



J-1700 CD Spectrometer

- Multi-purpose CD spectrometer with extended into the NIR region-



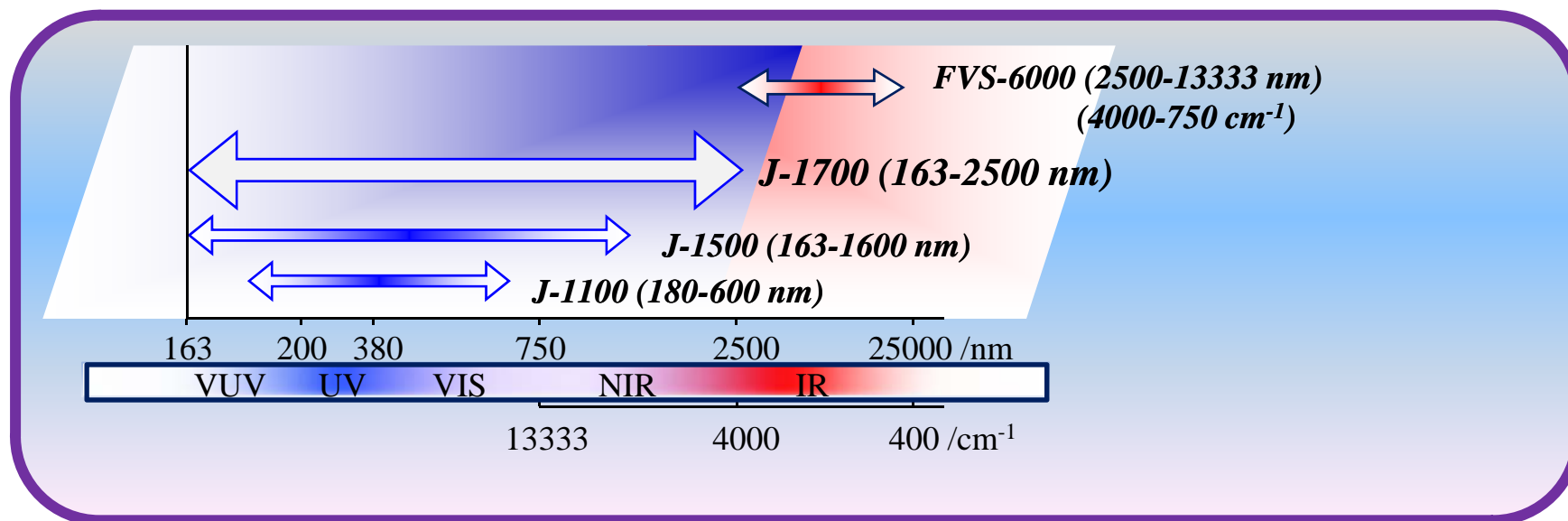


Introduction

Circular dichroism (CD) spectral measurements are indispensable for structural analysis of chiral compounds. Electronic CD (ECD), which is associated with electronic transitions in the vacuum ultraviolet (VUV) to visible regions, is often used for secondary structure estimation of proteins, and for structural analysis of chiral molecules. On the other hand, in the mid-infrared (mid-IR) region, vibrational CD (VCD) due to vibrational transitions can be used to determine the absolute configuration and conformation of chiral compounds in combination with molecular orbital calculations. In the near infrared (NIR) region, CD signals from metal complexes and colored proteins can be observed due to d-d transitions, and CD signals from the first and second overtones of vibrational transitions can also be observed.

However, there is no commercial CD spectrometer that is capable of measuring CD spectra in the entire VUV to NIR region. To overcome this problem, JASCO has developed the J-1700 CD spectrometer which enables CD measurements in the VUV to NIR region. By combining this with JASCO's FVS-6000 VCD spectrometer, full VUV-to-mid-IR (163-13333 nm) CD measurements can be performed.

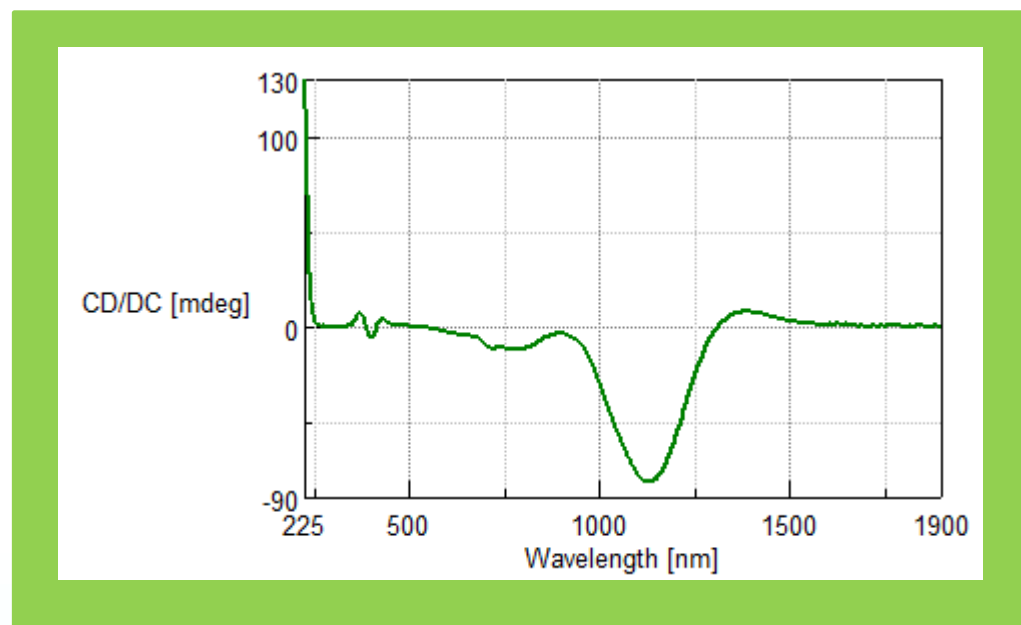
Wavelength ranges of JASCO CD spectrometers



1. The J-1700 can measure CD spectra in the entire VUV to NIR region (163-2500nm).
2. NIR CD and MCD spectra measurements can be used for the following applications.
 - (1) Obtaining structural information about central metal atoms in metal complexes and about colored proteins.
 - (2) Conformational analysis of molecules that have no chromophores by measuring the first and second overtones of vibrational transitions.
 - (3) NIR MCD spectra for heme chromophores are very sensitive to the oxidation, spin and ligand state of hemoproteins.

Features of J-1700

- Wavelength range is from 163 to 2500 nm.
- Light sources and detectors can be changed automatically.
Light sources: Xenon lamp and halogen lamp
Detectors: PMT and InGaAs detector
- Triple monochromator in NIR region for low stray light and high light intensity.



CD spectrum of Nickel (II) Tartrate

Concentration: 0.12 mol/L

Solvent: D₂O

Cell path length: 1 mm

It is possible to obtain structural information about central metal atoms in metal complexes and about colored proteins by measuring NIR CD spectra.