

Institute for the **Ph**ysics of the **U**niverse



Institut
Physique de
l'Univers

Aix*Marseille Université

*Strengthen and structure our synergies
to better teach, do research, and transfer*

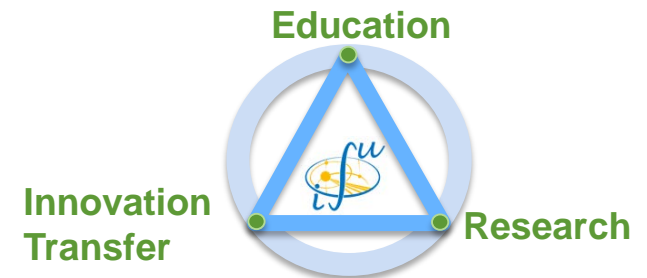


Collaborative environment positioned at the best international level

- **Leverage** the excellence of its 3 constituent laboratories
- **Encourage** and **support** ambitious joint actions and projects to:
 - Lift scientific and technological barriers
 - Push the limits in understanding the Physics of the Universe
- **Foster**
 - Training by and for Research
 - Innovation, Creativity, *Coopetition*
 - Open to the world
- **Promote and enforce**
 - Crossed fertilization between its 3 pillars
 - HRS4R Compliant Practices






Sustainability



**Ambitious project, with no real equivalent at national and international levels
created by AMU on 01/01/2020**

RESEARCH LABORATORIES (in alphabetic order)

- **CPPM** – UMR 7346 : Centre de Physique des Particules de Marseille 
- **CPT** – UMR 7332 : Centre de Physique Théorique 
- **LAM** – UMR 7326 : Laboratoire d'Astrophysique de Marseille 

COMPONENTS

- **Faculty of Sciences**
 - **Physics Department**
 - » Master de Physique fondamentale (FunPhys)
- **OSU Pythéas** : OHP (Haute Provence Observatory)

DOCTORAL SCHOOL

- **ED 352** – Physique et sciences de la matière

CNRS

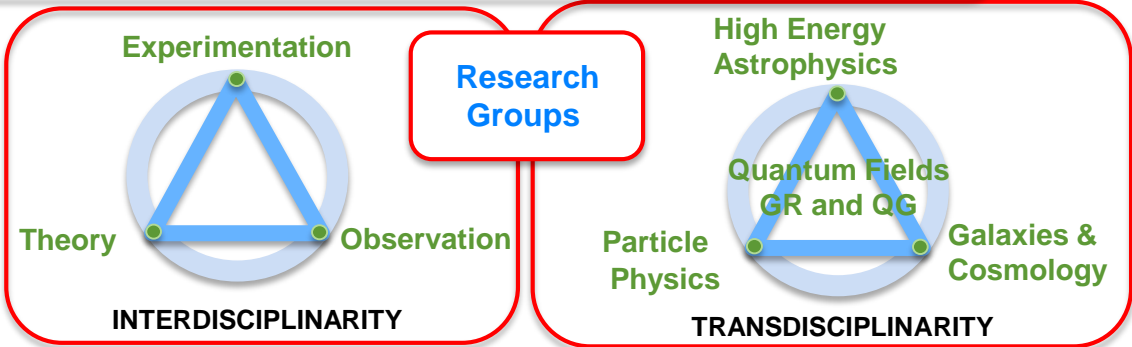
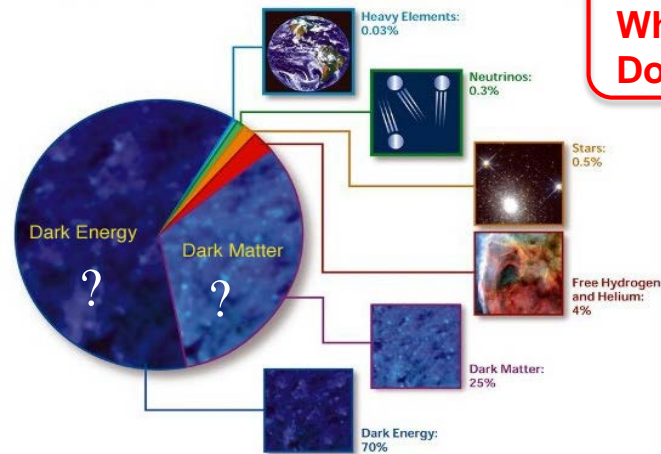
- **3 Institutes** – IN2P3, INP, INSU

