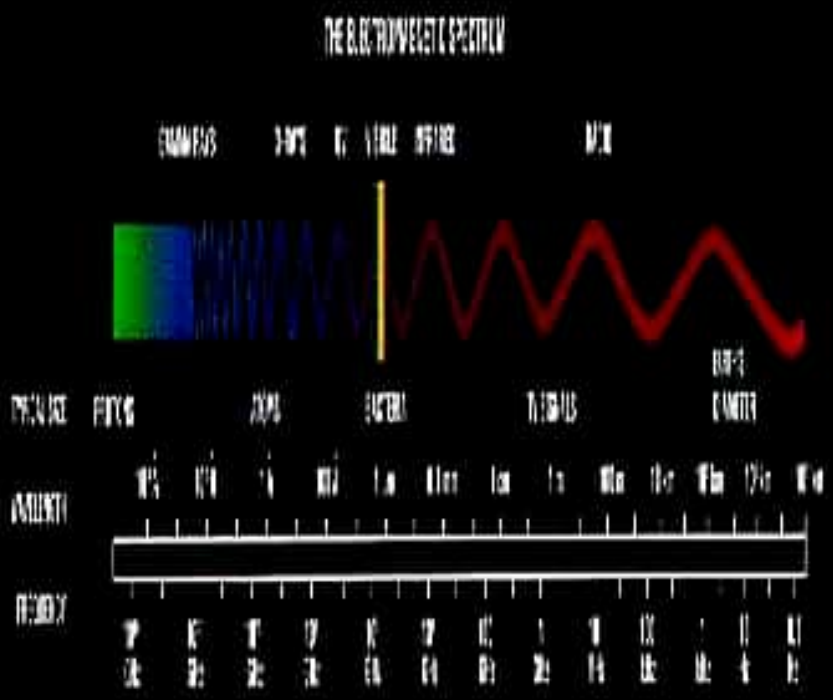


INTRODUCTION

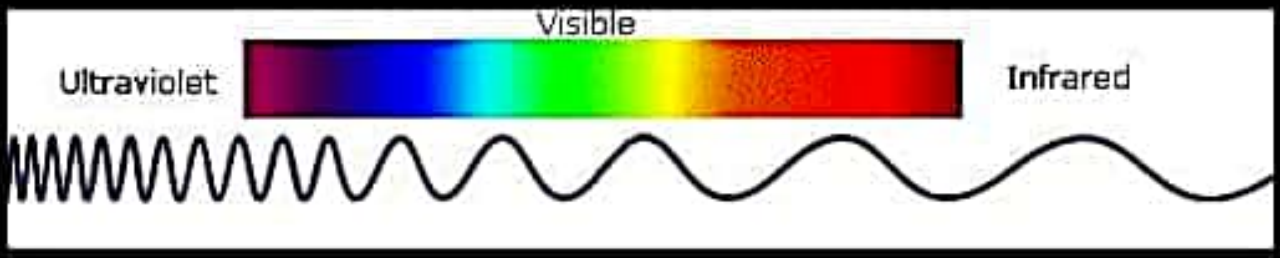


INFRARED SPECTROSCOPY

- **Infrared spectroscopy** (IR spectroscopy) is the spectroscopy that deals with the infrared region of the electromagnetic spectrum, that is light with a longer wavelength and lower frequency than visible light
- Infrared Spectroscopy is the analysis of infrared light interacting with a molecule.
- It is based on absorption spectroscopy



