

CIRCUITPHOTONICS team



F. Pra INMED - SG | H. Rigneault Fresnel - Mosaic | **R. Cossart** INMED - DU | G. Masson INT - DU | J.L. Chassaing INT - SG



I. Vanzetta Neuro/optics | T. Chaigne Photo-acoustic | A. Lombardini Optics | F. Michel Neuro/optics | S. Brustlein Optics | P. Huynh Data

EQUIPEX+ Project

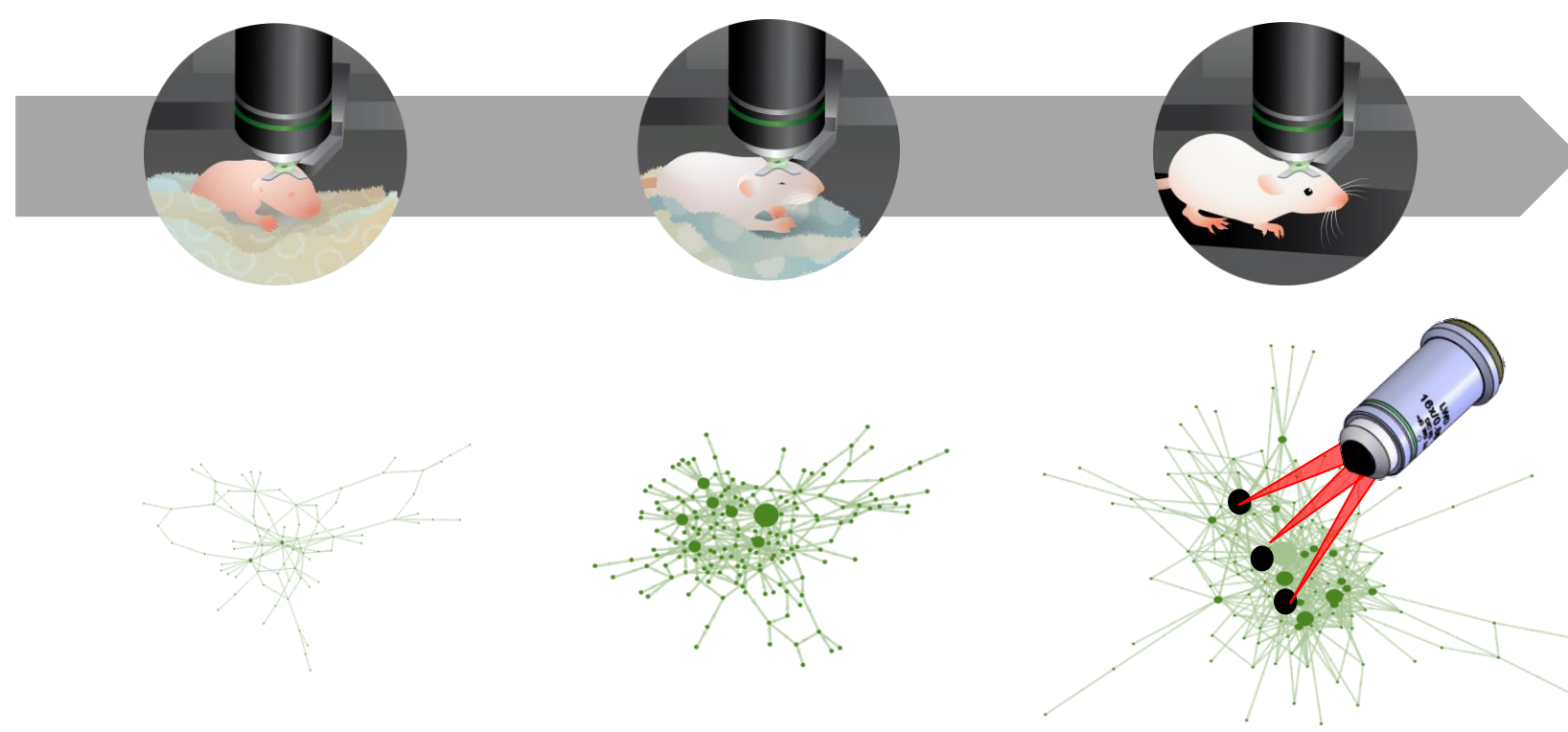
CIRCUITPHOTONICS is an **imaging core facility** dedicated to **study the dynamics of neuronal circuits**. Its originality is to bring the **state-of-the-art technological expertise** to the service of the community in order to follow :

- the emergence and plasticity of **functional circuits** during development
- and their **dynamics** during behavior, in the healthy or diseased brain.