DRIVING FORCES

- **200 staff (110 HDR)**: 115 scientists, 95 engineers, techs and admins
- **35 postdocs, 65 PhD and ~70 Master students**

Research

**What are the fundamental laws governing the Universe?
What is it made of? How did it form and how does it evolve?
Do we understand the Universe in its extreme states?**

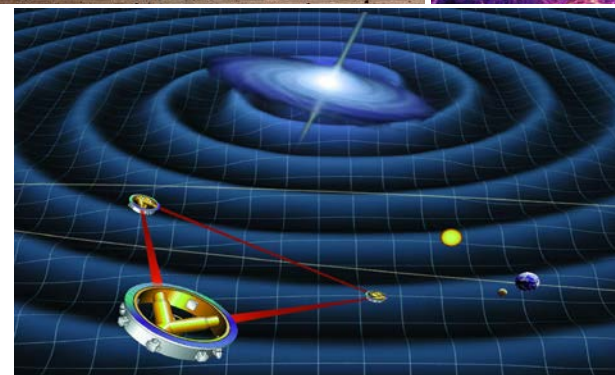
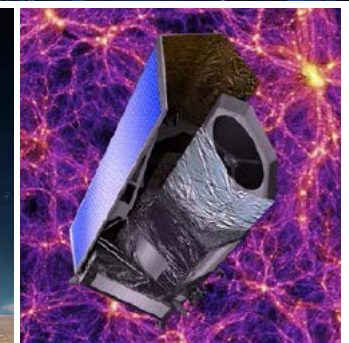
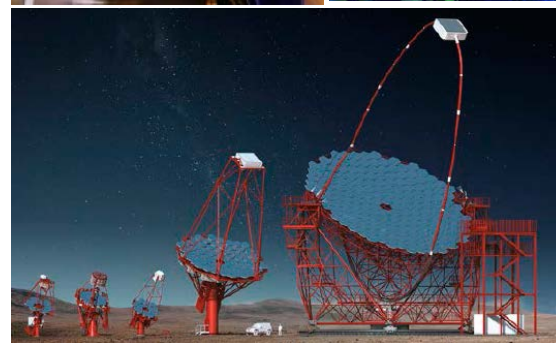
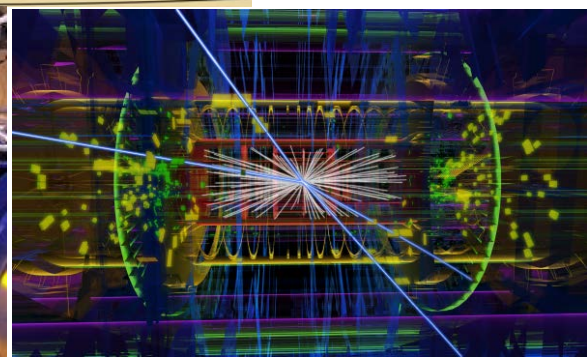
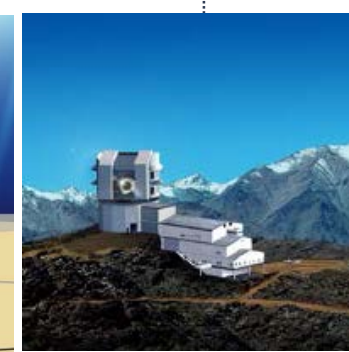
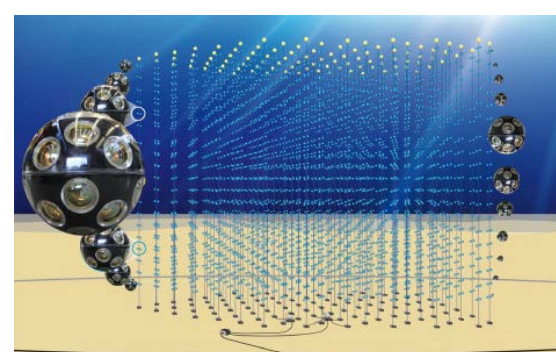
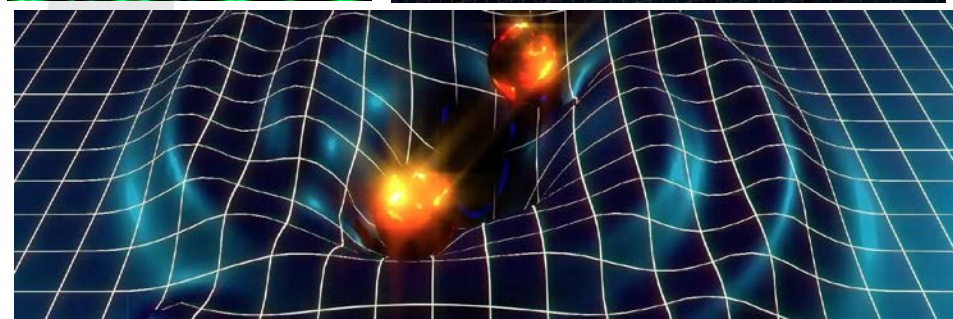
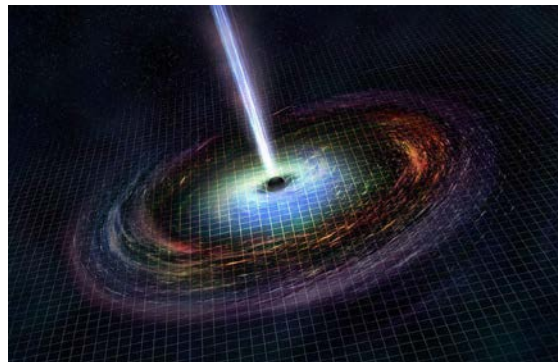
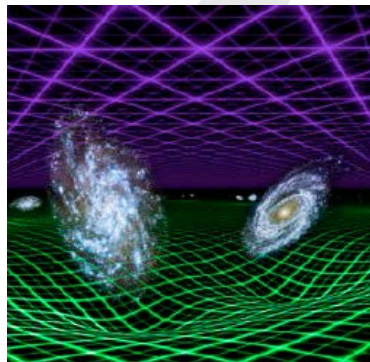
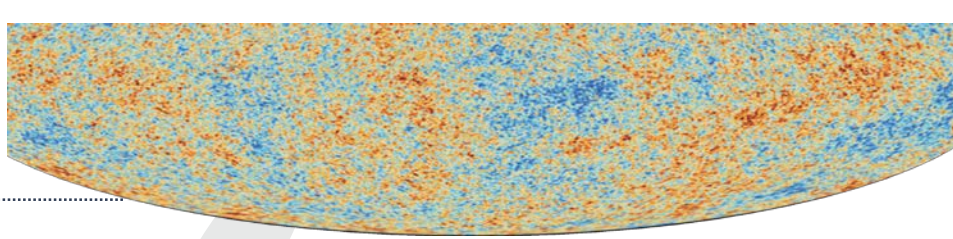


