qbio
quantitative
biology

Imaging Biological Systems

Philosophy and organization

Antoine Le Gall
Christine Doucet

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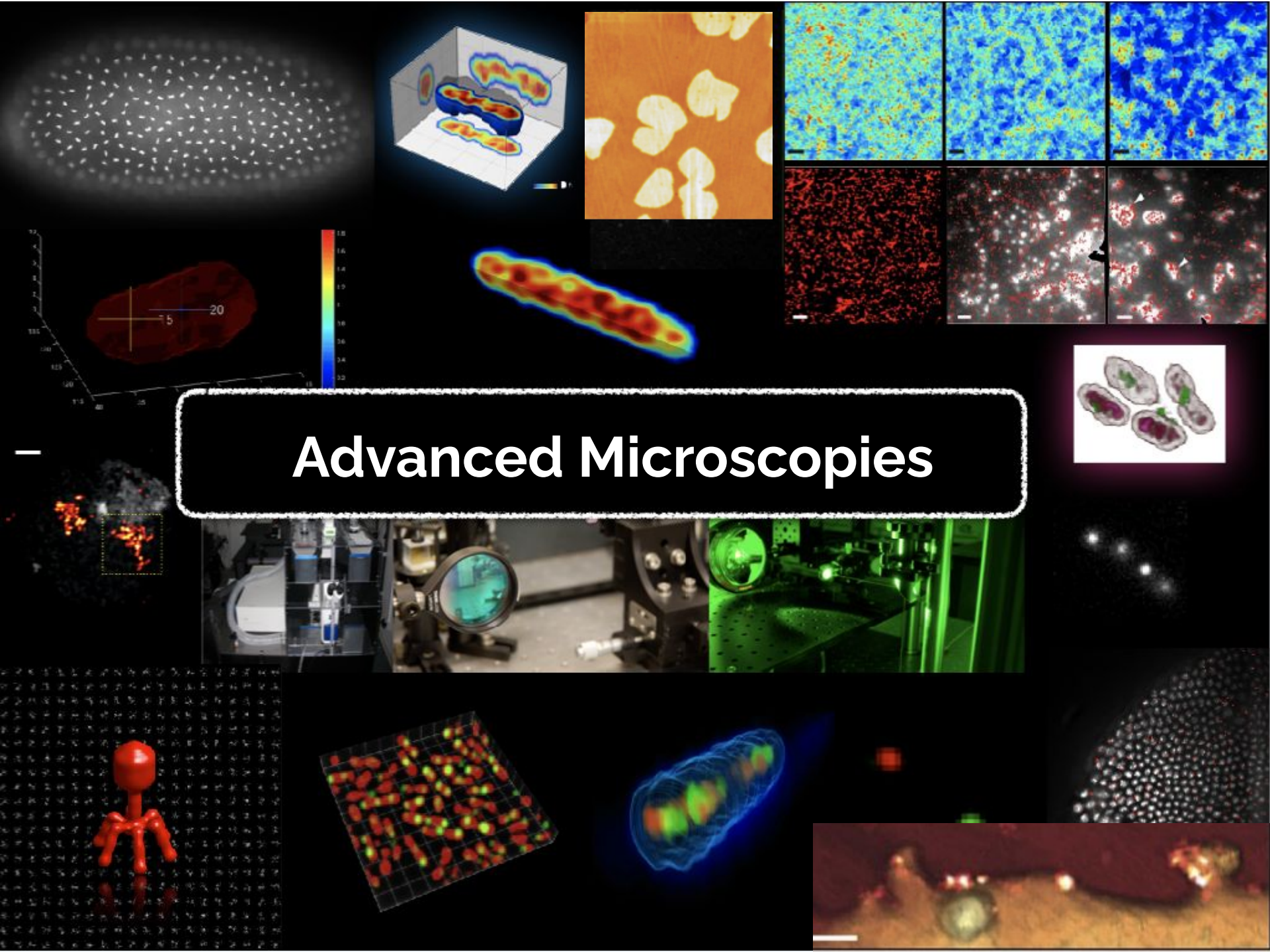
What is in the black box ?