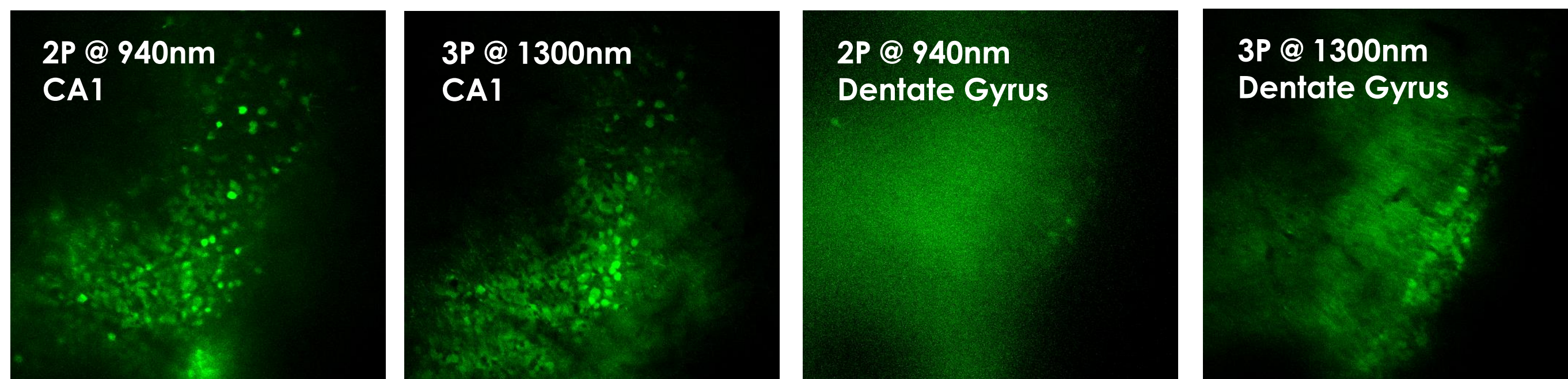
Photonics to probe the neural networks

LONGITUDINAL IMAGING

2 & 3 Photons
Multicolor
Large FOV
& photo-stim



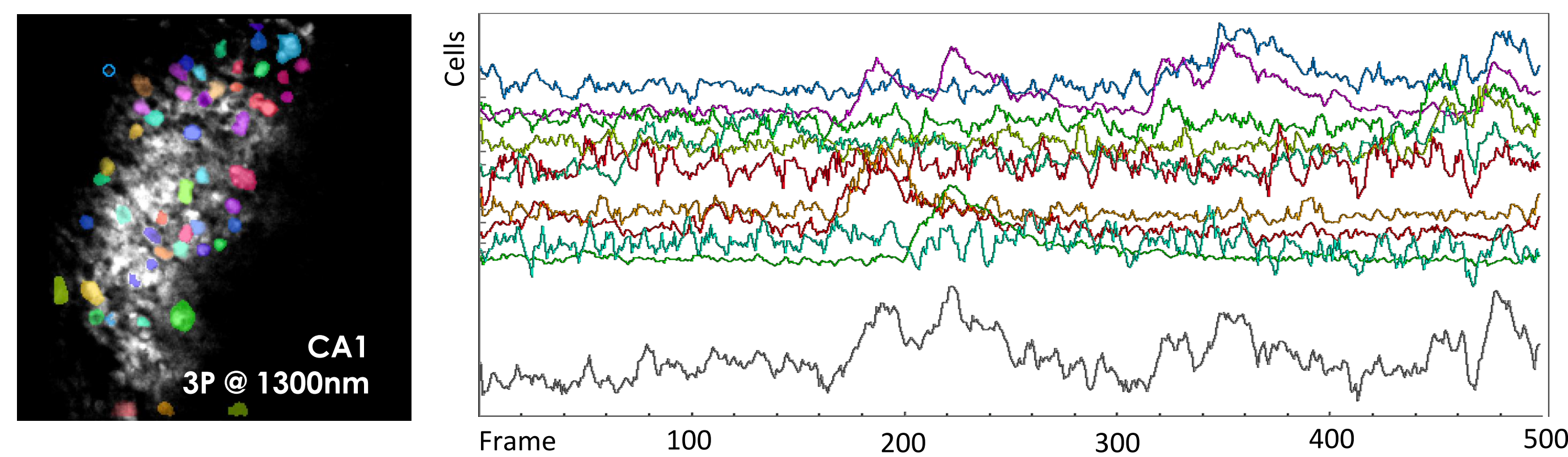
700 x 700 μm FOV



2/3P mini-invasive *in vivo* imaging in rodents (JC. PLATEL, INMED)

