|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Axial resolution** | | | | | |
| **Microendoscope based on 6.4 mm-long GRIN rod**  *f(x) = ax4 + bx2 + c* | | | **Microendoscope based on 8.8 mm-long GRIN rod**  *f'(x) = a'x4 + b'x2 + c'* | | |
|  | **Uncorrected** | **Corrected** |  | **Uncorrected** | **Corrected** |
| *a* | 0.41∙10-6  (-0.39∙10-6, 1.21∙10-6) | 0.20∙10-7  (-0.24∙10-7,  0.65 ∙10-7) | *a'* | 0.31∙10-6  (-1.28∙10-6, 1.91∙10-6) | -0.31∙10-7  (-0.63 ∙10-7, 0.014∙10-7) |
| *b* | 0.59∙10-4  (-43.64∙10-4, 44.83∙10-4) | -0.52∙10-4  (-8.53∙10-4, 7.48∙10-4) | *b'* | 0.19∙10-2  (-0.68∙10-2, 1.05∙10-2) | 0.12∙10-2  (0.053∙10-2, 0.18∙10-2) |
| *c* | 7.99  (4.20, 11.77) | 8.52  (6.03, 11.00) | *c'* | 7.43  (0.089, 14.78) | 7.04  (4.77, 9.30) |
| R-square | 1.00 | 0.72 | R-square | 1.00 | 0.93 |
| **Lateral resolution** | | | | | |
| **Microendoscope based on 6.4 mm-long GRIN rod**  *g(x) = dx4 + ex2 + f* | | | **Microendoscope based on 8.8 mm-long GRIN rod**  *g'(x) = d'x4 + e'x2 + f'* | | |
|  | **Uncorrected** | **Corrected** |  | **Uncorrected** | **Corrected** |
| *d* | 0.26∙10-7  (-2.83∙10-7, 3.35∙10-7) | 0.11∙10-7  (0.050∙10-7, 0.16∙10-7) | *d'* | -0.71∙10-8  (-22.84∙10-8, 21.42∙10-8) | 0.22∙10-8  (-0.047∙10-8, 0.50∙10-8) |
| *e* | 0.26∙10-3  (-1.45∙10-3, 1.97∙10-3) | -0.85∙10-4  (-1.87∙10-4, 0.17∙10-4) | *e'* | 0.13∙10-3  (-1.10∙10-3, 1.35∙10-3) | 0.59∙10-4  (0.031∙10-4, 1.15∙10-4) |
| *f* | 1.10  (-0.36, 2.56) | 1.37  (1.06, 1.69) | *f'* | 1.06  (0.0089, 2.10) | 1.12  (0.93, 1.31) |
| R-square | 0.99 | 0.95 | R-square | 0.94 | 0.98 |

**Supplementary File 4. Fitting parameters for PSF measurements of uncorrected and corrected microendoscopes.** Coefficients of quartic functions fitting experimental PSF data (axial, top; lateral, bottom) are presented for uncorrected and corrected microendoscopes based on the 6.4 mm-long GRIN rod (left) and the 8.8 mm-long GRIN rod length (right). Parentheses indicate the 95% lower and upper confidence bounds (see Figure 3I, J). R-square values are indicated for each fit.