



Bioimaging User Meeting

2015



UNIVERSITÉ
DE GENÈVE

FACULTÉ DE MÉDECINE

Bi  **imaging**
core facility



Bioimaging Meeting

2015

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OUTLINE

PPMS billing system ■

Management of the data storage ■

Evaluation tests made in 2014 ■

*(Zeiss slide scanner AxioScan.z.1,
light sheet microscopy,
Bioaxial CODIM Super-Resolution system)*

Establishment of a series of workshops ■

in image processing for novices

(ImageJ, MetaMorph, Definiens, etc...)

Demos & Tests

- *Zeiss AxioZ1 (Nov. 2014, CMU)*
- *Bioaxial (Aug. 2014, Paris)*
- *Sysmex SlideScanner (2014, CMU)*
- *LightSheet Days (Nov. 2014, Lausanne)*

**Trainings, Expertise,
Image Processing**

>174

Technological watch

- *Acquisition of a new Nikon confocal (June 2014)*

Incidents or intervention

>100

**Consumables, maintenance
& cleaning**

Website

- *Concrete 5 (Oct/Nov2014)*

Reservation system

- *PPMS (1st October 2014)*

Administration

- *Billing, annual report, etc...*

Fundings

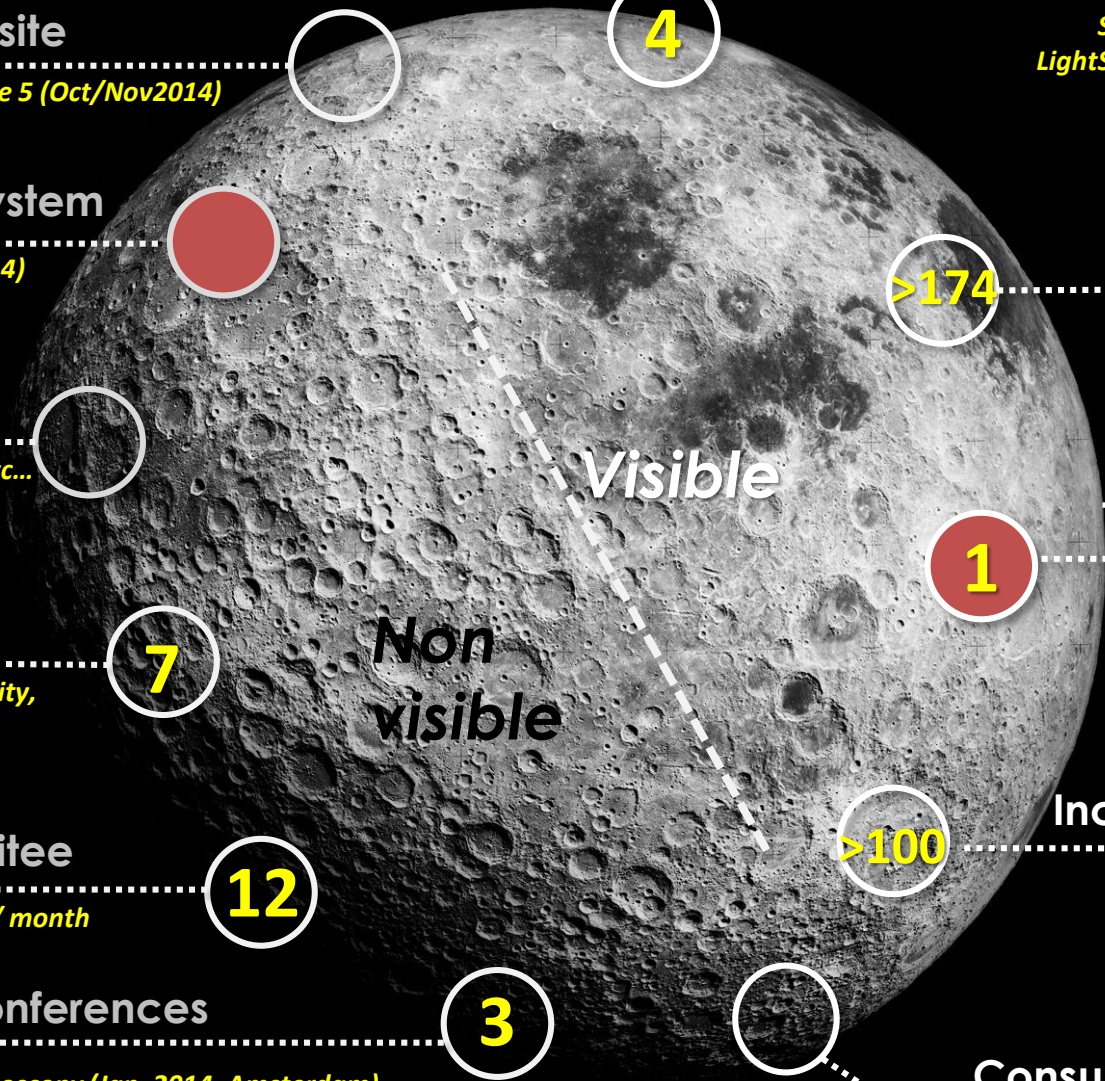
- *Fees, Faculty, University, Federal, Foundations*

