~~TOC~~

Artefacts in Antibunching Histograms - Slow Decay

A decay caused by correlation statistics

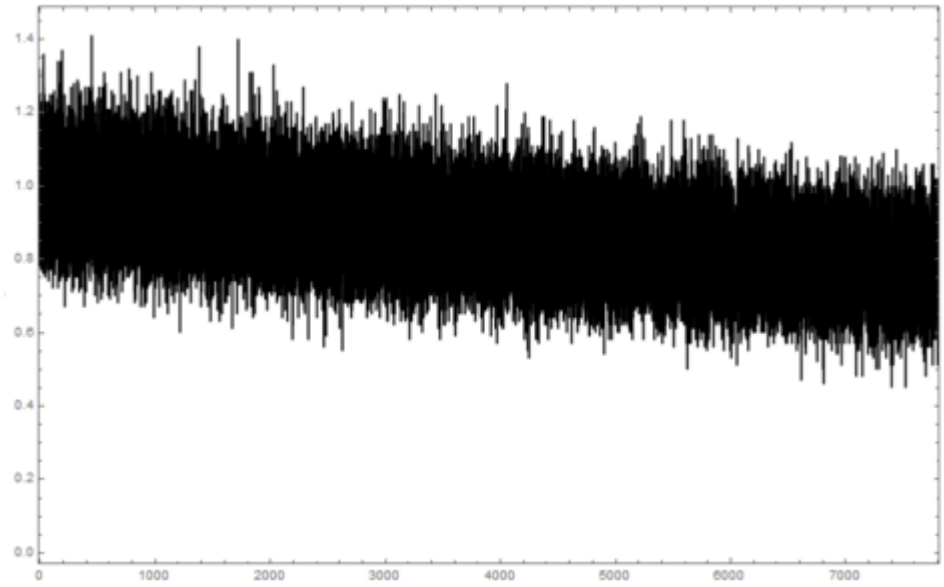


Fig. 1: Baseline decay

This decay is caused by correlation statistics. This happens because you correlate the first arriving photon against a photon at the longer time, which will be an increasingly unlikely event because the earliest stop photons always win and the experiment restarts.

A simulation with 90ns dead-time period:

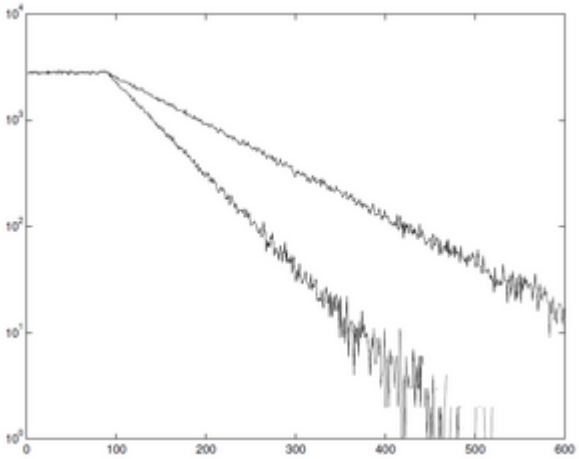


Fig. 2: Simulation

The timescale is in ns. The plateau is the dead time. The decay slope depends on the count rate.

The way to avoid this is to calculate the total correlation after T2 MODE MEASUREMENT. This is not a start-stop correlation but the correlation of every photon against every photon.

It can be done using the SymPhoTime Software (http://www.picoquant.com/products/sw_mt/sw_mt.htm).

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