

# ***Supplementary Material:***

## **Derivation of fiber orientations from oblique views through human brain sections in 3D-Polarized Light Imaging**

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### **1 CAMERA DETECTION STATISTICS**

$N = 100$  images covering a broad intensity range were recorded under the same conditions to obtain a distribution of the recorded light intensities. They were analyzed pixelwise for their mean  $\bar{I}$  and sample variance  $S^2$  as estimators of the expected value and variance according to

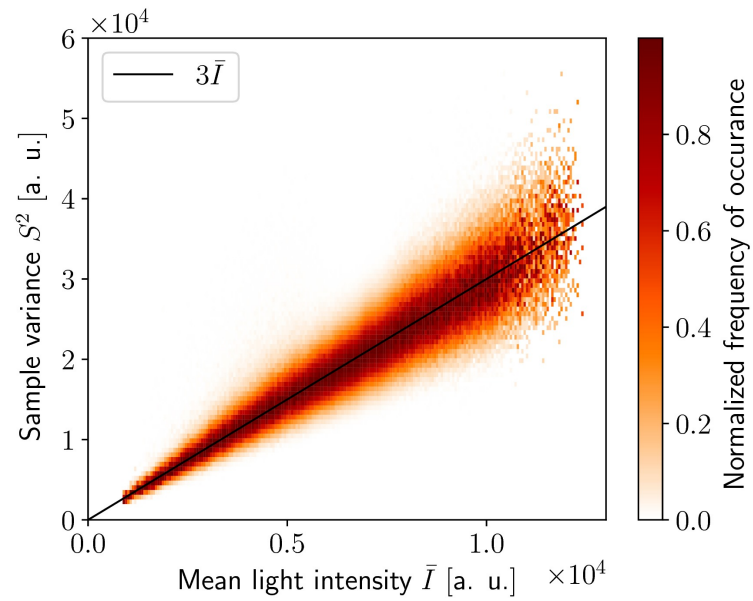
$$\bar{I} = \frac{1}{N} \sum_{j=1}^N I_j \quad (\text{S1})$$

$$S^2 = \frac{1}{N-1} \sum_{j=1}^N (I_j - \bar{I})^2 \quad (\text{S2})$$

with  $I_j$  denoting the intensity of the  $j$ th measurement. The 2D histogram of the obtained mean values and sample variances is given in fig. S1. We can conclude that sample variances and mean values are related by  $S^2 = 3\bar{I}$ .

### **REFERENCES**

Wiese, H. (2017). *Enhancing the Signal Interpretation and Microscopical Hardware Concept of 3D Polarized Light Imaging*. Ph.D. thesis, Bergische Universitt Wuppertal



**Figure S1.** Normalized 2D-histogram of mean values  $\bar{I}$  and sample variances  $S^2$ . The fit line shows that  $S^2 = 3\bar{I}$ . Modified from Wiese (2017)