

~~TOC~~

## **Artefacts in Antibunching Histograms - Slow Decay**

## A decay caused by correlation statistics

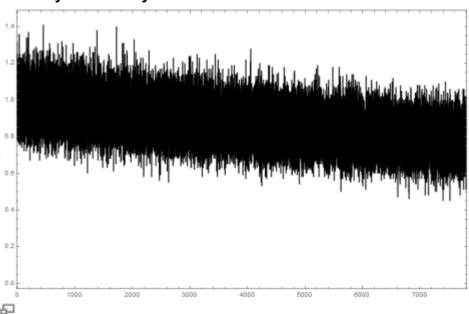


Fig. 1: Baseline decay

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:

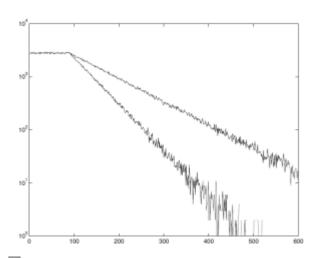


Fig. 2: Simulation

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).

Copyright of this document belongs to PicoQuant GmbH. No parts of it may be reproduced, translated or transferred to third parties without written permission of PicoQuant GmbH. All information given here is reliable to our best knowledge. However, no responsibility is assumed for possible inaccuraciesor omissions. Specifi cations and external appearances are subject to change without notice.



PicoQuant GmbH Rudower Chaussee 29 (IGZ) 12489 Berlin Germany P +49-(0)30-1208820-89 F +49-(0)30-1208820-90 info@picoquant.com www.picoquant.com

© PicoQuant GmbH 2/2