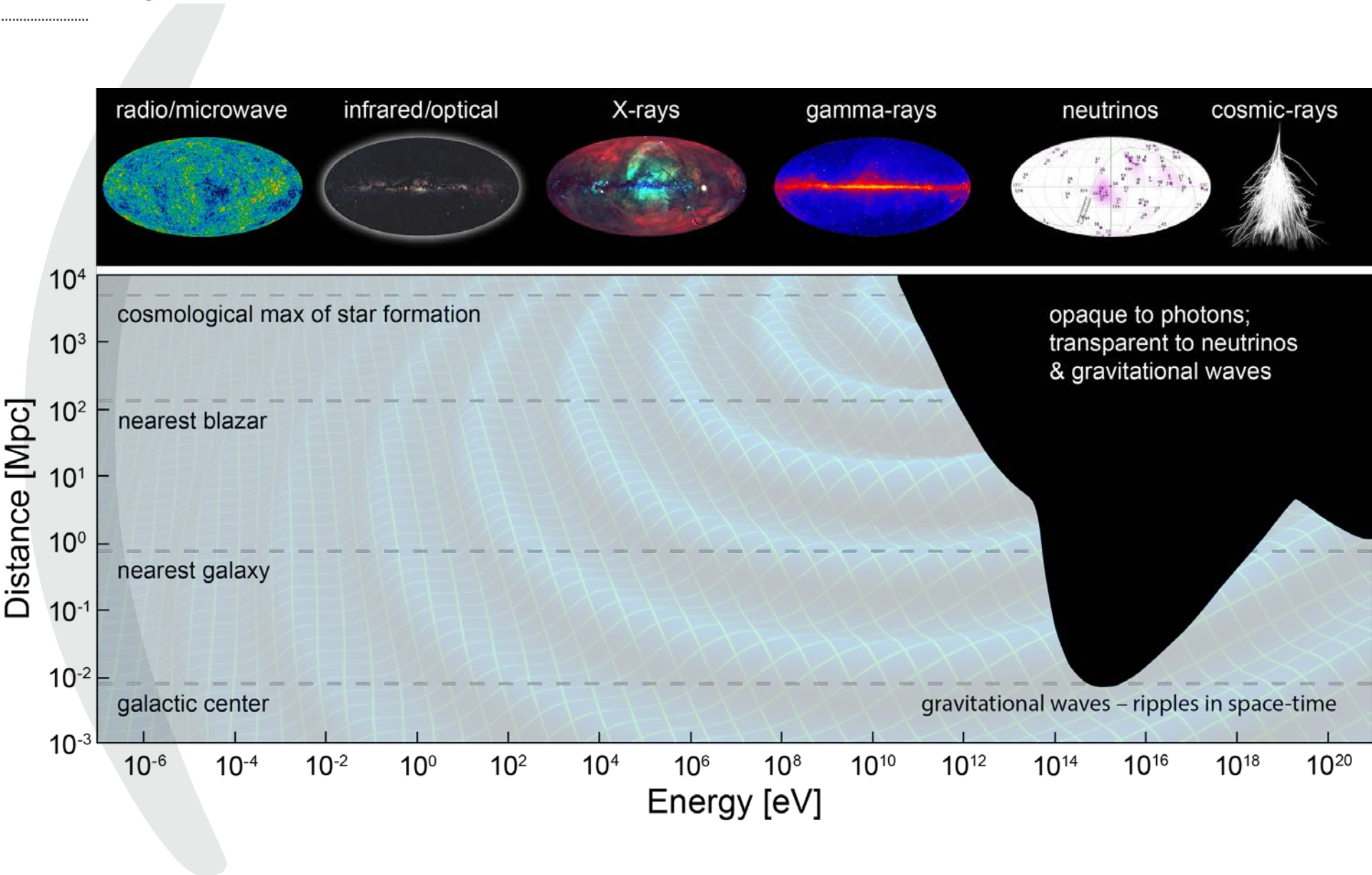
Euclid, DESI, LSST, ELT, LiteBIRD, MSE, PFS, WFIRST; KM3NeT, SVOM, THESEUS, CTA, HESS; LISA, MadMax, DarkSide; ATLAS, LHCb, BelleII; Quantum Fields and Quantum Gravity; ...