GCaMP6m / 6 months old mouse

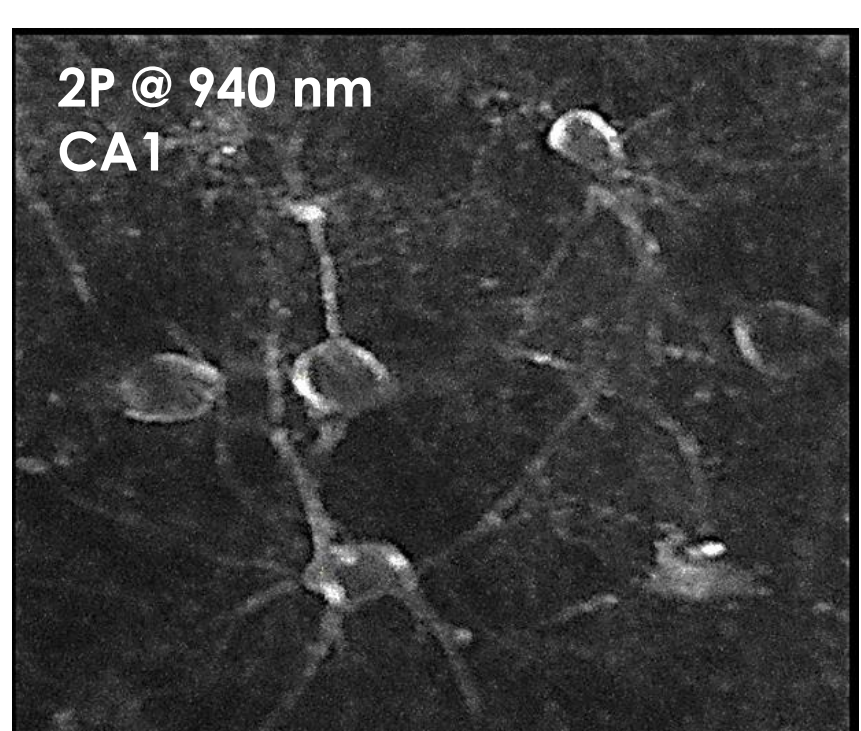
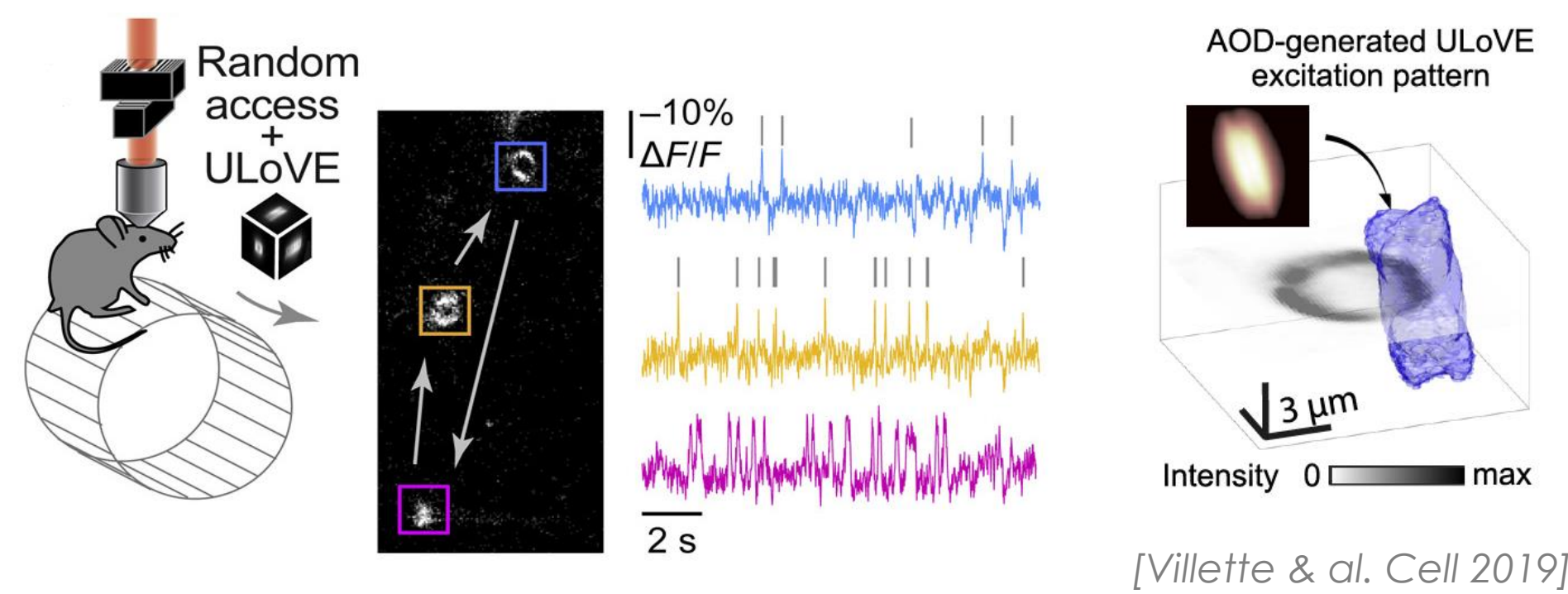
450 x 450 μm FOV