Commitee

- *1 meeting / month*

Conferences

- *Nanoscopy (Jan. 2014, Amsterdam),*
- *Swiss Microscopy Facility Day (March 2014, Lausanne),*
- *Light Sheet Days (Nov. 2014, Lausanne)*



4

1

7

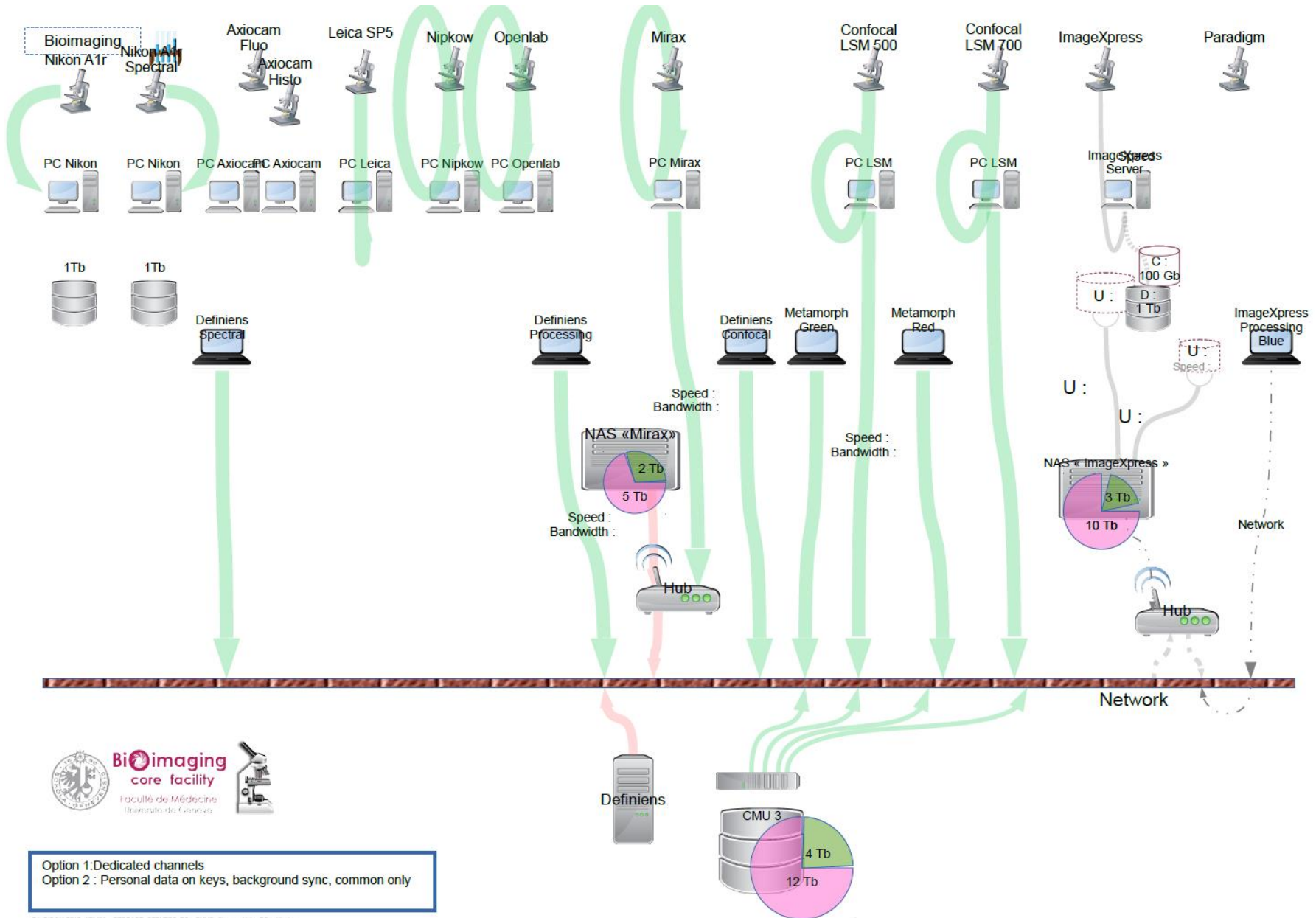
12

3

Visible

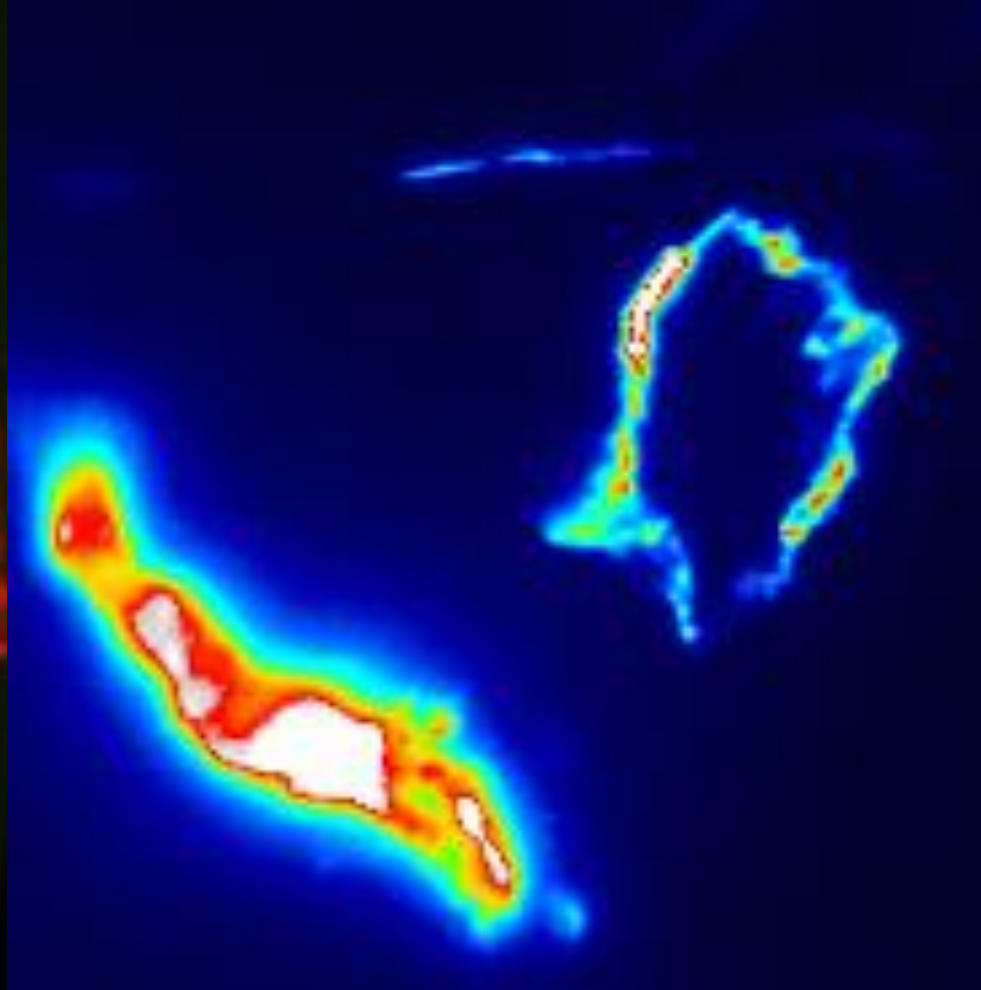
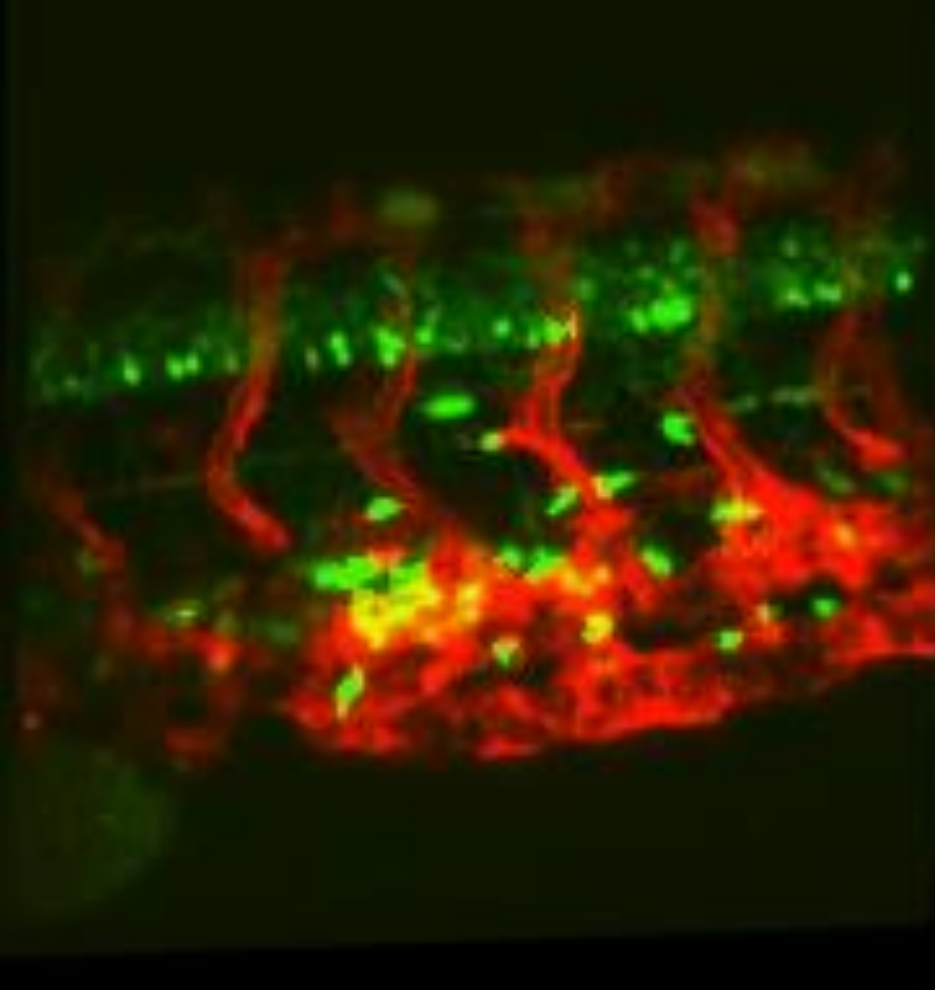
Non
visible