<https://www.univ-amu.fr/en/public/research-groups>

Cosmology: models and parameters; Galaxies: formation and evolution; Large Scale Structure: dark matter and dark energy; Reionization; Gravitation: general relativity and gravitational waves; Neutrinos; HE Astrophysics, Astroparticles, Energy Frontier, EWSB, BSM, Intensity Frontier (Flavour Physics, g-2)

- **Support for international projects** to ensure maximum scientific return
- **Support** for original, innovative or risky ideas
 - **Transversal projects:** dark matter and energy, neutrinos, gravitational waves...
 - **Big Scientific Data:** data management, processing and analysis issues
 - **Innovative or risky projects:** incubation of potential future large projects
- **Priority** to projects developing our synergies on international projects
- **International Hiring and Hosting Programs**
 - PhD students (*and Postdocs*)
 - High-level guests from science/technology/education
- **Development of state-of-the-art equipment and platforms:** KM3NeT/ORCA, GFT-Colibri; SPATIAL platform and Instrumentation for the extreme; Dark Energy Center; IRIS and ePERON; Haute Provence Observatory; Radon and Infrared sensors technological platforms...





Graduate School

Program of internationalized courses

4 orientations, including a new "instrument scientist", directly linked to the Research Groups of the Institute

Innovative educational offer

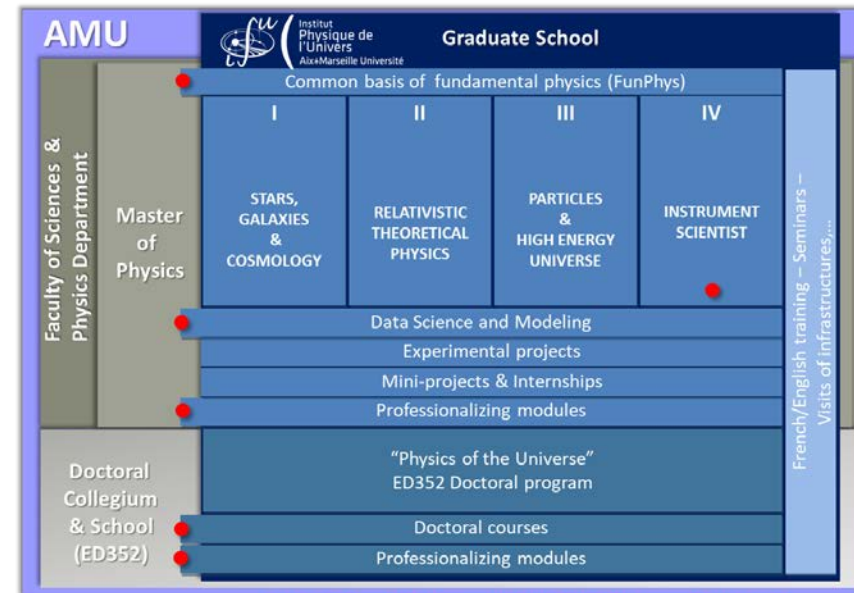
- Develop skills, autonomy and a sense of belonging
- Work in teams and learn by projects
- Integrate into research teams, including abroad
- Participate in training and scientific dissemination actions

Link with related trainings - with strong involvement of the Grad School's students