3.7 images/sec - 1300 nm - 46 fs - 30 mW - 1 MHz

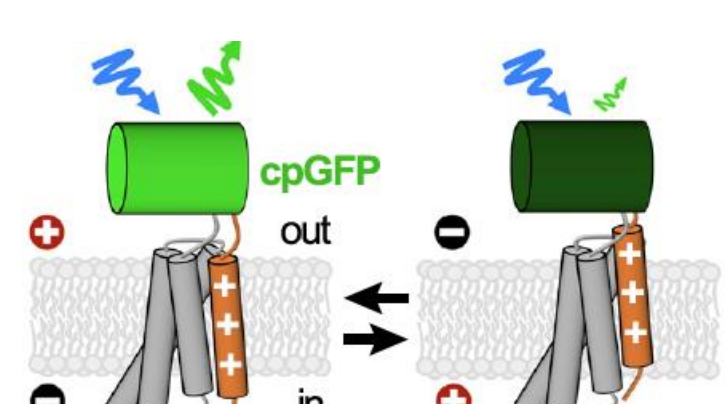
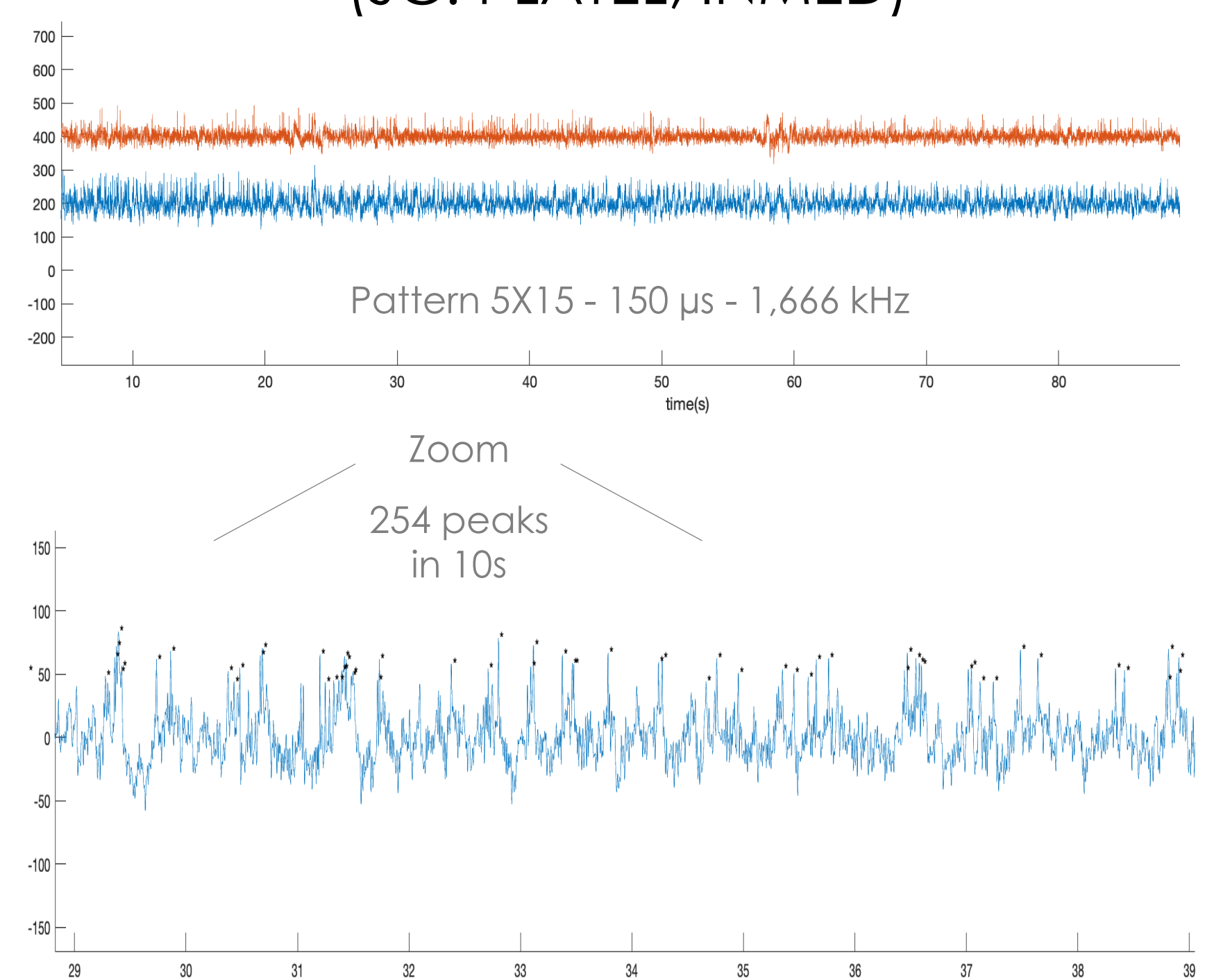
VOLTAGE IMAGING

