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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 fluoresence response is sinusoidally modulated at the same frequency as, but delayed in phase and partially demodulated with respect to the excitation.

Notes:

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.
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.

Source:

PAC, 2007, *79*, 293 *(Glossary of terms used in photochemistry, 3rd edition (IUPAC Recommendations 2006))* on page 346

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