

# Optical Systems

Creator  
Developer  
Manufacturer

EPIC on-line meeting on Hyperspectral imaging (May 6, 2020)

**LAMBDA-X**  
MASTERS IN INNOVATION

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# What we do

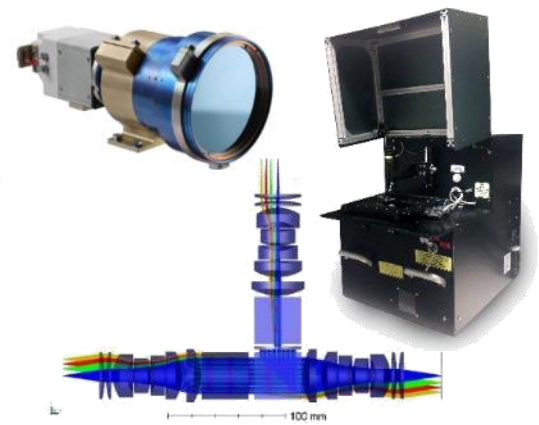
## PRODUCT



Manufacturer of **metrology tools** for the ophthalmic market.

WW leader in Quality Control for contact lens & IOL (install base > 400)

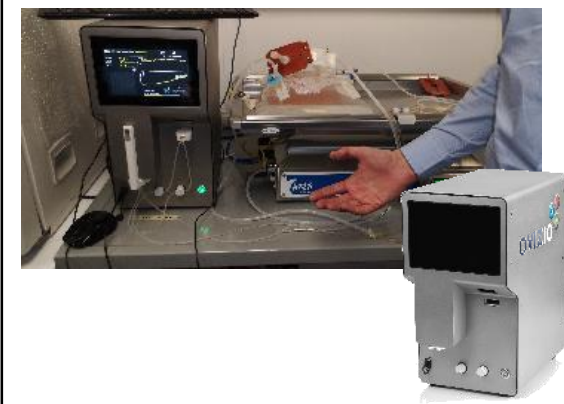
## ENGINEERING



Supplier of engineering services to design **custom optical systems**

Optics, opto-mechanics, electronics, software, algorithms engineering

## CONTRACT MANUFACTURING



Optical based products

1000m<sup>2</sup> of CR facility

High precision tooling for optics assembly & metrology

Design services, certification



## MARKET FOCUS

- Ophthalmics
- Industry
- Medical
- Space
- Security

SME created in 1996 (spin-off from ULB)

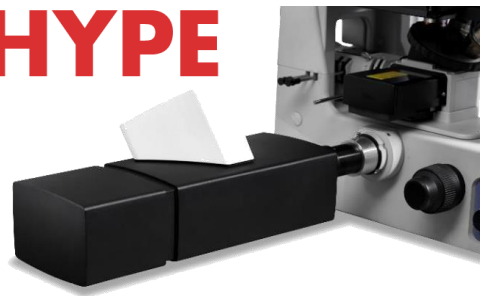
Team of 45



# What can we do for the hyperspectral community ?

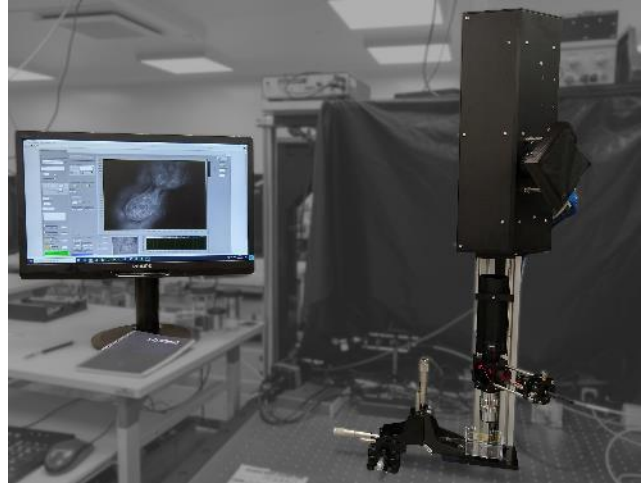
Deliver an innovative hyperspectral imaging device

## HYPE



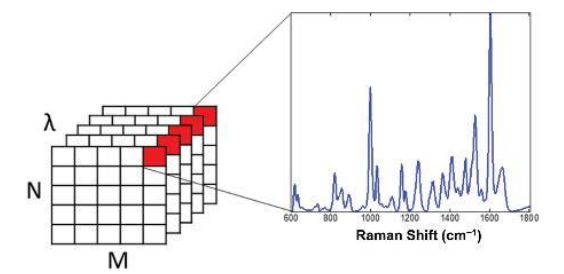
### TECHNOLOGY

- ✓ Multiplexed Fourier Transform spectrometer (1 spectrometer per pixel)
- ✓ High spectral resolution (8cm-1 or 0.13nm @ 400nm)
- ✓ High spatial resolution (diffraction limit, 150nm/pixel for 40x objective)
- ✓ 400-900nm extendable to SWIR 1700nm
- ✓ Compact & robust for use **at-line** (industry)