2 Photons
ultrafast AOD
scanning
microscope



JEDI 2P / GAD-Cre / P8

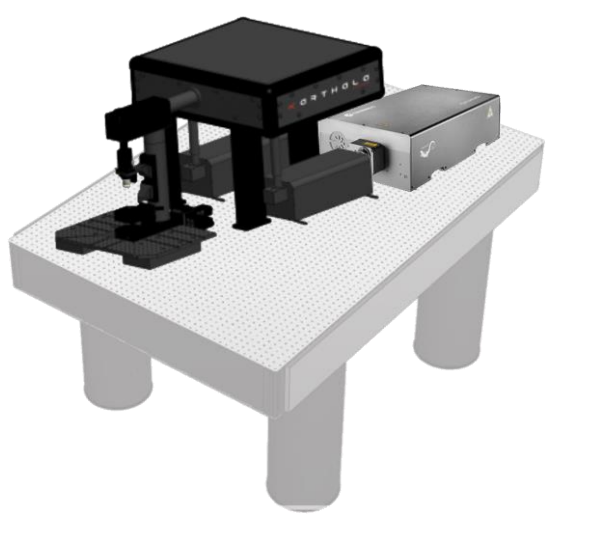
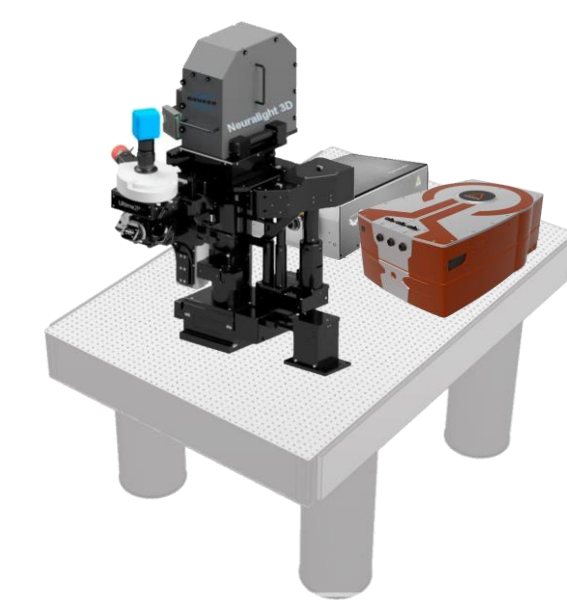
2P *in vivo* imaging in rodents
(JC. PLATEL, INMED)



