News Release

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New Programming Library for TCSPC System PicoHarp 300

A new programmer's library is now available for the PicoHarp 300 Time-Correlated Single Photon Counting system from PicoQuant. The new library version 2.2 provides several new features, most importantly driver support for the 64 bit versions of Windows Vista. It furthermore fixes some minor bugs found in earlier versions. The new library also provides improvements for the instrument's Time-Tagged Time-Resolved (TTTR) mode, were all photons or other events are captured as precisely timed individual records. The library supports the latest PicoHarp hardware, providing four external marker inputs. These markers for synchronization with other processes can be recorded as part of the TTTR mode data stream. This provides synchronization with virtually all existing imaging devices including laser scanning microscopes (LSM). This allows to record fluorescence lifetime images with these systems at virtually any resolution and size. The PicoHarp is based on a new time digitizer with 4 picoseconds resolution and a processing rate of up to 10 million counts per second. Through the programing library, users can exploit its unique new features, notably two identical input channels that can operate independently, but with a common crystal time base. Therefore, not only classical TCSPC histograms for the measurement of fluorescence decays, but also picosecond coincidence correlations can be obtained. The latter is of great interest in single molecule spectroscopy and general quantum physics. The high timing resolution qualifies the system for use with high resolution detectors such as Micro Channel Plate PMT (MCP-PMT). Sync rates from excitation sources can be as fast as 80 MHz but even very slow sources can be used efficiently with 'multi-stop' acquisition on the detector channel, e.g. in time of flight or OTDR applications. The on-board histogramming mode provides up to 65536 bins. This results in a time span much wider than in any conventional TAC based TCSPC system. The base resolution of 4 ps can be binned down to 8, 16, 32, .., 512 ps in hardware, thereby providing histogram time spans up to 33 µs. Time spans in Time Tagged mode are virtually unlimited. The PicoHarp system is designed as a USB 2.0 „Plug and Play device“, allowing control and data acquisition from a regular desktop computer or notebook PC. Access to the USB interface through the library is designed very efficiently, so that a sustained TTTR mode throughput of 5 millions of counts per second can be achieved. The new version 2.2 of the programmer's library is provided free of charge to all owners of an earlier version. It supports not only the popular LabVIEW environment but also MATLAB and all current C/C++ compilers as well as Delphi and Visual Basic. A rich set of sample application source code for all platforms is provided with the DLL to help developers getting started quickly.

Attachement - picture collage

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About PicoQuant GmbH

PicoQuant GmbH is a research and development company, founded in 1996 and based in the Technology Park Berlin-Adlershof, Germany. The company is leading in the field of Single Photon Counting Applications. The product line includes pulsed light sources, photon counting instrumentation, fluorescence lifetime spectrometer and time-resolved confocal microscopes. It employes around 40 people.

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