V3.00

The IphU Doctoral program
In coordination with the doctoral school ‘physique et sciences de la matière’ (ED352)

-Summer schools
-Tutoring master students
-Teaching/outreach (OCEVU/IphU platforms, projects)
-Doctoral lectures: training program

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Perimeter of the IphU doctoral program in 2021/22

- Few PhD students funded by IphU each year
- Many other students working on IphU topics in our laboratories:

  57 PhD students in the IphU perimeter in 2021/22
- Some PhD lectures also proposed to M2 IphU students

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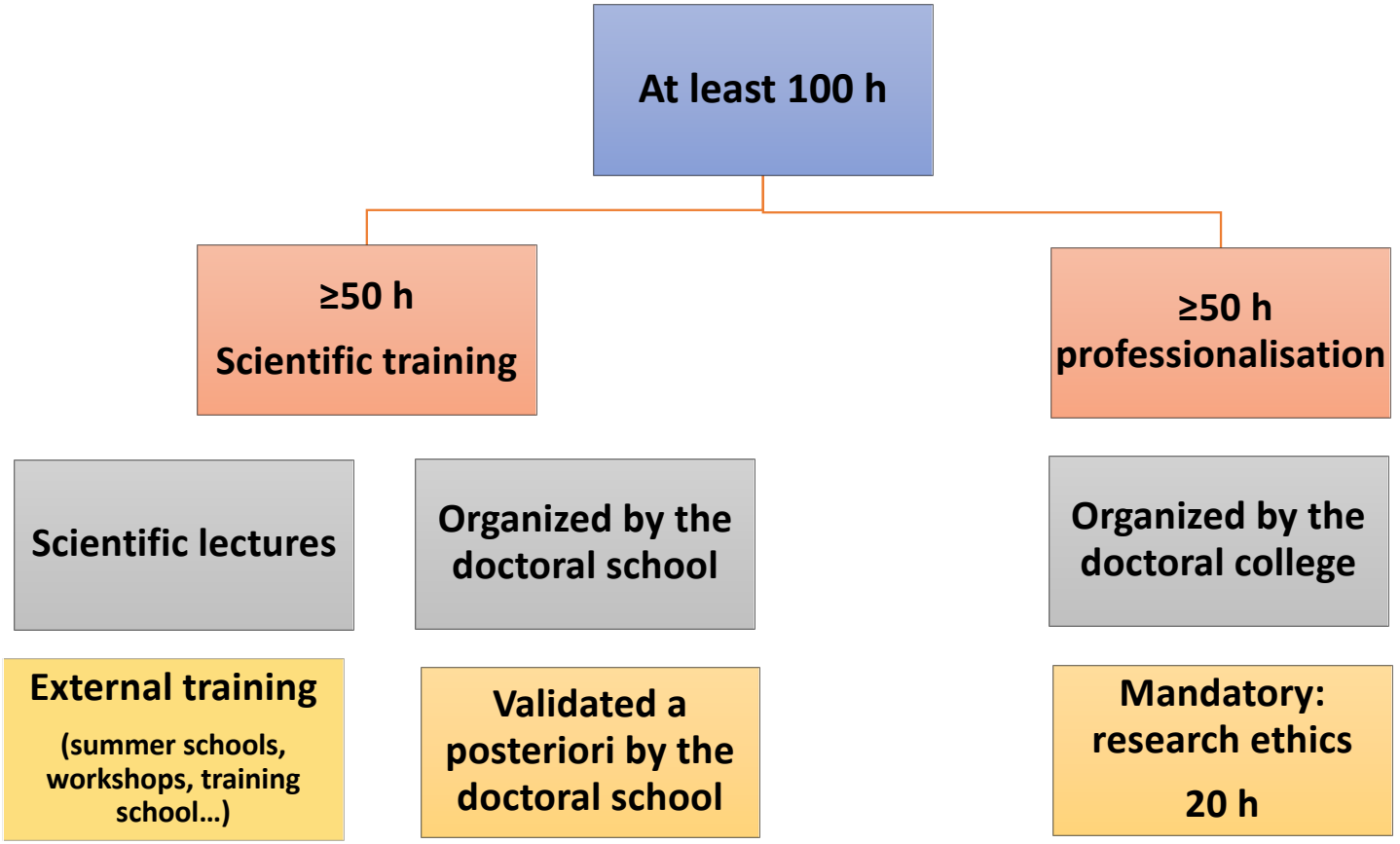
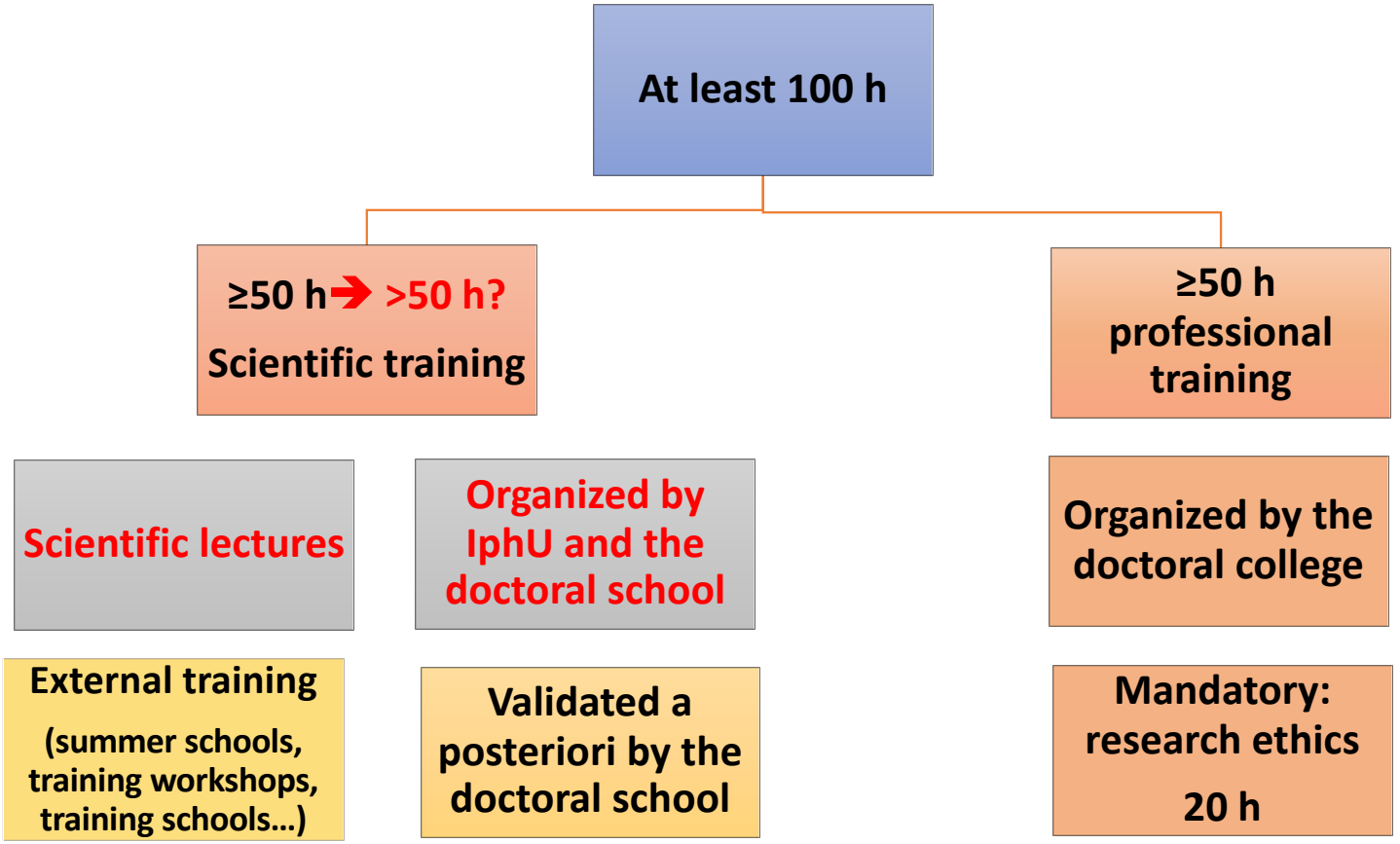
- In 2021/22 12 lectures co-funded by the doctoral school (5) and IPhU (7)