Bioimaging informatic network



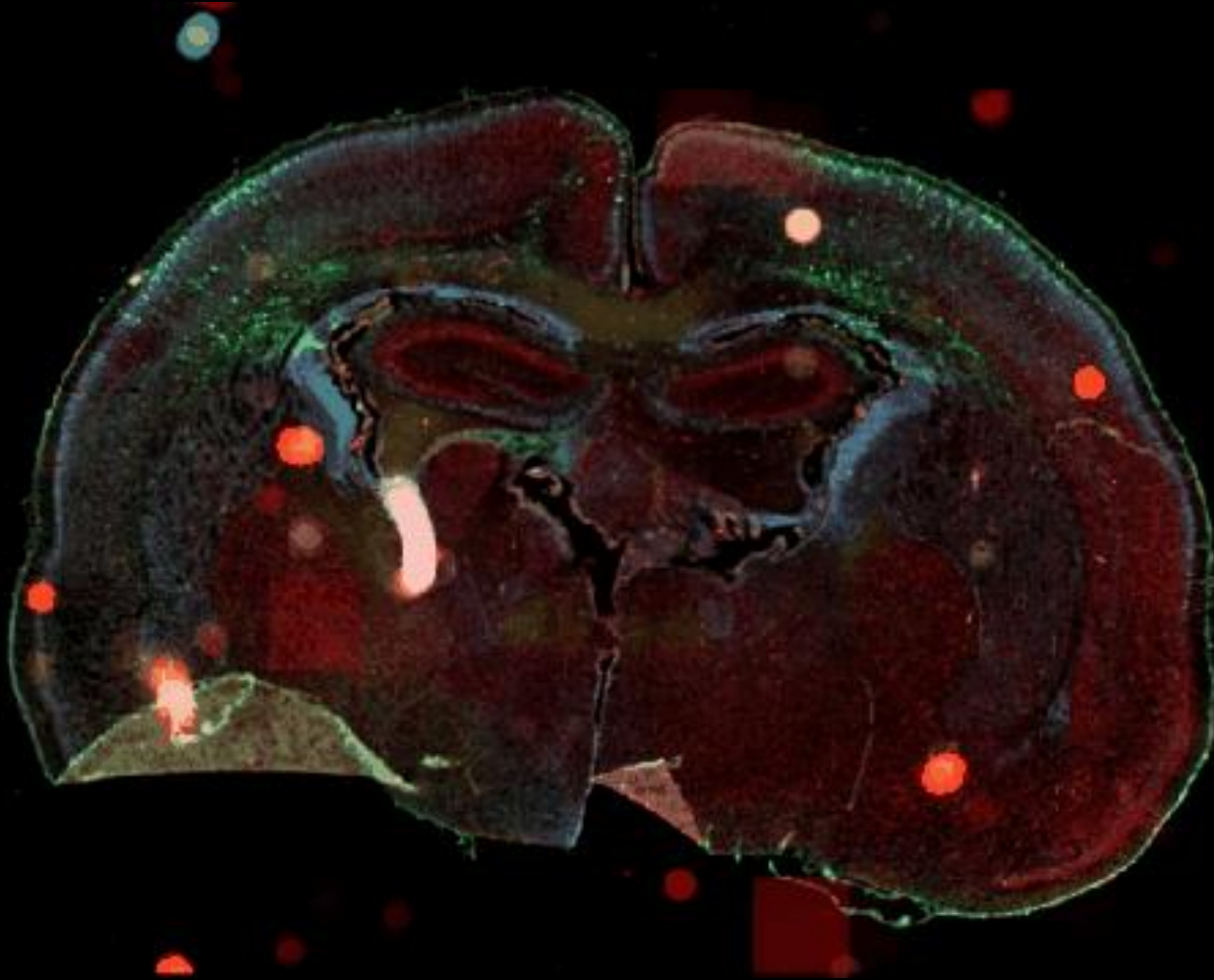
Option 1: Dedicated channels
 Option 2: Personal data on keys, background sync, common only

