

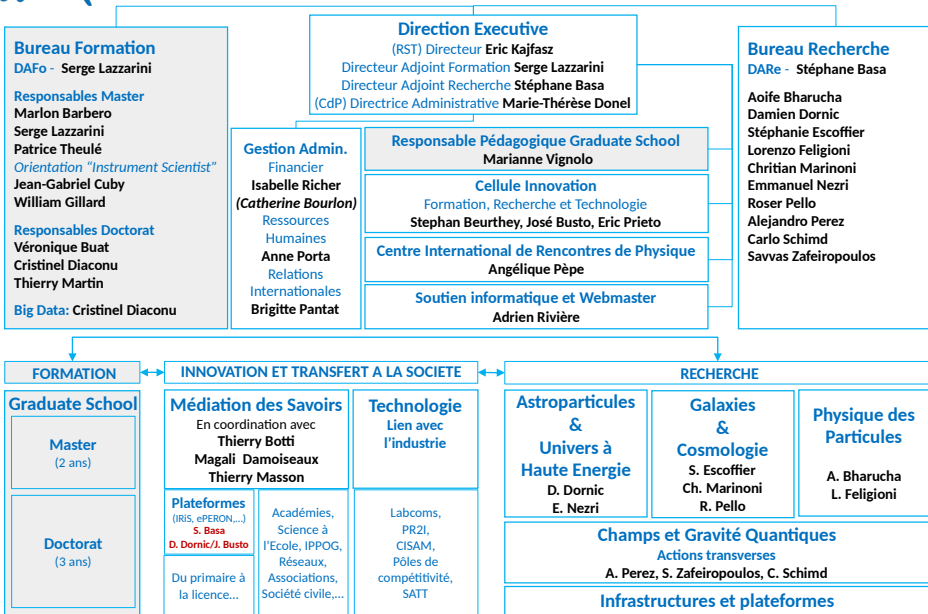
IPhU Day: IPhU Graduate School & FunPhys Master program

Serge Lazzarini

Physics Dpt & CPT (head of the GPS research team)

Double-hatted: { IPhU Deputy-director for Education
Head of the FunPhys Master program in Physics@AMU





- ① Context about education at the Master level
- ② Geographic dispersion of the IPhU GS and the FunPhys Master
- ③ Brief review of actions undertaken 2020-2021
 - Actions carried out in 2020
 - Enrollments at Master level
 - PhD hirings
- ④ Forseen actions in 2020-2021
 - Questions & discussion
- ⑤ Prospects for > 2021 (M1+M2)
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Current context about Master Education in Physics@AMU

- Two Master programs awarded by Excellence Academy label = A*MIDEX
 \mapsto funding for in-coming scholarships + internship rewards + ...
 - 2013-2016 (Duperrin-Perez) + 2016-2018 (**Barbero-SeL**): P3TMA (M2 level).
 - 2015-2019 (**Buat-Theulé**): SPaCE, M1+M2 a full study path.

2018: A*MIDEX cut financial support for Excellence Academy \mapsto *restart afresh*.

- 2018-2023: current Master program in Physics M1+M2 = click on [FunPhys](#)

Start to think about the “achievement” report for the HCERES assessment (deferred by 1 year?)

One year ago: creation of the Institutes@AMU under the control of A*MIDEX

- Institute of Physics of the Universe - **IPhU**; Theoretical & experimental aspects: particle physics, astrophysics, cosmology, gravitation,...
- Institute of Fusion Science & Instrumentation in nuclear environments - **ISFIN**, in connection with the national Master driven by the Plasmas Fusion Federation.
- “Archimede” Institute: \mapsto mathematical physics, **big data**.

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+

- Institut **CenTuri** : complexity in biology (2018).