Equipment openiris.io

Rodent

2 Photons endoscope | 2 & 3 Photons + photo-stim (3D) | 2 Photons AOD scanning (2D)



F. Michel

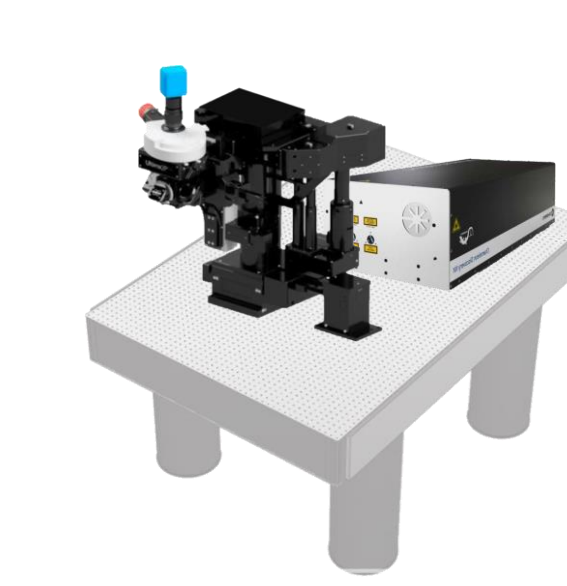
LIGHTCORE Technologies

BRUKER Amplitude

KARTHALA SYSTEM

Primate

All optical Photoacoustic | 2 Photons multicolor | 2 Photons AOD scanning (3D)



I. Vanzetta

deepColor IMAGING

BRUKER

KARTHALA SYSTEM

Technological challenges

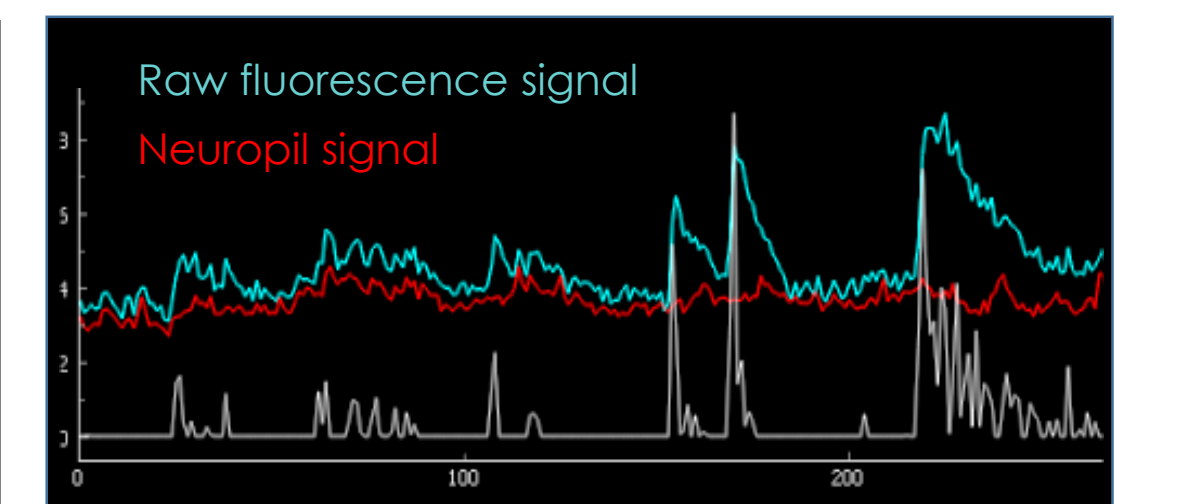
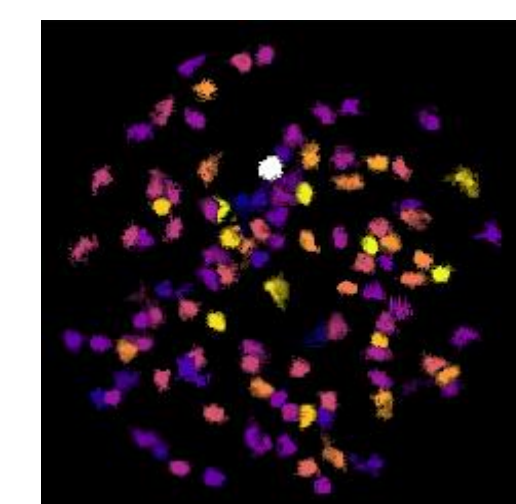
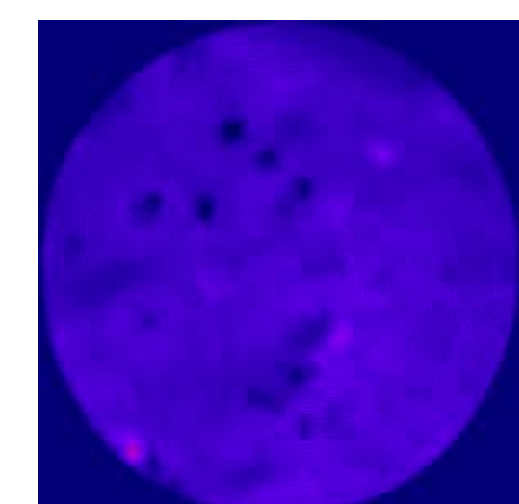
Freely moving imaging

