qbio
quantitative
biology

Imaging Biological Systems

Philosophy and organization

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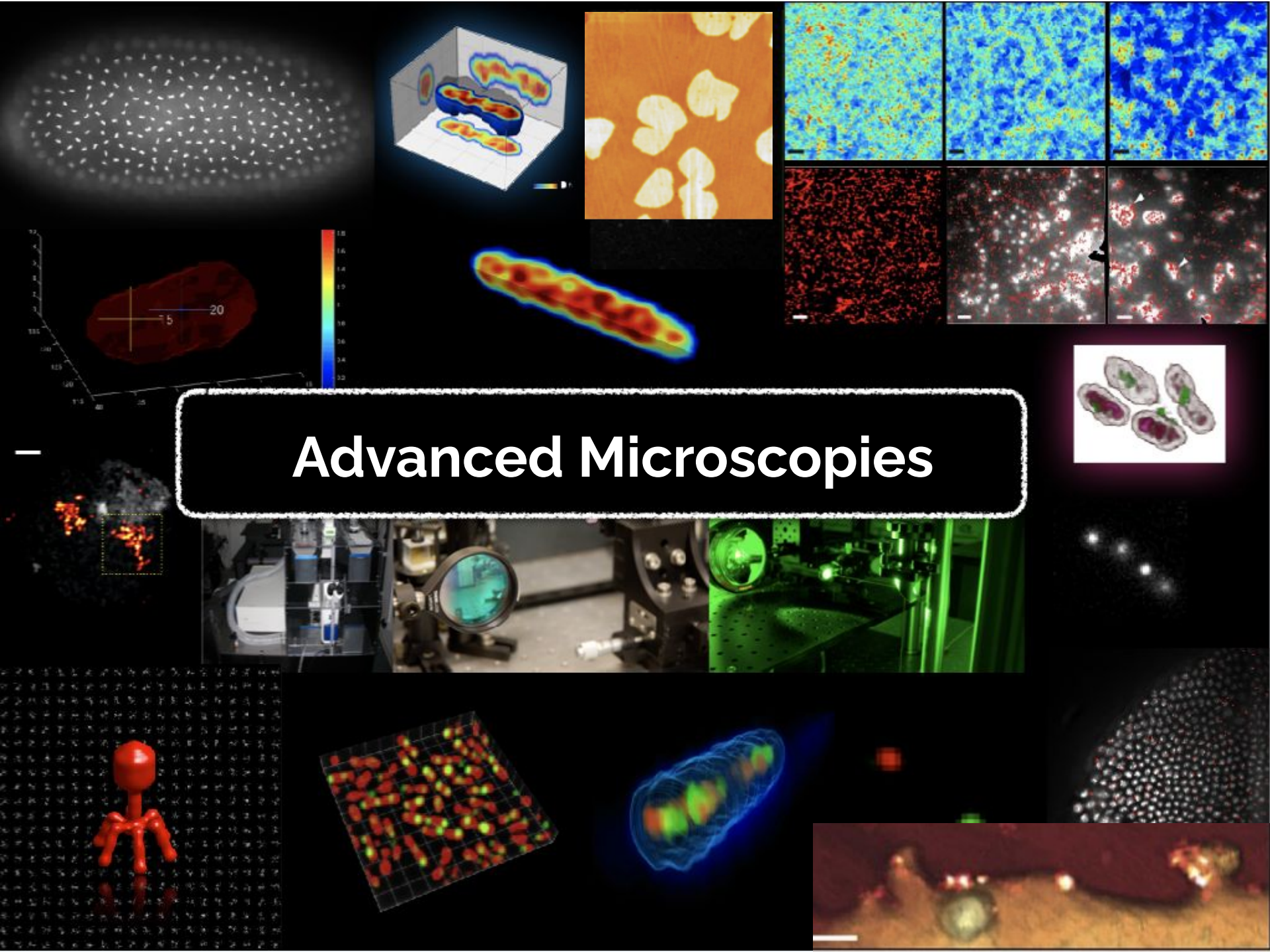
What is in the black box ?

=> Build your setup


Advanced Microscopies

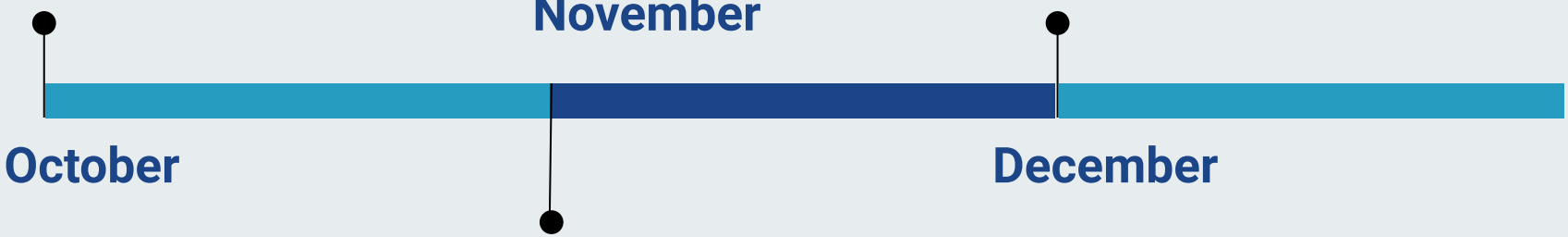
CURRICULUM

Introductory module

- laser safety / good practice
- basics practicals
- 4 hours seminar on optical microscopy, smFRET, AFM.