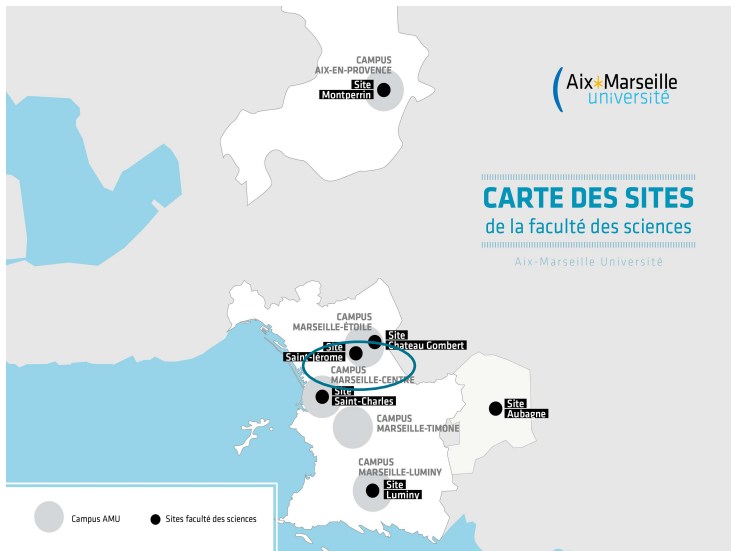


- International renown and attractiveness
- links between research and education programs
- additional financial means.

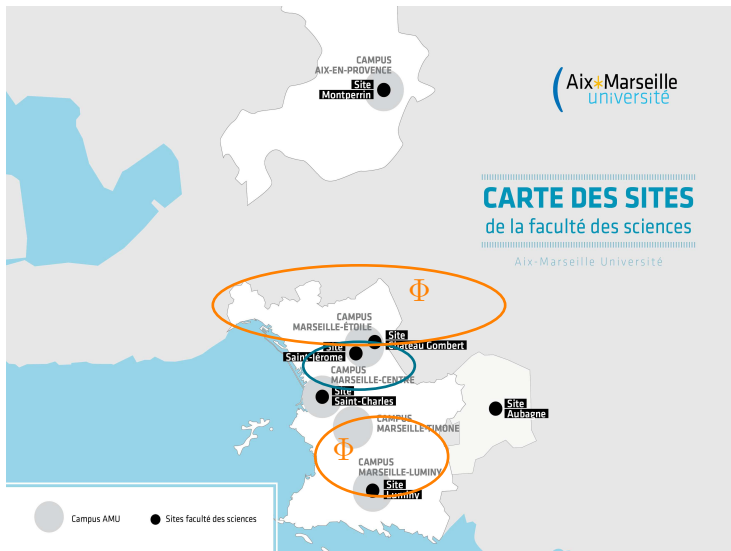
- in-coming scholarships: M1/M2
- Internship rewards (French law!) + extension of internship periods
- out-going fellowships: International partners (CIVIS,...)
- financial support for: OHP workshops, equipment for labs,...
- Summer schools
- PhD positions (M \rightarrow D, better for a GS spirit)
- Invitation of renown scientists (Master classes, seminars, conferences public presentation,...)
i.e. Sir Roger Penrose in October 2014 by P3TMA Excel.Academy (Duperrin-Perez).
- Visit some nice places: CERN, VIRGO, ITER,...
- ...

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1. Les sites de la Faculté des Sciences



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Brief review of actions undertaken 2020-2021

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Actions carried out in 2020

9 × 4-month M2 internship stipends

⇒ 7+1 awarded: $\left\{ \begin{array}{l} \text{LAM 1+(1)} \\ \text{CPPM 1+(2)} \\ \text{CPT 2 + 1 (covid-19)} \end{array} \right.$

among which 4+1 **FunPhys students** + (3) in-coming students

No M1 internship.

From May 1, 2020: Secretary for IPhU Student Affairs

Marianne Vignolo

marianne.vignolo@univ-amu.fr

location@Luminy : Ground floor TPR-1, Office E0.09, near the registrar's office.

currently in teleworking.