2P/3P scanning endoscope
2P ultrathin lens-less endoscope



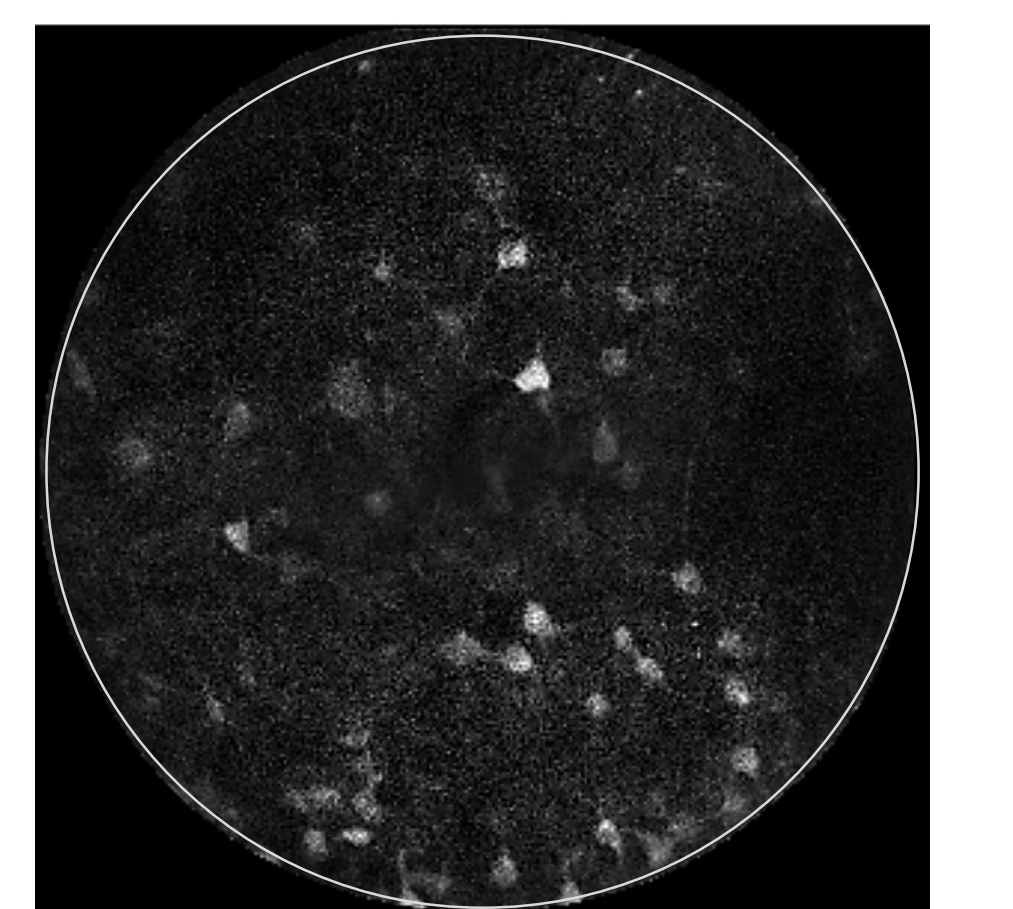
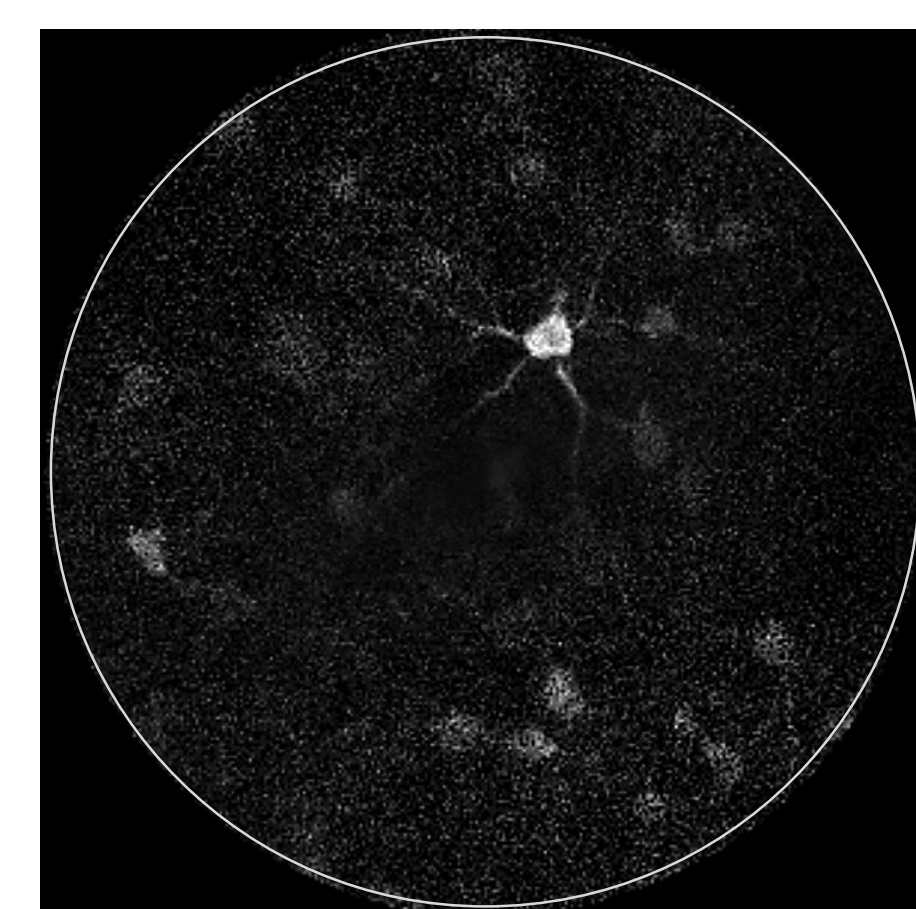
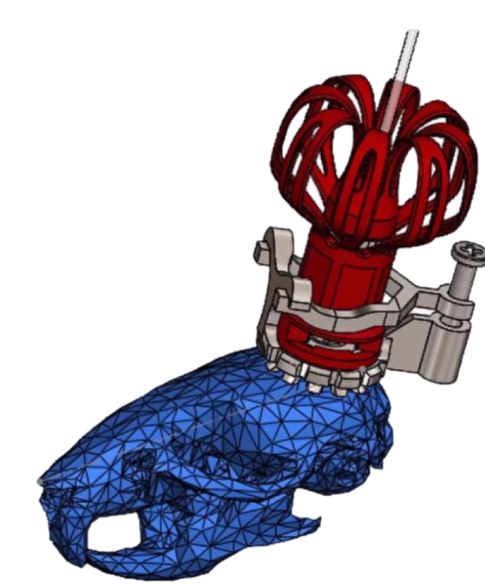
N. GAJENDRA KUMAR

InSplor



A. KASZAS
CIRCUITPHOTONICS
Neurobiologist

LIGHTCORE Technologies



2P @ 920 nm / CA1
4 fps / 270 μm FOV
GCaMP8

2P @ 920 nm / CA1
1 fps / 400 μm FOV
GCaMP8