  156 hours allocated to the doctoral school (against 80 hours previously)

Training program of a PhD student registered at AMU



Training program of an IphU PhD student



The 2021/22 IphU doctoral program

- Sept 2021: IphU/ED352 call for doctoral lectures
- Sept 2021: ED352 call for doctoral lectures (all topics of ED352)
- First selection of funded lectures by the doctoral school
- Selection of additional doctoral lectures funded by IphU
- Some lectures of the ED352 training program opened to M2 students

Process not fully clear with the 2 calls: lectures had to be proposed to both ED and IphU

→*To be improved in 2022/23*

2021-22: Courses funded by the doctoral school: 156 HEQTD

Enseignant	nb heures	titre cours	laboratoire	Période d'enseignement	Observations
DUBOISSET Julien	15	Nano-Biophotonics	FRESNEL	janv - fév - mars 2022	
COADOU Yann/FELIGIONI Lorenzo	16	Advanced statistical methods for HEP	CPPM	mars - avril 2022	en commun avec l'IPhU
CHAMPENOIS Caroline	16	Quantum Processes involving atoms and photons	PIIM	janv - fév 2022	
SAVOYANT Adrien	16	Quantum Mechanics for Finite Systems	IM2NP	janv - juin 2022	Potentiellement intérasant ppour AMUTech
SCHIMD Carlo/KRALJIC Katarina/GALLERANI Simona (Pise)	16	Bridging cosmology and galaxy formation	LAM	printemps 2022 + semestre 2	en commun avec l'IPhU
BURGARELLA Denis (section 1) /BUAT Véronique/ILBERT Olivier (section 2)/JULLO Eric (section 3)	15	Observational cosmology	LAM		en commun avec l'IPhU
RENVERSEZ Gilles/STOUT Brian	16	Introduction to nanophotonics	FRESNEL	S1 ou S2	
WEISSKER hans-Christian/ATTACALITE Claudio	16	Modern Density-Functional Theory Applied to Solids and Nanostructures : Structural, Electronic, and Optical properties	CINaM	Janvier à Avril 2022	Potentiellement intérasant ppour AMUTech
Jose BUSTO	15	Advanced neutrino physics	CPPM		en commun avec l'IPhU
Simone SPEZIALE	15	Field theoretical aspects of general relativity	CPT		en commun avec l'IPhU
Total	156				

IPhU doctoral program

	Titre	Financement	Intervenant(s)	Durée (h)
ASTROPHYSIQUE HAUTE ENERGIE				
	Advanced neutrino physics	**ED352**	José Busto, Juergen Brunner, Damien Dornic, Mathieu Perrin-Terrin	15
	Dark matter from phenomenological perspectives	IPhU	Julien Lavalle (LUPM - Montpellier)	15
GALAXIES ET COSMOLOGIE				
	Observational cosmology	**ED352**	Denis Burgarella, Veronique Buat, Olivier Ilbert, Eric Jullo	15
	Bridging cosmology and galaxy formation	**ED352**	Carlo Schimd, Katarina Kraljic, Simona Gallerani (Scuola Normale Superiore, Pisa)	16
PHYSIQUE DES PARTICULES				
	Standard Model	IPhU	Aoife Bharucha	15
	Introduction to theories beyond the Standard Model of particle physics	IPhU	Michele Frigerio (L2C - Montpellier)	15
	Introduction to Quantum Chromodynamics	IPhU	Antoine Gérardin	12
TRANSVERSE - THEORIE				
	Field theoretical aspects of general relativity	**ED352**	Simone Speziale	15
	Renormalisation and Effective Theories	IPhU	Thomas Krajewski	12
TRANSVERSE - EXPERIMENTAL				
	The Large Research Astrophysics and Particle Physics Instruments of the coming decades	IPhU	Jean-Gabriel Cuby, William Gillard	15
	Advanced statistical methods for HEP	**ED352**	Yann Coadou, Lorenzo Feligioni	15
	Introduction to Large Surveys, Big Data, and Generous Statistics	IPhU	Matthew Pieri	15

IphU PhD/M2 funphys lectures

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A preliminary (and incomplete) report on the 2021-22 PhD program

- 12 PhD lectures are proposed (each for ~15 hours)
- All lectures are proposed on ADUM
- In average 3 students registered per lecture (from 0 to 11 students registered on ADUM (07/02/2022))

with 57 IPhU/PhD students and 12 lectures → less than 5 PhD student per lecture (with one lecture/year/student)

Open Questions:

- Are we satisfied with this low attendance? *(similar attendance for ED-non iphU lectures)*
- If the answer is NO: must we reduce the number of lectures, increase the amount of scientific hours in the training program of an IphU student?
- Do we want to change the program of lectures every year, every 2 years, entirely, partially?

Former questions (from previous IphU days (2021))

✓Yearly program and no duplication with the ED program

Open questions:

- How many hours? *≥30 h for each student (i.e. 1/3 of the total program) is needed for a program stamped IphU → more lectures proposed*
- Same program every year? *Over several years for most of them →more convenient for teachers, external experts?*
- Transdisciplinary and/or specialized lectures?

A minimum number of attendees is needed → not too specialized, introductory lectures?

Concluding remarks

- We have proposed a dedicated IphU program of lectures well balanced between the different scientific axes of IphU
- The attendance remains low
- We could try to answer to questions still open to prepare the 2022/2023 PhD program

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Thank you!