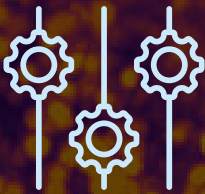


AOKit Bio

Adaptive Optics
for Microscopy



Add AO
to your microscope



Control the PSF
of your optical setup



Use a software
adapted to your needs



mu-Imagine

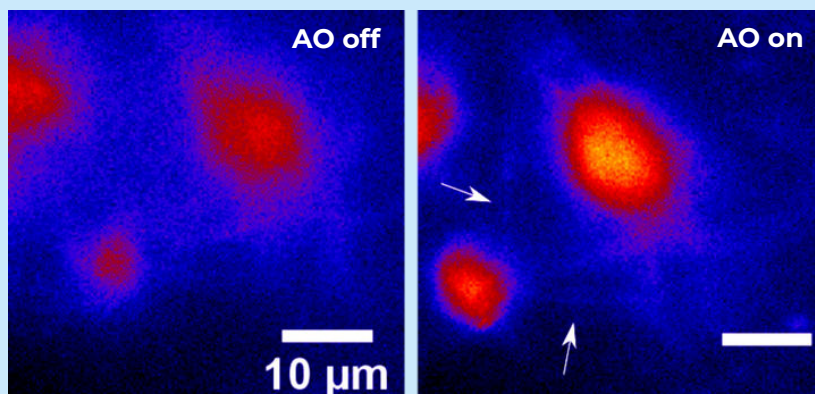
a division of imagine^{optics}

Applications

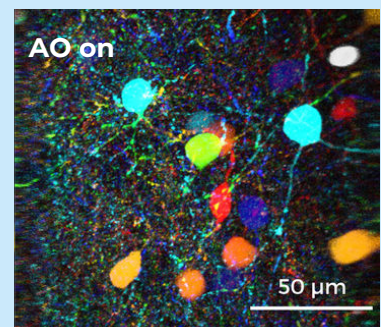
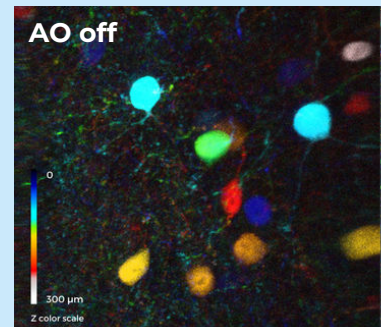
Implement on various set-ups :

Being versatile, the AOKit Bio can be implemented for various microscopy techniques such as :

- Multiphoton
- Light-sheet
- Lattice Light-sheet
- PALM / STORM
- STED



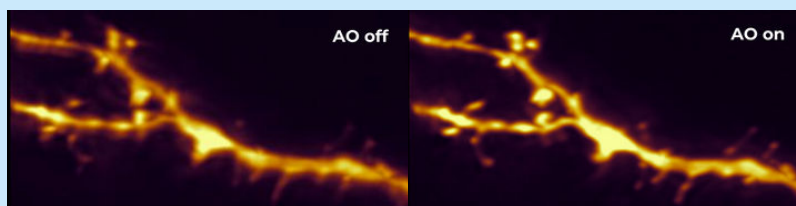
Light-Sheet imaging of the live drosophila brain: GCaMP7-labeled neurons involved in the circadian clock network imaged at 40μm depth. AO enables the visualization of neuronal projections (white arrows). Courtesy of A. Hubert (École Supérieure de Physique et de Chimie Industrielles, Imagine Optic)



2 Photon imaging of GADGFP mouse brain slices, inhibitory neurons labelled. Courtesy of S. Imperato (Laboratoire de Physique et d'Etude des Matériaux, Institut de Biologie de l'Ecole Normale Supérieure, Imagine Optic)

Advantages of AOKit Bio

- ✓ **Choose your elements** depending on your needs: AO loop can be integrated with different phase modulators, such as deformable mirrors or spatial light modulators (SLM)
- ✓ **Operate** in both closed and open loop modes
- ✓ **Save time** implementing your AO set-up thanks to Adaptive Optics software



Lattice light-sheet imaging of neuronal projections with 3N algorithm. Courtesy of M. Malivert (Bordeaux Imaging Center)