⇒ Support: recruitment campaign / IPhU acceptance letters /
CROUS lodging through the DRI@AMU (International Relation Service)
/ English speaking / to connect better with IPhU students



Physics of the Universe: 3 orientations encapsulated in the FunPhys Master

- Stars, Galaxies & Cosmology
- Relativistic Theoretical Physics
- Particles & High Energy Universe

GS/Master: Boundary conditions over March-June 2020

- No IPhU web portal: use the former SPaCE web portal for application
 - Collect application through the official channels: e-candidat web portal or Campus France for applying for the FunPhys Master.
 - Reviewing of the applications to the GS performed by the board of Education.
 - Use support of the GS secretary.
 - 3 full M1-scholarships (\rightarrow budgeted for the $n + 1 = 2021-22$ M2-year)
 - 2 full M2-scholarships
- 1 scholarship = 8 kEur. over 8 months

GS: recruitment campaign 2020-21 (current academic year) 2/3

Official channels for application (w.r.t. AMU the GS awards in-coming scholarships)

- e-candidat : “Master 1 ou 2 Physique : Physique MARSEILLE Saint-Charles”
- Campus France : “Master’s degree in physics - Physics Track”

FunPhys	e-candidat	Campus France	Erasmus	applications	selected	Enrolled
M1	182	77	1	260	56	42
M2	58	14	7	79	46	43

⇒ **339 reviewed applications.**

(VET-M2 = 34)

GS: Selection criteria based on academic merit, study project, financial need...

GS	Direct applications	Applications via FunPhys	selected	In September	After starting	Enrolled
M1	25	14	22	12	1	13
M2	3	18	17	8	4	12

~ -50%

GS-IPhU within FunPhys:

M1 \simeq 31%, M2 \simeq 35%

• Headcount within the IPhU-GS

M1: 10 astro / 1 particles / 2 TH $\mapsto 77\%$ astro \hookrightarrow M2

M2: 2 astro / 1 particles / 9 TH \mapsto concern for courses in astro Φ (< 5 students)

University of origin

M1: Univ. Crete, Lyon I, UGA, Sorbonne Univ, Toulouse 3, Mahidol Univ (Thaïlande), Bdx 1 (2), **AMU** (3).

M2: X, ENS-Cachan, Sorbonne Univ (2), Orsay (4), **M1-AMU** (4).

• Within the FunPhys Master

M1: common track in S1. Optional courses in S2:

Relativity: 18 / Cosmology: 24 / Stars & Exoplanets: 16 / SubParticles: 18

M2: (outside GS):

- Fusion: 7 / Complexity - Nanophysics: 4 / TH: 2
- Astro: 1 (special training study)
- Particle Physics: 4 (+ 2 repetitions)
- Relativistic TH : 2

\mapsto It is mainly with the 4-month research internships that one will have an idea of the IPhU students' profile.

2020-2021: In-coming scholarship allocations & support

- Splitting of the $3 \times \text{M1-}$ + $2 \times \text{M2-scholarships}$ for **9 students** according to:
 - **M1:** 1 scholarship + $4 \times$ half-scholarships \mapsto provisionally budgeted for the M2-year period 2021-2022.
 - **M2:** $4 \times$ half-scholarships
- CROUS lodging through a convention AMU/CROUS “programme spécifique” for the GS-Master: 15 bookings \mapsto **9 hold**.
- “Tripadvisor”: selected candidate survey for those who renounced to come in September ($\sim 50\%$ of selected candidates came): 4/19 answers
 - I choose to go to the NPAC program in Paris. They offered me a scholarship and a student residence in Cité Universitaire. Scholarship was the strongest reason for me to choose this program rather than Aix-Marseille.
 - I appreciate your professionalism and this feed-back that you ask for just prove it. One reason is that Covid19 affected my family's income and beyond on that other personal reasons appeared. In conclusion in my case was a mix of reasons, Covid19/Lack of financial support/Personal reasons. Thank you for your support during my application. I would really like to apply someday for a phd position or to collaborate with your university.
 - I decided to withdraw since I decided to choose another institute program (Ecole Polytechnique, IP Paris, M2 High Energy Physics).