=> Build your setup


Advanced Microscopies

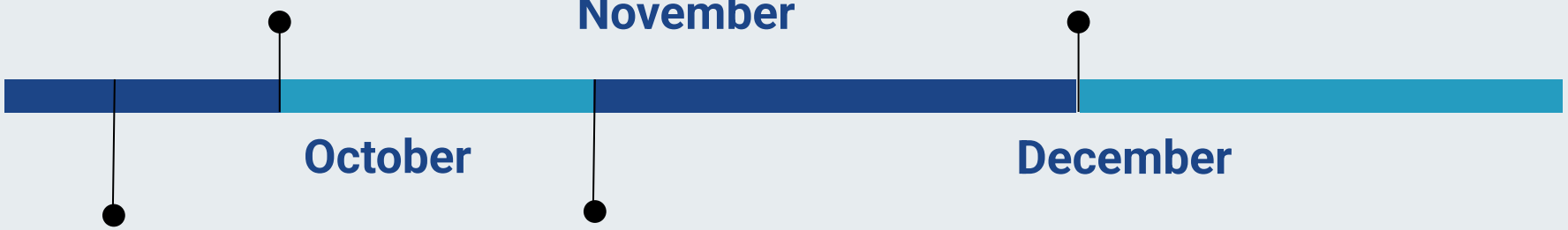
CURRICULUM

Introductory module

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

State of the art microscopy on biological samples - 3 groups

- experimental design
- 12 hours sample preparation + imaging + analysis
- ***written + oral restitution (in group)***



