DRAFT

How-to select the correct pinhole size

The pinhole size should be slightly bigger than the image of the Airy Disc at the position of the pinhole:

$$d_{Airy} = (1.22 * lambda / N.A.) * M$$

where M is the magnification of the objective

e.g.:

- 60x water immersion Olympus objective, NA 1.2
- Dye: Alexa 430 (em. max: 539 nm).

⇒ $d_{Airy} = 33µm$

However because the optical elements are never perfect (and therefore the Airy disc slightly bigger) one would typically select a slightly bigger pinhole.

See also the discussion on the PicoQuant TCSPC Forum:
https://forum.picoquant.com/viewtopic.php?f=23&t=1022

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