Light Sheet Microscopy (Zeiss)



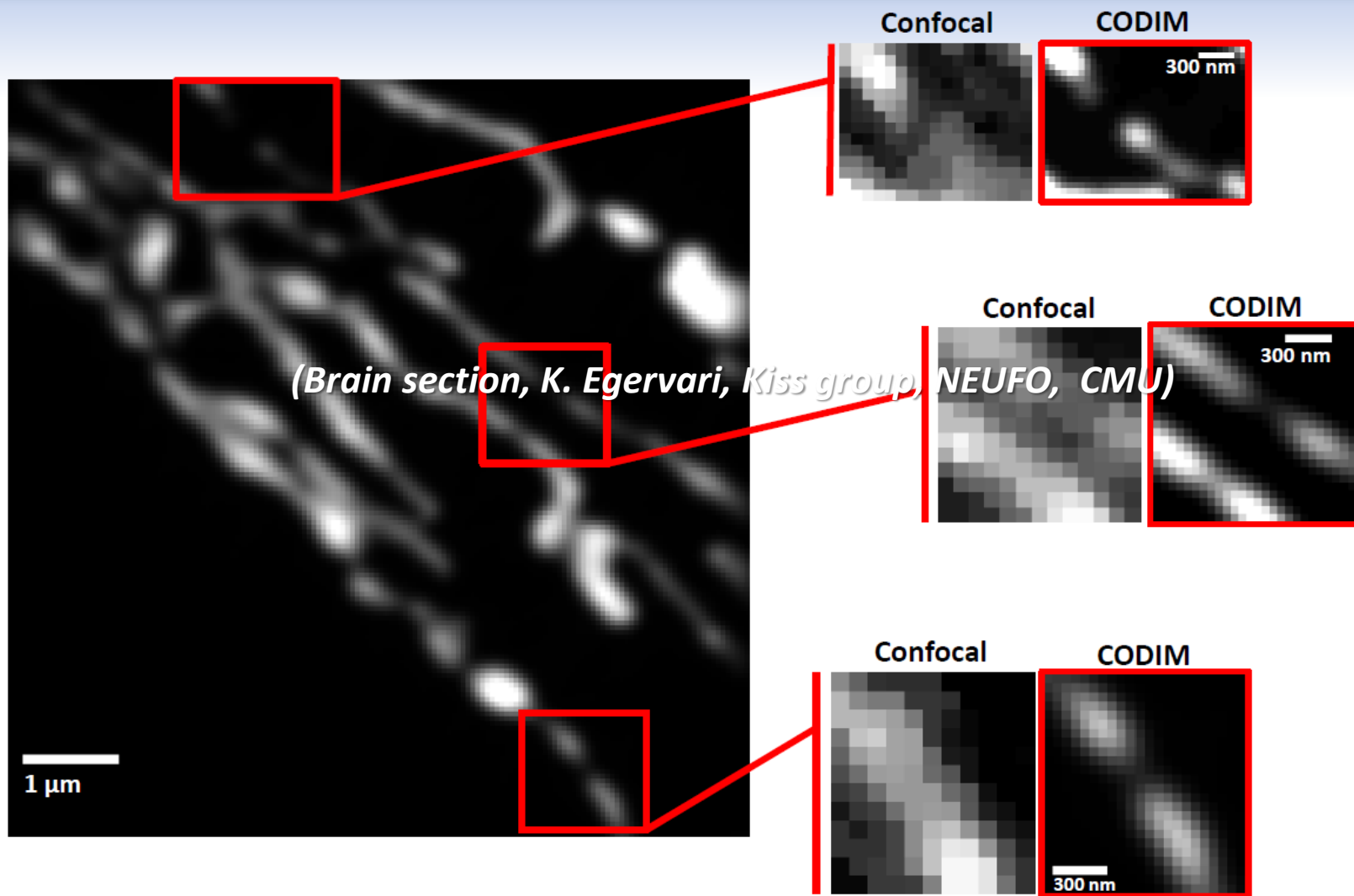
(Live zebrafish embryo, C. Mahony, Bertrand group, GeDev, CMU)