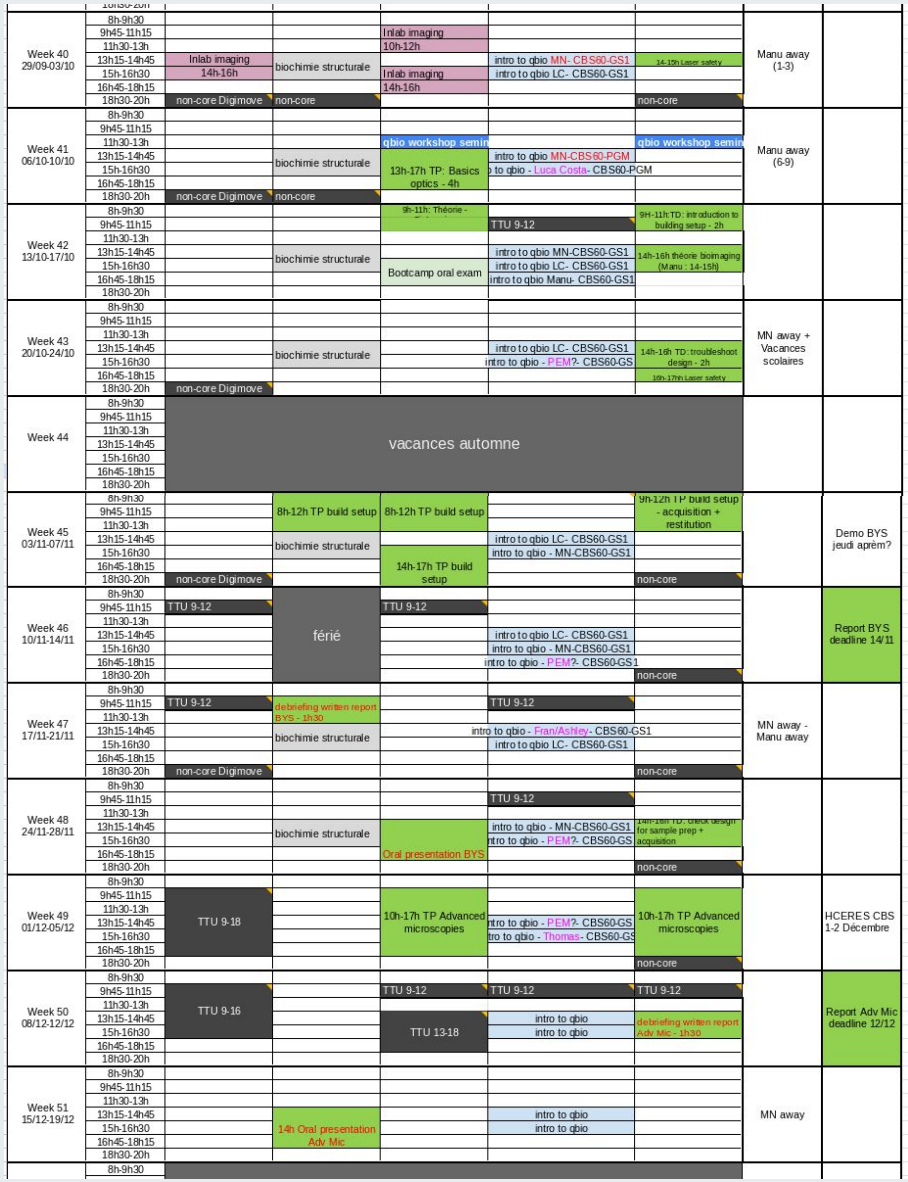
InLab1

- microscopy data analysis
- optical rays simulation

Build your setup - 3 groups

- design + troubleshooting
- 12 hours practicals
- ***written + oral restitution (in group)***

