TTTR

TTTR stands for Time-Tagged Time-Resolved. The basic concept of this measurement mode is to record every individual photon of a TCSPC experiment. Both the arrival time as well as the TCSPC timing information (i.e. the time from the preceding excitation pulse or to the following excitation pulse in reverse start stop experiments) are recorded.

The TimeHarp 200 (also the TimeHarp 100), the PicoHarp 300 HydraHarp 400 support TTTR mode measurements. With the the PicoHarp 300 a slight shift in the nomenclature was introduced. Due to its capability of simultaneously recording both signal inputs (in interactive mode used as 'Start' and 'Stop') as two separate TTTR traces with a time resolution of 4ps, a new TTTR mode was introduced, the so called T2-mode. The traditional recording as with the TimeHarp 200 / TimeHarp 100 is called T3-mode. In T2-mode both signal inputs are functionally identical.

Today recording of T3-mode and T2-mode files is possible with all recent PicoQuant TCSPC devices (TimeHarp 260, PicoHarp 300 and HydraHarp 400 and their included software, analysis is supported mainly by the SymPhoTime software package.

Due to its capability of including external TTL pulses as markers in the stream of photon events TTTR mode is suitable for FLIM measurements. The markers are used to synchronise the photon events with a scanning process allowing to sort the photons into image pixels.

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