

EXCITATION SPECTRA WITH FDCD OR FLUORESCENCE ACCESSORIES

All Jasco spectropolarimeters can be equipped with FDCD (Fluorescence Detected Circular Dichroism) accessories, we will soon arrange a Technical Report dealing with this technique. Hardware-wise these accessories basically consist in a cell holder allowing 90° collection, in a filter (or in a series of filters) to remove excitation wavelengths and in the positioning of the PM tube detector at 90°.

With the J-810 while collecting FDCD spectra you may also obtain the plain fluorescence data in the following way:

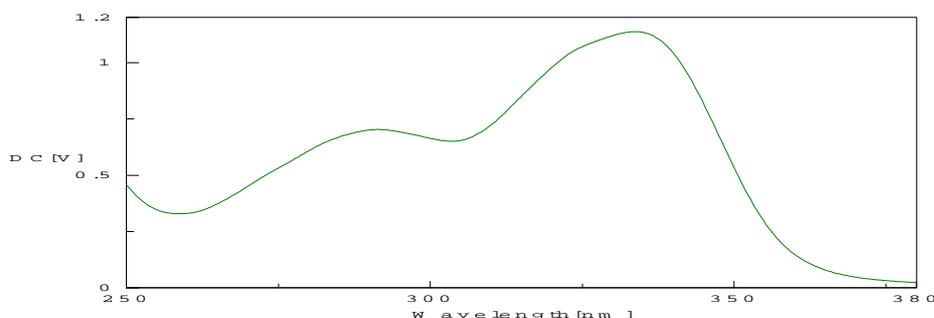
-FDCD is collected in CD/DC or FDCD/DC mode

-high voltage on PM tube is kept constant

-DC (i.e. fluorescence) is collected in Channel 2

In practical terms H.T. is set at a value giving proper intensity of the fluorescence signal.

The obtained fluorescence spectrum is however not corrected and it may be difficult to compare with similar data obtained on a bench top spectrofluorometer.



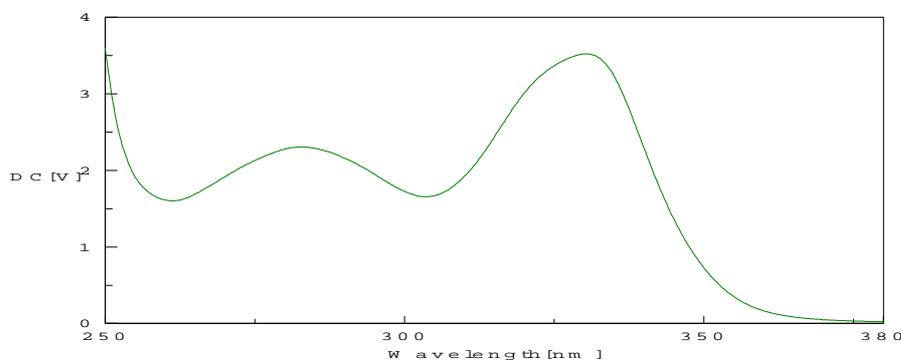
Here is a typical excitation spectrum run on a Perylene complex (courtesy of A. Michiewicz University of Poznan).

Data may be corrected in different way:

- 1 -off line: measuring DC signal in transmission mode (so with PM tube in normal position) selecting a suitable H.T. not to saturate the signal
- 2 -more automatically: collecting simultaneously on Ch3 the output of a second PM tube placed in transmission position after the sample (typically same PM tube used for simultaneous CD/fluorescence measurements if instrument is so equipped)

In both cases data so obtained is rationed with the uncorrected fluorescence signal.

Next figure shows the corrected spectra of the same sample.



The data manipulation result is closer to the “real” spectra, both in intensity and wavelength position of the bands. While full compensation would be possible using additionally a Rhodamine-B filled cell (this too is possible!), the degree of compensation so obtained is probably enough for most of the applications.