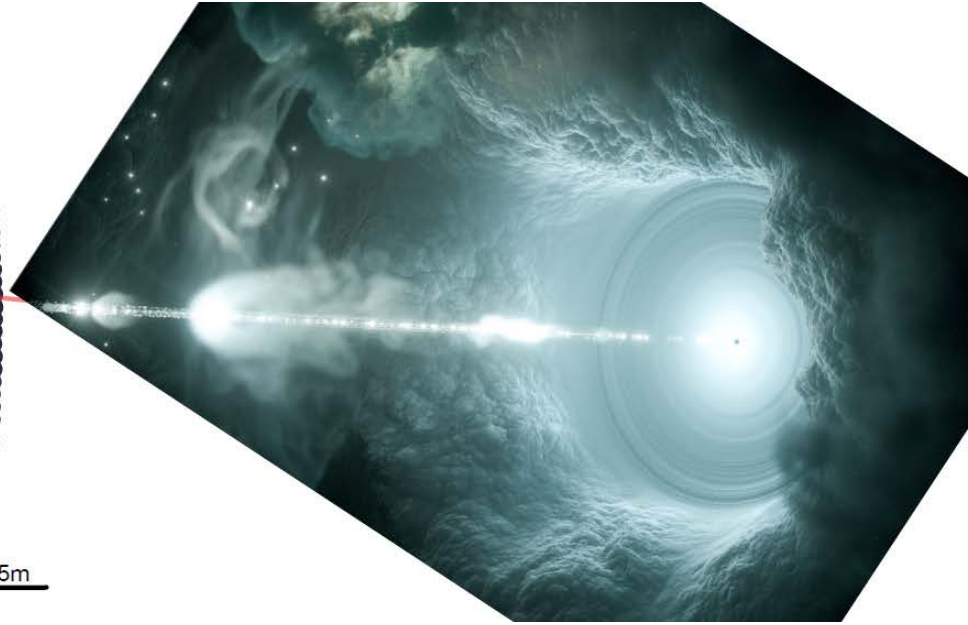
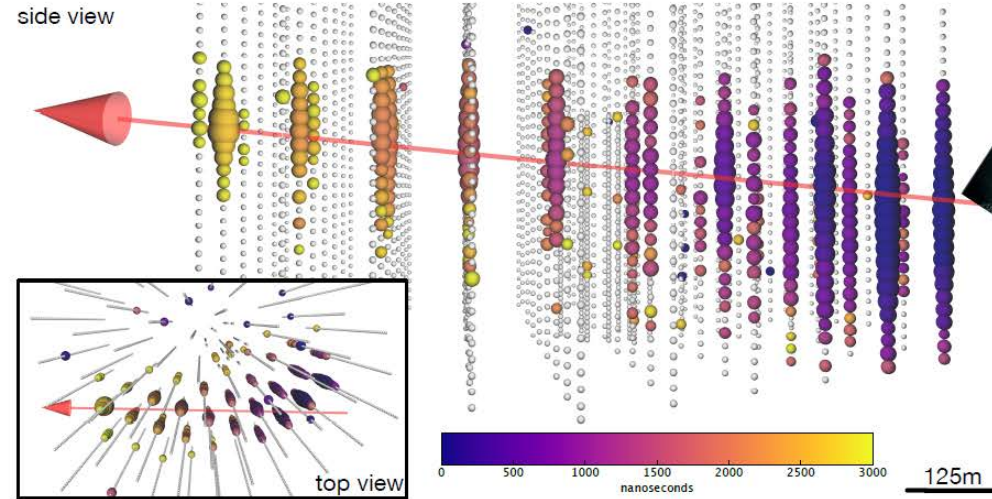
- Physics Summer Camps/Schools
- IRiS and ePERON training platforms
- Research and Discovery Internships in IPhU labs and abroad
- Communication/information/support gateways between Bachelor, Master and PhD students

Development of teaching and research links with other Universities

- Innovative pedagogy - contacts with UCL (University College London)
- Contacts with **Barcelona** AU, **Bologna** Univ. and **Bucharest** Univ. (**CIVIS**) to structure a common Erasmus adventure (ERASMUS+, ERASMUS MUNDUS)
- But also with: Penn State (USA), **UNAM** (Mexico), **UCAS**(IHEP, NAOC), USTC, **THU**, **PKU**, **SDU**, **SJTU**, **SYSU** (China)
- **Open to new collaborations!** ☺



● (partly) shared with other curricula in Faculty of Sciences and/or ED352



Inspire
Educate
Collaborate

World of knowledge

Amplify the dynamics of scientific dissemination and mediation

- **Weave** multiple links between the places where science is produced and the various actors in society
- **Produce** multimedia resources and organize events and actions for these audiences
- **Foster** OHP, and IRiS and ePERON,... educational platforms as training infrastructure
- **Create** a space for exhibition and exchange with secondary school teachers and the general public