State of the art microscopy on biological samples - 4 groups

- experimental design
- 12 hours sample preparation + imaging + analysis
- ***written + oral restitution***



Build your setup - 3 groups

- design + troubleshooting
- 12 hours practicals
- ***written + oral restitution***

PLANNING

	October			November				December
	10/10-14/10	17/10-21/10	24/10-2810	31/10-04/11	07/11-11/11	14/11-18/11	21/11-25/11	28/11-02/12
Mon								
Tue			9h-13h : the telescope				14h-18h TP Build Your Setup #2	14h-16h: TD Advanced Microscopies - design
Wed	9h-11h : TD Optics Basics 11h-12h: Laser safety	9h-13h : TP Optics Basics	14h-16h : TD Build your setup - design		14h-16h : TD Build your setup - troubleshooting		14h-18h TP Build Your Setup #3	**14h-17h: oral restitution BYS**
Thu								10h-17h TP Advanced Microscopies #1
Fri	14h-16h: TD FCS + electronics					14h-18h TP Build Your Setup #1		10h-17h TP Advanced Microscopies #2

Oral restitution for the "Advanced microscopy" part: 05/01 14h-17h

PEOPLE INVOLVED

Basics optics

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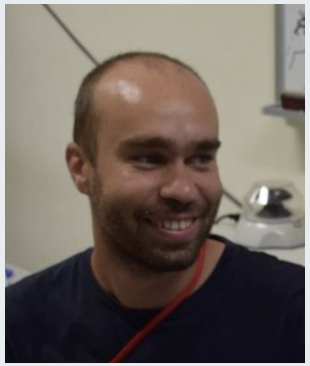
Build your setup



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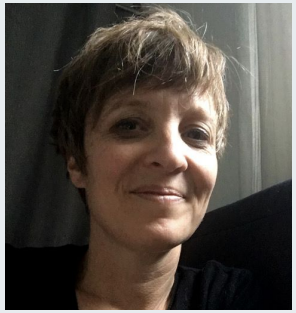

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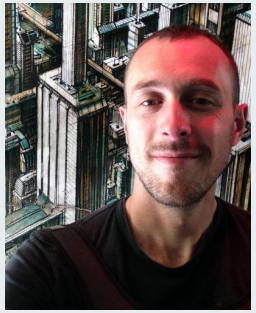

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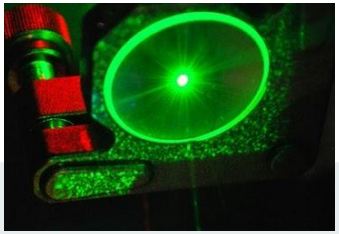
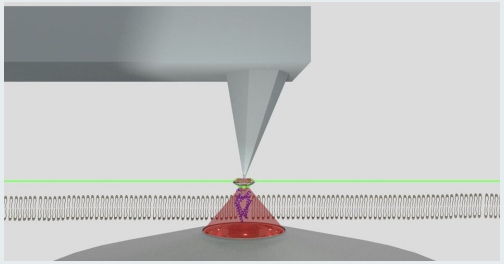
Choose 1 out of 3

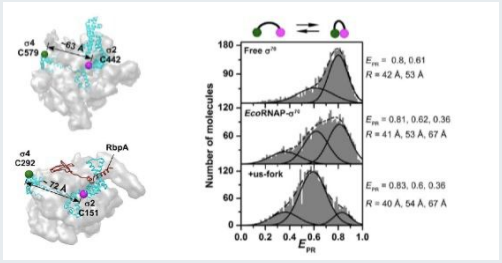
1. Build an epifluorescence / TIRF microscope
2. Build a confocal microscope
3. Build an AFM



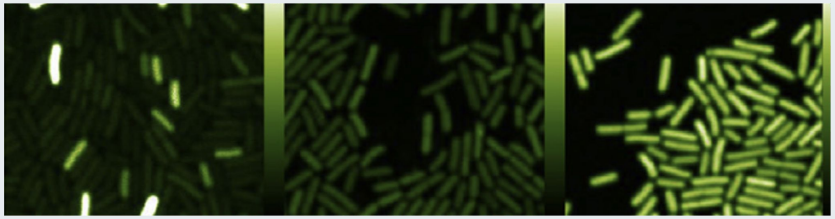
Choose 1 out of 4



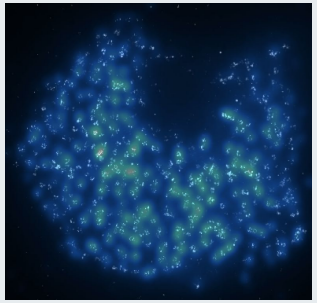
1- Image model lipid membranes by correlative AFM / confocal / FLIM



2- Structural dynamics of metabotropic Glutamate receptor by smFRET



3- Characterize promotor strength in *E.coli* by N&B



4- Nuclear Pore Complexes imaging in human cells by confocal, Airyscan and STORM microscopies

To Do

- Constitute student pairs for the optics basics practicals (next wednesday)

  TP basics Optics

- Choose 1 out of 3 “build your setup” project + 1 out of 4 “advanced microscopies”