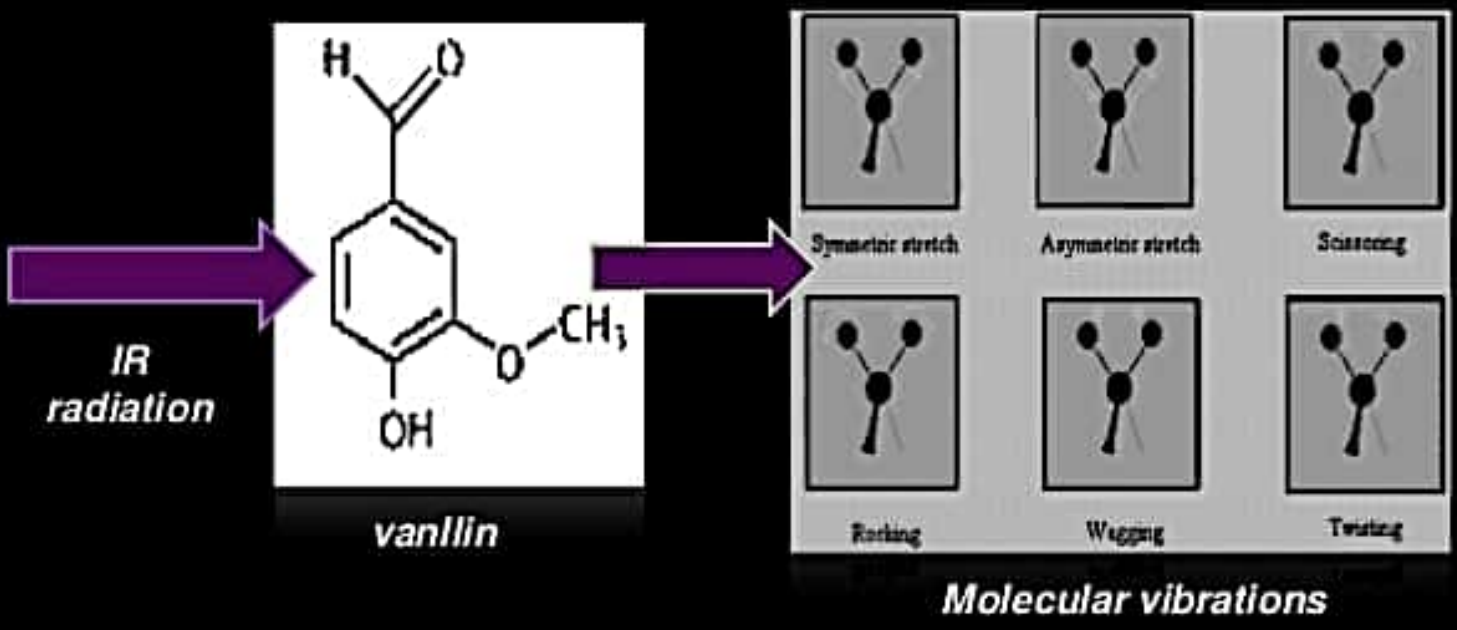
INFRARED REGIONS

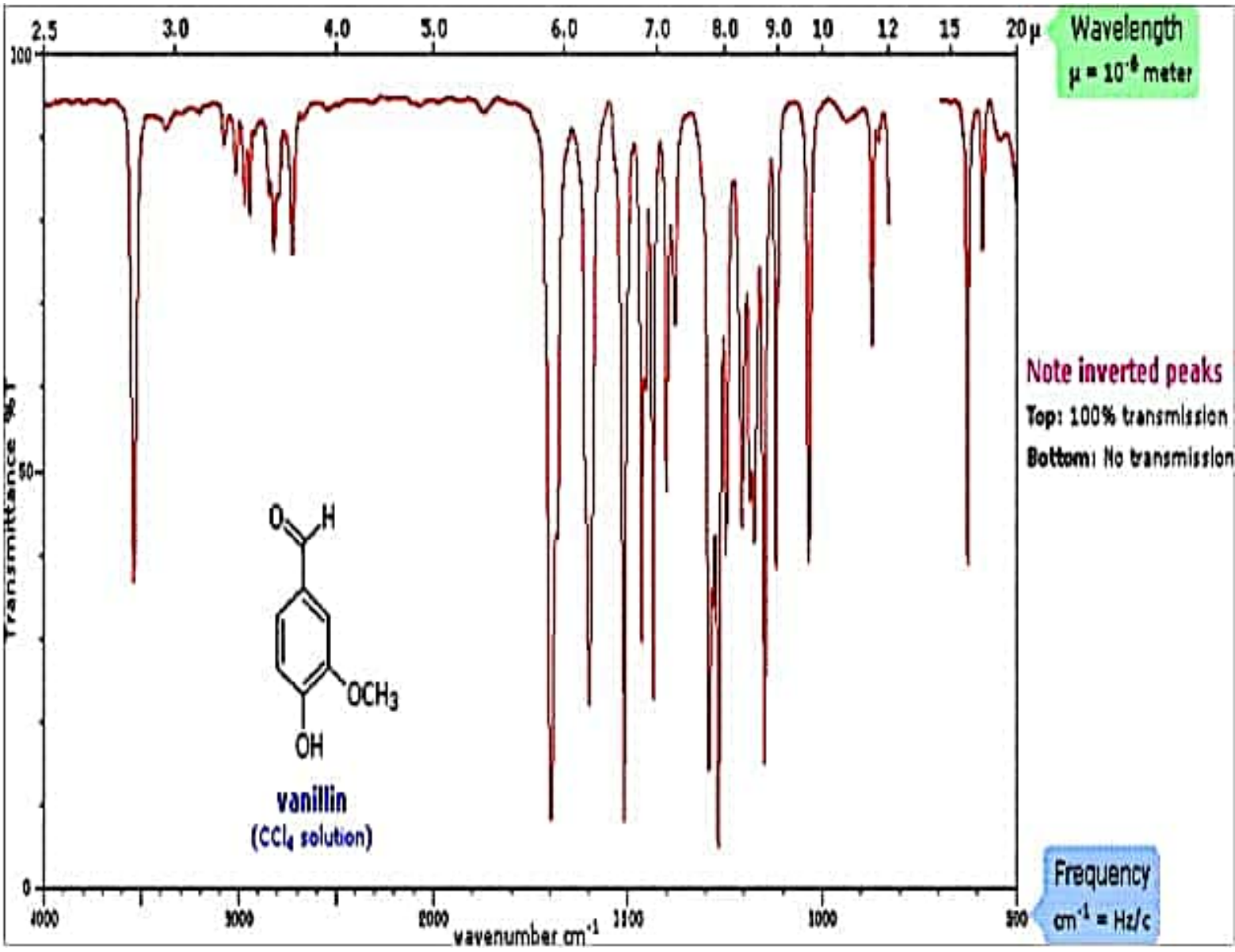


INFRARED REGIONS	RANGE
Near Infrared region	0.8-2.5 μ(12,500-4000 cm-1)
Main Infrared region	2.5-15 μ(4000-667cm-1)
Far Infrared region	15-200 m μ(667-100 cm-1)

PRINCIPLE

- When infrared 'light' or radiation hits a molecule, the bonds in the molecule absorb the energy of the infrared and respond by vibrating.