Boost your imaging performance :

Adaptive Optics made easy and efficient

Hardware combinations

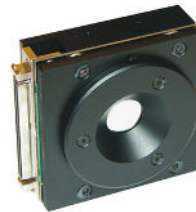
1 Choose your mirror (or other SLM)



mu-DM
 Advised for :
 ✓ High precision
 ✓ Open-loop
 ✓ Closed-loop



MirAO regulated
 Advised for :
 ✓ Open-loop
 ✓ Closed-loop



MirAO
 Advised for :
 ✓ Closed-loop

2 Select your wavefront sensor



HASO4 FIRST
 On demand
 wavelength between
 400 and 1100 nm



HASO4 BROADBAND
 Broadband
 wavelength range
 (from 350 to 1100 nm)

3 Choose your software

For easy and fast implementation, we recommend using WAVETUNE. This program controls all the elements with a simple user interface.

For implementation of aberration detection methods into home-built software, we also provide WAVEKIT Bio, the Software Development Kit (SDK).

More details about available software on the next page.

Hardware combination examples :

mu-DM

Number of actuators	91
Coating	Protected silver
Linearity	> 99.5%
Maximum generated wavefront (PV)	> 50 μm on 7 actuators

HASO4 BROADB.

Aperture dimension	6.9 x 5.1 mm ²
Max. acquisition rate	125 Hz
Wavelength range	350-1100 nm
Wavefront measurement accuracy in absolute mode	$\lambda/100$ RMS

Operating system Windows 10

MirAO

Number of actuators	52
Coating	Protected silver
Linearity	> 95 %
Maximum generated wavefront (PV)	$\pm 50 \mu\text{m}$

HASO4 FIRST

Aperture dimension	3.6 x 4.5 mm ²
Max. acquisition rate	99 Hz
Wavelength range	400-1100 nm
Wavefront measurement accuracy in absolute mode	$\lambda/100$ RMS

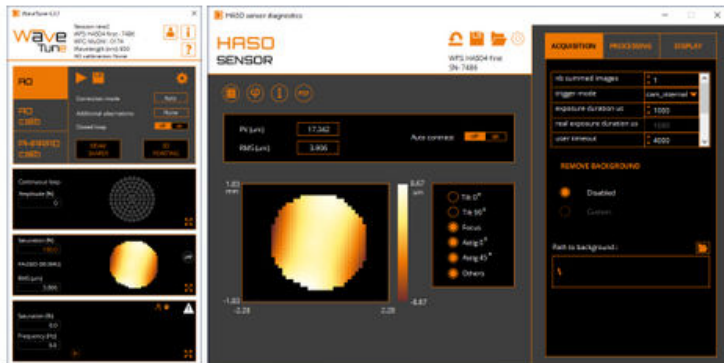
Operating system Windows 10



Available AO software

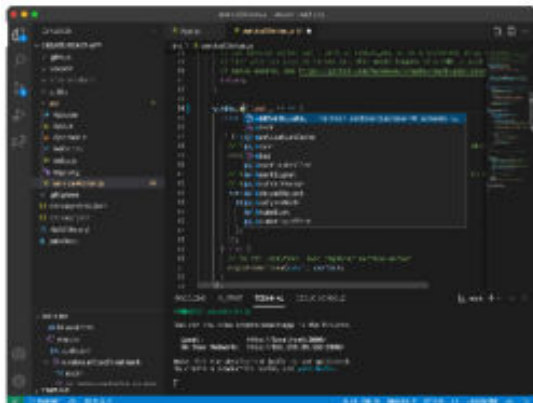
WAVETUNE

WaveTune is a unique software that seamlessly combines wavefront measurement and correction features with extensive instrument diagnostics. This software contains all the necessary tools to calibrate the Deformable Mirror (DM). It can also operate the DM in closed-loop with HASO wavefront sensor, as well as in open-loop and perform beam shaping.



WAVEKIT BIO

WaveKit Bio is a Software Development Kit (SDK), available in C++ and Python, specifically designed for microscopy applications. In particular, it contains all the necessary functions to implement sensorless AO, using image-based iterative algorithms (e.g. 3N).



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