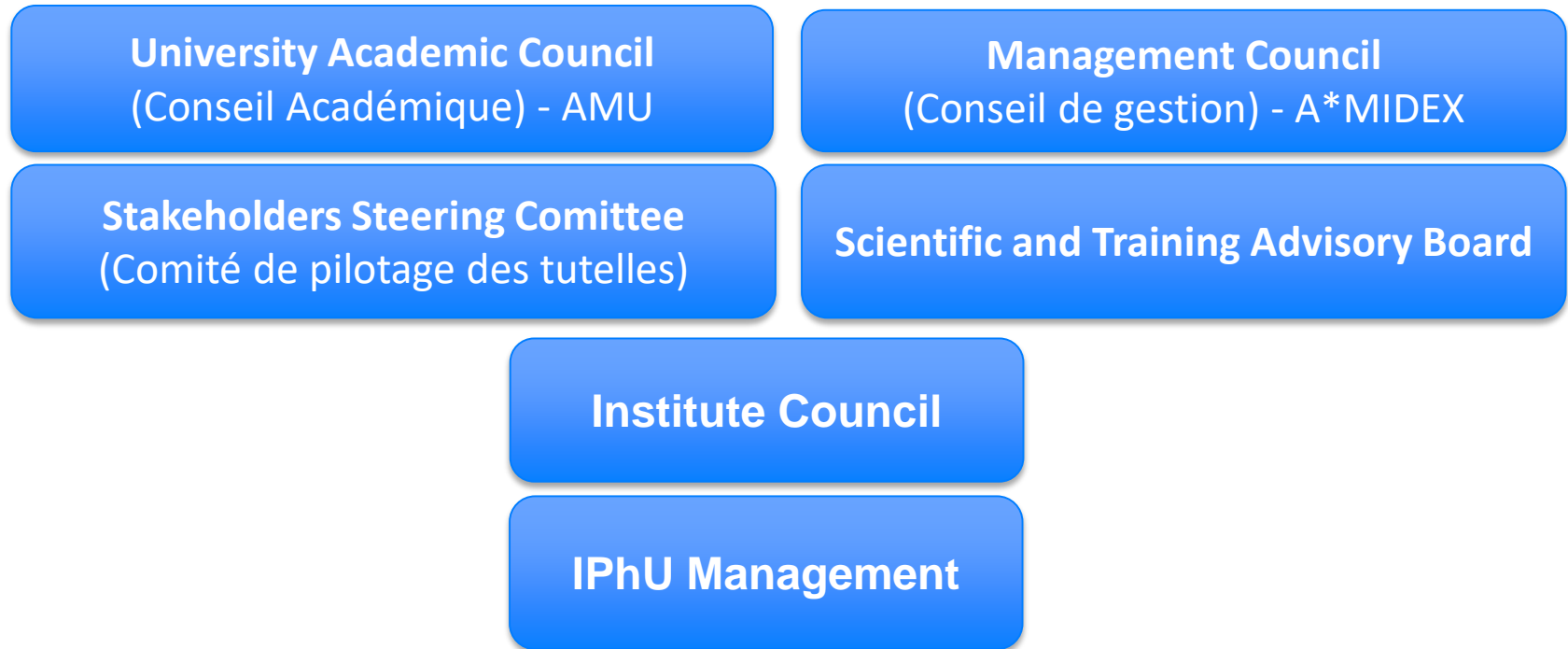
World of technology

Amplify links with industry and the regional economic actors

The Innovation Cell - in connection with CISAM, SATT, Competitiveness Clusters, etc. - will offer to innovative project leaders: individualized coaching, advice by groups of industrial and academic experts, adapted training, seed and pre-maturation funding, etc.