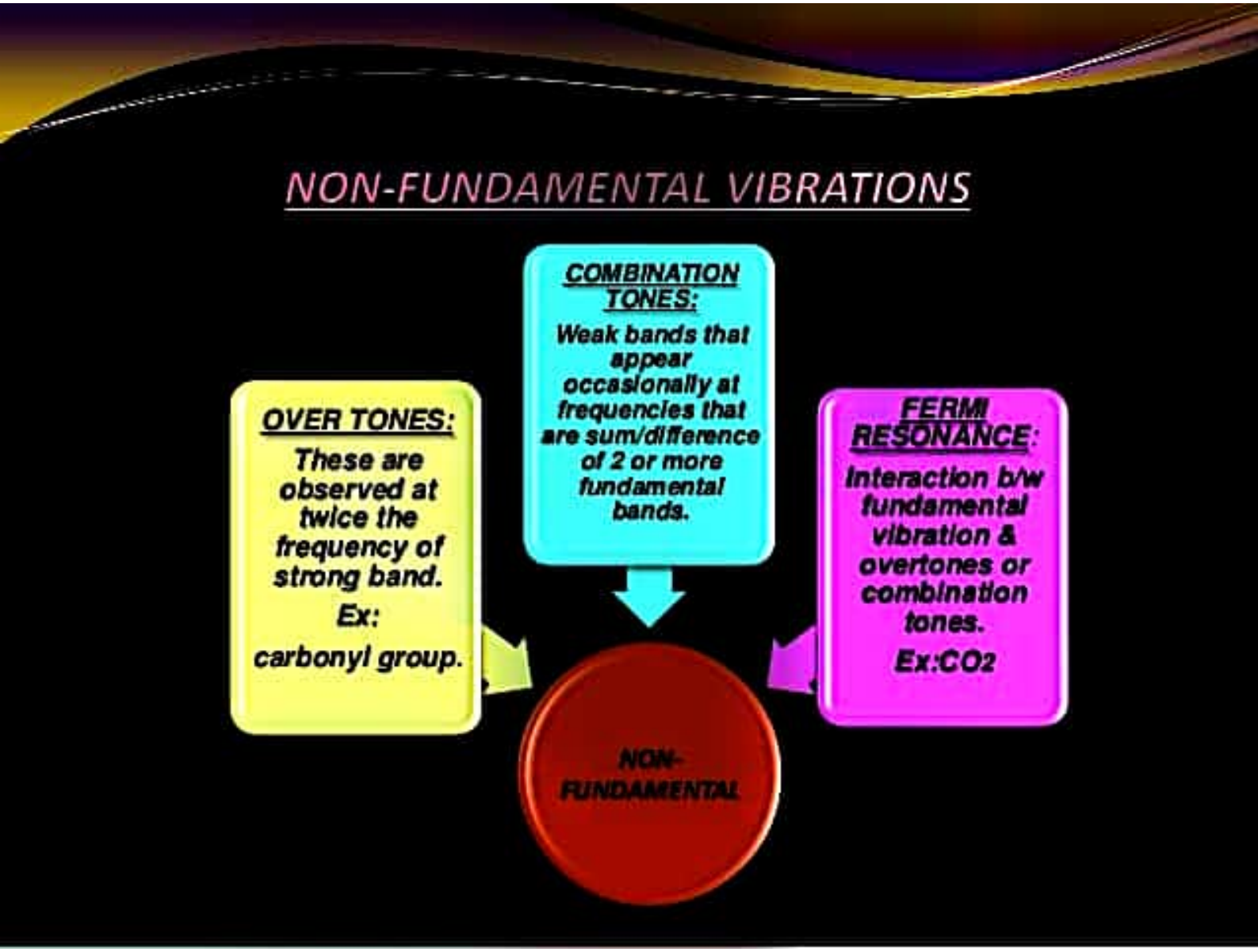
"MOLECULAR VIBRATIONS"

What is a vibration in a molecule?

"Any change in shape of the molecule- stretching of bonds, bending of bonds, or internal rotation around single bonds".

Why we study the molecular vibration?

Because whenever the interaction b/w electromagnetic waves & matter occur so change appears in these vibrations.



Mol. vibration divided into 2 main types:

FUNDAMENTAL VIBRATIONS

- Vibrations which appear as band in the spectra.

NON-FUNDAMENTAL VIBRATIONS

- Vibrations which appears as a result of fundamental vib.