


# Spectroscopy-SH


## FTIR

Owner: *Qi Chen*

<b>Principle</b> :	FTIR stands for Fourier transform infrared, the preferred method of infrared spectroscopy. In infrared spectroscopy, IR radiation is passed through a sample. Some of the infrared radiation is absorbed by the sample, and some of it is passed through (transmitted). The resulting spectrum represents the molecular absorption and transmission, creating a molecular fingerprint, of the sample. Like a fingerprint no two unique molecular structures produce the same infrared spectrum. This makes infrared spectroscopy useful for several types of analysis.	
<b>Capabilities:</b>	Characterizing materials and mixtures, finding additives, curing agents or contaminants, identifying materials or their modification, degradation and/or oxidation	
<b>Asset:</b>		Perkin Elmer Spectrum 100 FTIR Spectrometer  Spectral range: from 550 to 5000 $\text{cm}^{-1}$ with ATR (Attenuated Total Reflectance) and transmission modes.


## UV-Vis

Owner: *Tingting Zhang*

<b>Principle</b> :	It allows the characterization of the absorption or reflection of a material in the ultraviolet (UV) and visible light (Vis) regions of the electromagnetic spectrum. The energy provided by the incident light induces an electronic transition in molecules including chromophores (e.g. double or triple bonds, unpaired electrons, d orbitals, etc.), which can be monitored in an absorption spectrum.	
<b>Capabilities:</b>	Absorbance (% Abs) or Transmittance (%T) of solutions over a selected wavelength range.  Transmittance (%T) and total and/or diffuse reflectance (%R) of solid samples (films, thin plates or powders) in UV-VIS range.	
<b>Asset:</b>		PERKIN ELMER Lambda 365  Spectral Range: 190 to 1100 nm  With 50 mm integrating sphere

## Abbe Refractometer

Owner: [Tingting Zhang](#)

<b>Principle</b> :	Abbe's refractometer is an instrument that uses the principle of the critical angle of total reflection to measure the refractive index and average dispersion of transparent, semi-transparent liquids or solids. Refractive index is one of the characteristic indexes of optical media, which is widely used in qualitative detection and purity (concentration) determination of optical media. The Abbe refractometer is the most common instrument for determining the refractive index.	
<b>Capabilities:</b>	Refractive index of transparent, semi-transparent liquids or solids.	
<b>Asset:</b>		<b>DR-A1-Plus</b> Refractive index (nD 589.3 nm) : 1.3000 to 1.7100 Brix : 0.0 to 100.0% (Automatic Temperature Compensation at 5 to 50°C)

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