Preface

Of all the techniques available to obtain information on the rates of depopulation of excited electronic singlet states of molecular species, monitoring of fluorescence provides in principle the simplest and most direct measure of concentration. The time evolution of fluorescence, on a time-scale from hundreds of nanoseconds to tens of picoseconds, can be measured by a variety of techniques, but the one which has become most popular over the last 12 years is time-correlated single photon counting. The level of sophistication accompanying the use of these methods has developed rapidly, and several instruments are now available commercially. It is perhaps arrogance which causes us to believe that new users of the technique do not always appreciate fully the advantages and pitfalls of the equipment and curve-fitting routines necessarily used with the hardware. We have written this monograph in the sincere hope that by relating our own experiences with a variety of different single photon counting systems, we may provide a useful service to users and potential users of this formidably sensitive technique.

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