

## 【傅立葉轉換紅外線光譜儀】

本實驗室採用傅立葉轉換紅外光線光譜儀(Nicolet iS50 FTIR Spectrometer)，結合反射率量測之配件，做為材料表面輻射率量測之用途，量測範圍為 400 至 4000  $\text{cm}^{-1}$ 。量測方式及標準，依據 ISO 9050、ISO 10292、JIS R3106、JIS R3107、CNS 12381。紅外線光源，以小角度之入射角射入試件，依參考標準所示之波長，量測其反射率，再結合公式及權重係數，計算出表面輻射率。

傅立葉轉換紅外線光譜儀(FTIR)在材料分析或是化學分析上，亦有相當廣泛的應用，分析速度快且不破壞樣品，具備定性及定量分析的能力。最常見的應用方式可分為穿透、反射與半衰減全反射(ATR)。亦可結合其他量測技術，例如：TGA、GC 等，以獲取更多的樣品資訊。

## 【Nicolet iS50 FTIR Spectrometer】

The Nicolet iS50 FTIR Spectrometer, Fourier-transform infrared spectrometer, is produced by Thermo Fisher Scientific, an American company. It is set up for wide spectral range experiment (400  $\text{cm}^{-1}$  to 4000  $\text{cm}^{-1}$ ). The iS50 which is configured with reflection accessory, can measure emissivity. The corrected emissivity is defined and measured according to ISO 9050, ISO 10292, JIS R3106, JIS R3107 and CNS 12381. A collimated IR beam illuminate the sample area in a small degree angle of incidence. Spectral reflectance is measured at the wavelength given by the above standard. The corrected emissivity is calculated according to formula and coefficient.

Fourier-transform infrared spectrometer (FTIR) is widely used in material and chemical analysis. It's a rapid and non-destructive technique which is available for quantitative and qualitative analysis. The frequent ways of application are transmittance, reflectance and attenuated total reflectance, respectively. FTIR can also integrate with the other measuring techniques, such as TGA and GC, and obtain more information of sample.



傅立葉轉換紅外線光譜儀(FTIR)