PLANNING



Week 40 29/09-03/10	8h-9h30							
	9h45-11h15				Inlab imaging			
	11h30-13h				10h-12h			
	13h15-14h45	Inlab imaging	biochimie structurale			intro to qbio MN- CBS60-GS1	14-15h Laser safety	Manu away (1-3)
	15h-16h30	14h-16h			Inlab imaging	intro to qbio LC- CBS60-GS1		
	16h45-18h15				14h-16h			
	18h30-20h	non-core Digimove	non-core				non-core	
Week 41 06/10-10/10	8h-9h30							
	9h45-11h15							
	11h30-13h				qbio workshop semin		qbio workshop semin	
	13h15-14h45		biochimie structurale			intro to qbio MN-CBS60-PGM		Manu away (6-9)
	15h-16h30				13h-17h TP: Basics optics - 4h	to qbio - Luca Costa- CBS60-PGM		
	16h45-18h15							
	18h30-20h	non-core Digimove	non-core					
Week 42 13/10-17/10	8h-9h30							
	9h45-11h15				9h-11h: Théorie -	TTU 9-12	9H-11h:TD: introduction to building setup - 2h	
	11h30-13h							
	13h15-14h45		biochimie structurale			intro to qbio MN-CBS60-GS1	14h-16h théorie bioimaging (Manu : 14-15h)	
	15h-16h30				Bootcamp oral exam	intro to qbio LC- CBS60-GS1		
	16h45-18h15					intro to qbio Manu- CBS60-GS1		
	18h30-20h							
Week 43 20/10-24/10	8h-9h30							
	9h45-11h15							
	11h30-13h							
	13h15-14h45		biochimie structurale			intro to qbio LC- CBS60-GS1	14h-16h TD: troubleshoot design - 2h	MN away + Vacances scolaires
	15h-16h30					intro to qbio - PEM?- CBS60-GS		
	16h45-18h15						16h-17hh Laser safety	
	18h30-20h	non-core Digimove						
Week 44	8h-9h30	vacances automne						
	9h45-11h15							
	11h30-13h							
	13h15-14h45							
	15h-16h30							
	16h45-18h15							
	18h30-20h							
Week 45 03/11-07/11	8h-9h30							
	9h45-11h15		8h-12h TP build setup	8h-12h TP build setup			9h-12h TP build setup - acquisition + restitution	
	11h30-13h							
	13h15-14h45		biochimie structurale			intro to qbio LC- CBS60-GS1		
	15h-16h30				14h-17h TP build setup	intro to qbio - MN-CBS60-GS1		
	16h45-18h15							
	18h30-20h	non-core Digimove					non-core	Demo BYS jeudi aprèm?
Week 46 10/11-14/11	8h-9h30							
	9h45-11h15	TTU 9-12	férié	TTU 9-12				
	11h30-13h							
	13h15-14h45					intro to qbio LC- CBS60-GS1		
	15h-16h30					intro to qbio - MN-CBS60-GS1		
	16h45-18h15					intro to qbio - PEM?- CBS60-GS1		
	18h30-20h						non-core	Report BYS deadline 14/11
Week 47 17/11-21/11	8h-9h30							
	9h45-11h15	TTU 9-12	debriefing written report BYS - 1h30			TTU 9-12		
	11h30-13h							
	13h15-14h45		biochimie structurale			intro to qbio - Fran/Ashley- CBS60-GS1		
	15h-16h30					intro to qbio LC- CBS60-GS1		MN away - Manu away
	16h45-18h15							
	18h30-20h	non-core Digimove					non-core	
Week 48 24/11-28/11	8h-9h30							
	9h45-11h15					TTU 9-12		
	11h30-13h							
	13h15-14h45		biochimie structurale			intro to qbio - MN-CBS60-GS1	14h-16h TD: check design for sample prep + acquisition	
	15h-16h30				Oral presentation BYS	intro to qbio - PEM?- CBS60-GS		
	16h45-18h15							
	18h30-20h						non-core	
Week 49 01/12-05/12	8h-9h30							
	9h45-11h15	TTU 9-18			10h-17h TP Advanced microscopies		10h-17h TP Advanced microscopies	
	11h30-13h							
	13h15-14h45					intro to qbio - PEM?- CBS60-GS		
	15h-16h30					intro to qbio - Thomas- CBS60-GS		HCERES CBS 1-2 Décembre
	16h45-18h15							
	18h30-20h						non-core	
Week 50 08/12-12/12	8h-9h30							
	9h45-11h15	TTU 9-16		TTU 9-12		TTU 9-12	TTU 9-12	
	11h30-13h							
	13h15-14h45			TTU 13-18		intro to qbio	debriefing written report Adv Mic - 1h30	
	15h-16h30					intro to qbio		
	16h45-18h15							
	18h30-20h							Report Adv Mic deadline 12/12
Week 51 15/12-19/12	8h-9h30							
	9h45-11h15							
	11h30-13h							
	13h15-14h45					intro to qbio		MN away
	15h-16h30		14h Oral presentation Adv Mic			intro to qbio		
	16h45-18h15							
	18h30-20h							
	8h-9h30							

!! This is THE calendar to consider !!

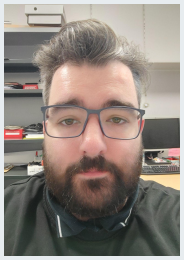
Note that for the Advanced Microscopies practicals, there might be some adjustments of the schedule due to specific requirements for sample preparation.
You will be advised by your supervisors.

