

frequency-domain fluorometry

Technique that permits recovery of the parameters characterizing a *fluorescence* decay. Instead of using an exciting *visible*, *UV*, or *infrared* radiation pulse (see *single-photon timing*), the sample is excited by sinusoidally modulated radiation at high *frequency*. The fluorescence response is sinusoidally modulated at the same frequency as, but delayed in phase and partially demodulated with respect to the excitation.

Note 1: The modulation ratio is defined as the ratio is defined as the ratio of the modulation depth (AC/DC ratio) of the fluorescence and the modulation depth of the excitation. The phase shift and the modulation ratio characterize the harmonic response of the system. These parameters are measured as a function of the modulation frequency. No deconvolution is necessary because the data are directly analysed in the frequency domain.

Note 2: Phase and modulation measurements can be done by using either a *CW laser* (or a *xenon lamp*) and an optical modulator (in general a Pockel cell) or the harmonic content of a pulsed laser.

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