Reminder: some of specific research topics within the Ecole Doctorale 352

- Astrophysics & Cosmology
- Instrumentation
- Particle Physics & Astroparticles
- Theoretical & Mathematical Physics

① IPhU call in 2020 \mapsto 2 PhD positions:

- “Voids lensing on DESI data” [Brazil]
- “Searches for effects beyond the Standard Model in semileptonic decays of B mesons at LHCb” [Romania]

② AIDoc@AMU \mapsto 2 PhD positions (co-financed by IPhU rate 50%) :

- “Artificial intelligence on FPGAs: a breakthrough for data acquisition in high energy physics experiments and beyond” [Finland]
- “Cosmic web and galaxy evolution with Deep Learning” [Master Montpellier]

2020-2021: open call for IPhU internship stipends

- (in-coming) internship rewards: $3 \times M1$ (2 months) + $15 \times M2$ (4 months)
- out-going internship rewards: (IPhU partners + CIVIS):
 $2 \times M1$ (2 months) + $2 \times M2$ (4 months)

⇒ **IPhU Newsletter: call for IPhU internships!**

Some important dates w.r.t. M2 FunPhys (internal GS):

- 1 FunPhys pre-jury for core courses: **January 22** ⇒ idea on how students perform.
- 2 IPhU board of Education: **end of January^a** allocation of internship rewards and subject to the IPhU labs directors' agreement.
- 3 FunPhys internship agreement must be signed **before March 15**
⇒ tell students to start the IPRO process **mid-February** at the latest to get all the signatures (AMU/IPhU/lab).

^aand beyond on the fly if still possible.

Forseen actions in 2020-2021

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Forseen actions in 2020-2021

- Complete the IPhU web portal + application@GS + Comm' GS
(in connection with the FunPhys (AMU) application rules for 2021-2022)
 - **e-candidat**: should be open in early April up to mid-June for M1 level, and mid-July for M2 level.
 - **Campus France** (specific list of foreign countries): already open up to end of March.
 - **Application to the IPhU GS** should be open ASAP and up to end of May to have a 1st round for scholarship allocations and accordingly reopen it.
→ **announcement + better communicate on the GS.**
- Financial support for workshop at OHP (4 nights in mid-February).
- Building up of the 4th orientation “Instrument Scientist” track:
to be open in September 2021 (M1).
→ to be presented M1+M2 at 10:00 by Jean-Gab & William.
- ED-352: PhD program “Physics of the Universe”.
→ to be presented at 10:20 by Véronique.
- Summer Camp (L2) & summer school (Master-PhD).

Questions & discussions on this 1st status for 2020-2021.

Prospects for > 2021 (M1+M2)

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- Open the M1-year for “Instrument Scientists” in September 2021.
In discussion with the Phys Dpt/Master: tight calendar January 21 for asking a change in the current Master program. Approval by the Phys Dpt council required.
- **2021-2022 in-coming scholarships**
 - **M1:** 4 scholarships + 4 half-scholarships \mapsto M2, budgeted for 2022-2023.
 - **M2:** 2 scholarships + 4 half-scholarships
- Call for “Doctorants”: 3 PhD positions in 2021, pending A*MIDEX agreement.
 \mapsto Create a better environment for the GS for M \rightarrow D.
- Get a larger input of the IPhU in the framework of the “**Scientific Watch**”:
2 coordinators for SW@FunPhys belong to IPhU = M.Pieri & A.Zavagno
 - for seminar projects, “continuous light internships”, in anticipation of a possible research internship, ...
 - give seminars on IPhU (hot) topics at the Master level.
 - Workshop in pairs Master student/PhD student
 - ...
- Better identify actions by IPhU within the FunPhys Master program
- Implement IPhU doctoral courses (see Véronique talk)

Outlook > 2021 -continued

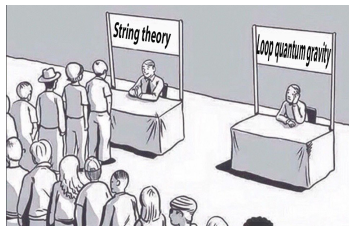
- Actions within the TIGER research/education program (see Eric).
- Open question on an internal policy issue: Interplay between A*MIDEX / AMU / Sciences Faculty / Physics Dpt / Institutes / labs
- International partnerships: CIVIS / Erasmus Mundus / ...
- 2023-2025: a new Master program offer –may be delayed by one more year :-(
 \mapsto WANTED: $\left\{ \begin{array}{l} \text{a new PI for the Master in Physics} \\ \text{a new IPhU vice-director for Education.} \end{array} \right.$

Think about it, and anyway, the **loop** will be closed for the double-hatted coordinator ;-)

Outlook > 2021 -continued

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Questions & discussions about the prospect & outlook > 2021.