PEOPLE INVOLVED

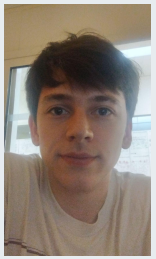
InLabs + Basics optics


Christine DOUCET

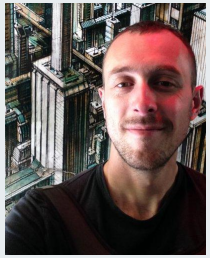

Antoine LE GALL


David GUERIN

Build your setup

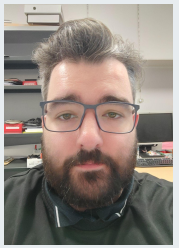

Simon LETURQ


Malo MARMOL

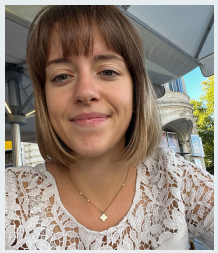

Jean-Bernard FICHE


Emmanuel MARGEAT

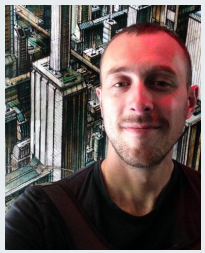

Antoine LE GALL


David GUERIN

Advanced microscopies


Emilie COSTES


Christine DOUCET


Jean-Bernard FICHE

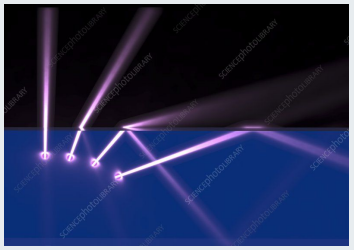

Caroline CLERTE

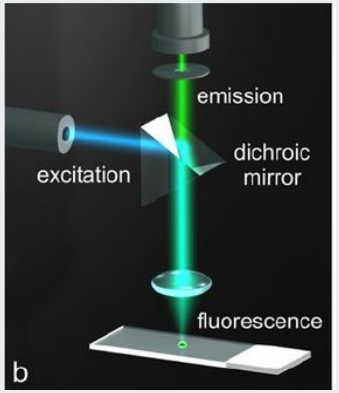

Robert QUAST

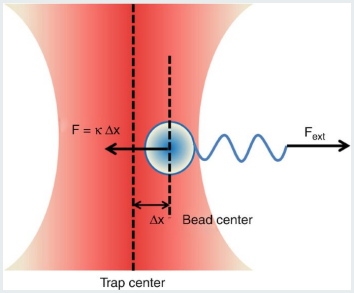
Cédric GODEFROY

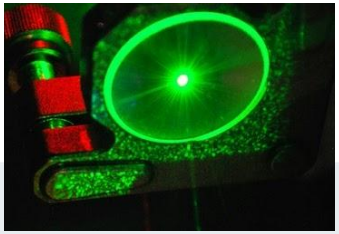
Choose 1 out of 3

1. Build an epifluorescence / TIRF microscope
2. Build a confocal microscope
3. ~~Build an AFM~~
4. Build an Optical Tweezer

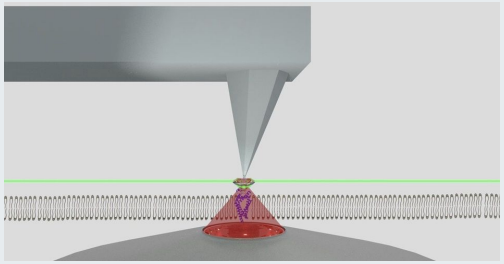




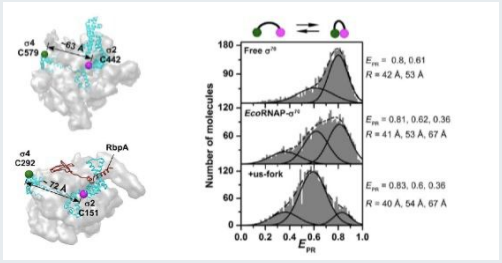




Choose 1 out of 3

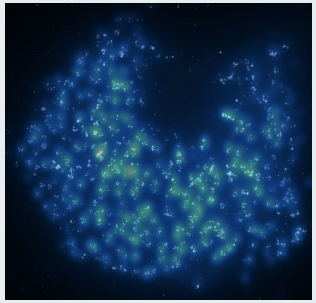


1- Image model lipid membranes by correlative AFM - Fluo



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 using super resolution microscopy

To Do

- Constitute student pairs for the optics basics practicals (wednesday 8/10/25)

  TP basics Optics

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