AxioScanZ.1 (Zeiss)



(Brain section, K. Egervari, Kiss group, NEUFO, CMU)

CODIM SR module (BioAxial)



Choosing the right microscopy technique

Spinning disk Confocal

STORM

Point Scanning Confocal

Epifluorescence

Light Sheet

DIC

PALM

Multi-Photon

SIM

TIRF

STED

Phase

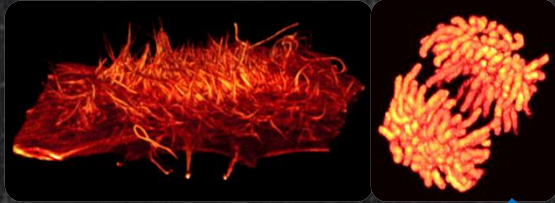
Bessel Beam

Performance Metrics of New Imaging Technologies

(E. Betzig)

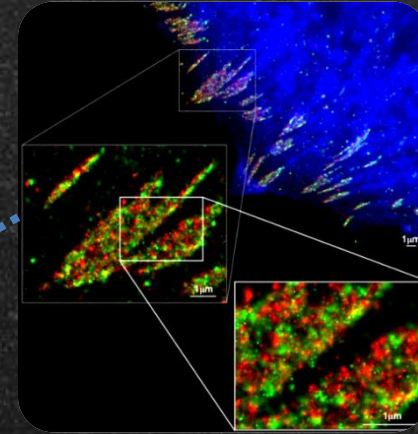


2D structured illumination



R: 60-100 nm (xy)
S: 1-10 fps
T: 20-200 frames
D: 0.05- 3.0 μm

Superresolution localization microscopy



R: 30*30*50nm (xyz)
S: 0.1-5.0 fps
T: N.A. (fixed)
D: 5-50 μm

Photocytotoxicity (T)

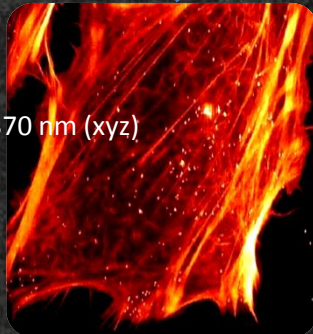
Spatial Resolution (S)

Imaging depth (D)

Speed (S)

Two-photon/ confocal adaptive microscopy

Lattice light sheet microscopy



R: 150-240*240*280-370 nm (xyz)
S: 50-1000 planes/sec
T: 50- inf. volumes
D: 20-100 μm

