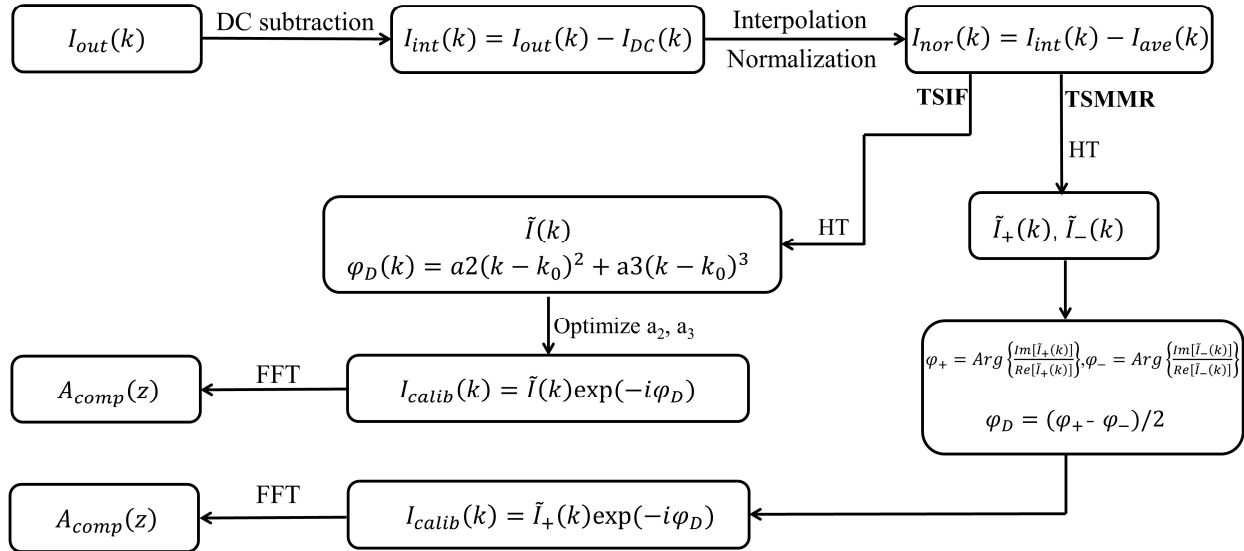## Supplementary Materials

Figure S1 The calculation flowchart of TSIF method and TSMMR method.

Supplementary Note S1: We used the amplitudes of two symmetric first side lobes of PSF as the indicator for the symmetrical property, which is defined as following:

$$S = \sum_{n=1}^{n=Z/\Delta z} | A(z_p + n \cdot \Delta z) - A(z_p - n \cdot \Delta z) |$$

where $z_p - n \cdot \Delta z$ and $z_p + n \cdot \Delta z$ refer to two symmetrical positions located in the left and right sides of the main peak. A(z) refers to the amplitude at the corresponding depth z. $\triangle z = 0.0257$ presents the increment for one pixel in Figure 3a and b. The used maximal depth Z=20 μm. The calculated S for TSIF, TSMMR and SAMMR is 718, 126 and 79, respectively. The lower S value in SAMMR indicates more symmetrical side lobes than those in the other two methods.