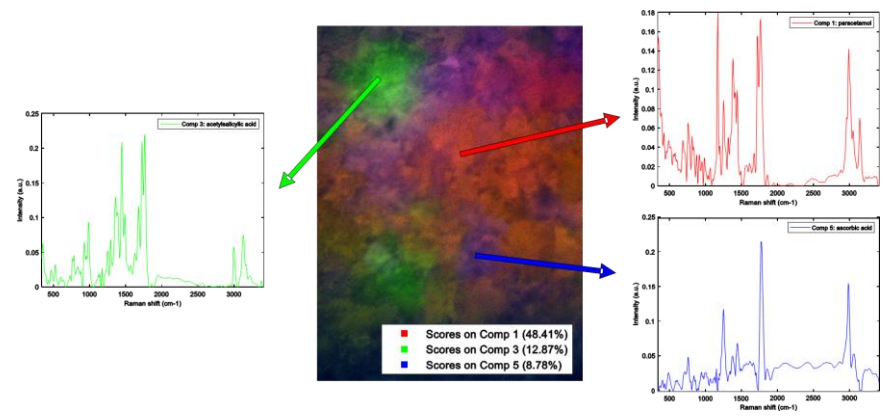
### USER

- ✓ High-throughput hyperspectral imaging device (3Mpx data cubes in ~100 sec)
- ✓ Ultra-high speed for global Raman imaging (>1000x faster than confocal Raman microscope)
- ✓ Tunable FOV (mm<sup>2</sup> ~cm<sup>2</sup> range)
- ✓ No sample damage



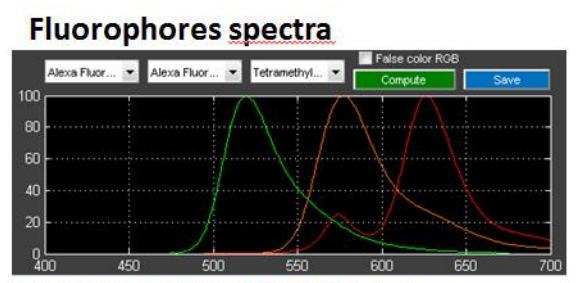
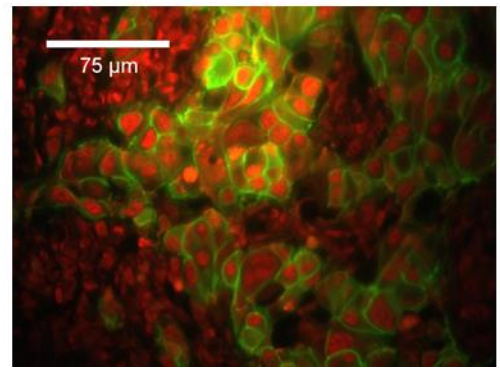
# Applications: microscopy oriented

## Global Raman imaging

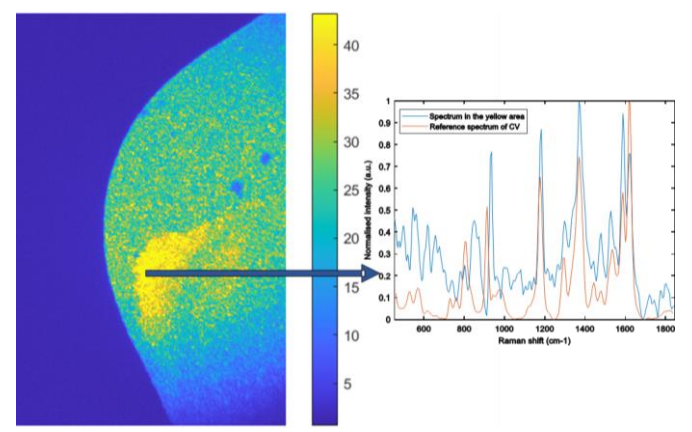


Pharma: API spatial distribution on drugs (2020, Univ Liège, E. Dumont)

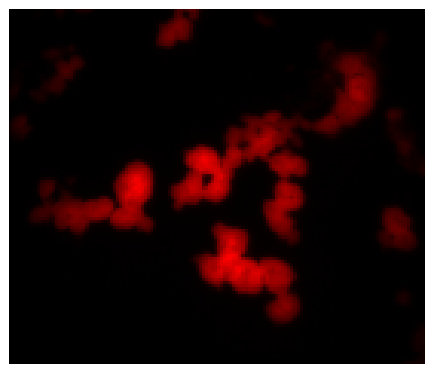
## Fluorescence spectral imaging



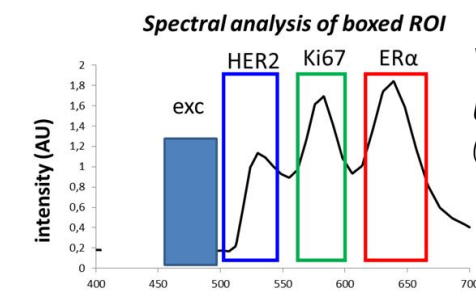
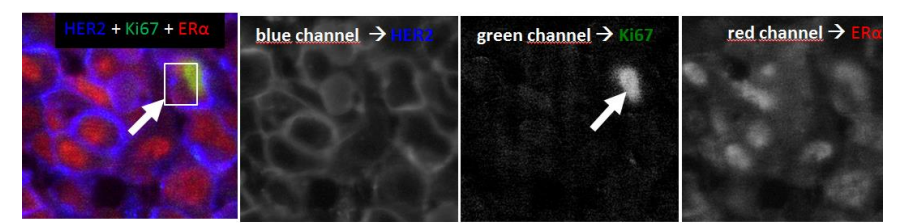
Biotech: cell imaging (2014, UCL, P. Courtoy)



Biotech: SERS imaging of cells and tissues (2020, Univ Liège, E. Dumont)



Contamination control: chemical residues imaging (2019)



Vital fluorescence linear unmixing (2014, UCL, P. Courtoy)

# What can you do for us

- ✓ Every collaboration focusing on use cases at end-user
- ✓ Working together on end-users samples
- ✓ HW: low noise 2D detectors, try SWIR detector
- ✓ HW: Narrow band SS laser sources (100mW to a few W)
- ✓ Hypercube data analysis software
- ✓ Commercial distribution

Thank you for your attention !

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