First concrete paths already being explored

- **LabCom and Partnerships with identified companies** to develop Design of spectrographs for large cosmological survey projects, Characterization of infrared sensors, Data acquisition and AI developments on FPGAs,...
- **Seminars, Internships and PhD grants linked to the « Instrument scientist » orientation**



IPhU creation as “institut d’établissement d’AMU”: 01 Jan 2020

Evaluation of the institute:

An evaluation of the general operation of the institute is carried out at the end of the first 3 years following its creation. A scientific evaluation of the institute is carried out at the end of the first 5 years following its creation.

These evaluations are examined by the Academic Council of the University and are submitted for advice to the Institute Council and then to the A*Midex Steering Committee.

Management Council (Conseil de gestion)

The Management Council is ensured by the Steering Committee of the A*Midex Foundation.

It meets once a year and deliberates on :

- The activity report for year N after evaluation from the Stakeholder Steering Committee
- The activity program for year N+1 after evaluation from the Stakeholder Steering Committee
- The forecasts of income and expenditure (year N+1) and balance of the closed financial year (year N)

Stakeholders Steering Committee (Comité de pilotage des tutelles)

The Stakeholder Steering Committee is a committee of strategic importance. It comprises representatives of the stakeholders of the research units and of the institutions to which the components and schools of the institute. It meets once a year.

The Steering Committee:

- Appoints the Director of the Institute (Scientific and Technical Manager, RST) on the recommendation of the Institute Council,
- Validates the institute roadmap and its annual update,
- Provides advice and recommendations on the adequacy of the roadmap and the budget,
- Validates the investments of year N+1

Scientific and Training Advisory Board

In accordance with the practices of international research universities, the Institute has a Scientific and Training Advisory Board (STAB) comprising at least 6 national and/or international personalities, where men and women are equally represented.

It is in charge of accompanying the scientific and pedagogical trajectory of the Institute and enlightening it on its national, European and international positioning.

This STAB is appointed for a 3-year term (renewable once) by the Institute Council on the recommendation of the institute board of directors.

It meets once a year.

Conseil stratégique en formation et recherche / *Scientific and training advisory board*

Fabienne Casoli, President of the Paris-PSL Observatory, Former Deputy Director of the Innovation, Applications and Science Division at CNES.

Françoise Combes, "Galaxies and Cosmology" Full Professor at Collège de France, Member of the French Academy of Sciences, Honorary Fellow of the Royal Astronomical Society - UK.

Eckard Elsen, Director for Research and Computing at CERN - Switzerland. Professor at Hamburg University - Germany.

Anne-Isabelle Etievre, Director of the Institute of research into the fundamental laws of the Universe (Irfu) at CEA, and with University Paris-Saclay.

Guido Martinelli, Professor of Theoretical Physics at La Sapienza University Roma - Italy. Member of the CERN Scientific Policy Committee - Switzerland and of the Accademia Nazionale dei Lincei - Italy.

Teresa Montaruli, Full Professor at University of Geneva - Switzerland. Chair of the European APPEC Consortium.

Joseph Silk, Professor of Physics at Sorbonne University. Homewood Professor of Physics and Astronomy at Johns Hopkins University - USA. Fellow of the Royal Society - UK.

Christian Stegmann, Director in charge of Astroparticle Physics at DESY - Germany. Deputy-Chair of the European APPEC Consortium.

Institute Council

the institute council:

- validates:
 - the main orientations of the institute in terms of research, training and innovation
 - the draft budget (operating, investment, payroll) and the financial balance of the institute
 - The responses to the various calls for projects carried by the institute
- advises on the assessments, evaluations and reports presented to it
- recommends the Institute Director (RST) for appointment.
- Referees the institute calls for proposals
- It meets at least twice a year and is chaired by the RST

Members with deciding vote

the directors (or representatives) of:

Faculty of Science (2 votes), OSU Pythéas (1); CPPM (1), CPT (1), LAM (1)

Members with consultative value input

Institute Director and Deputy-Directors (institute board of directors)

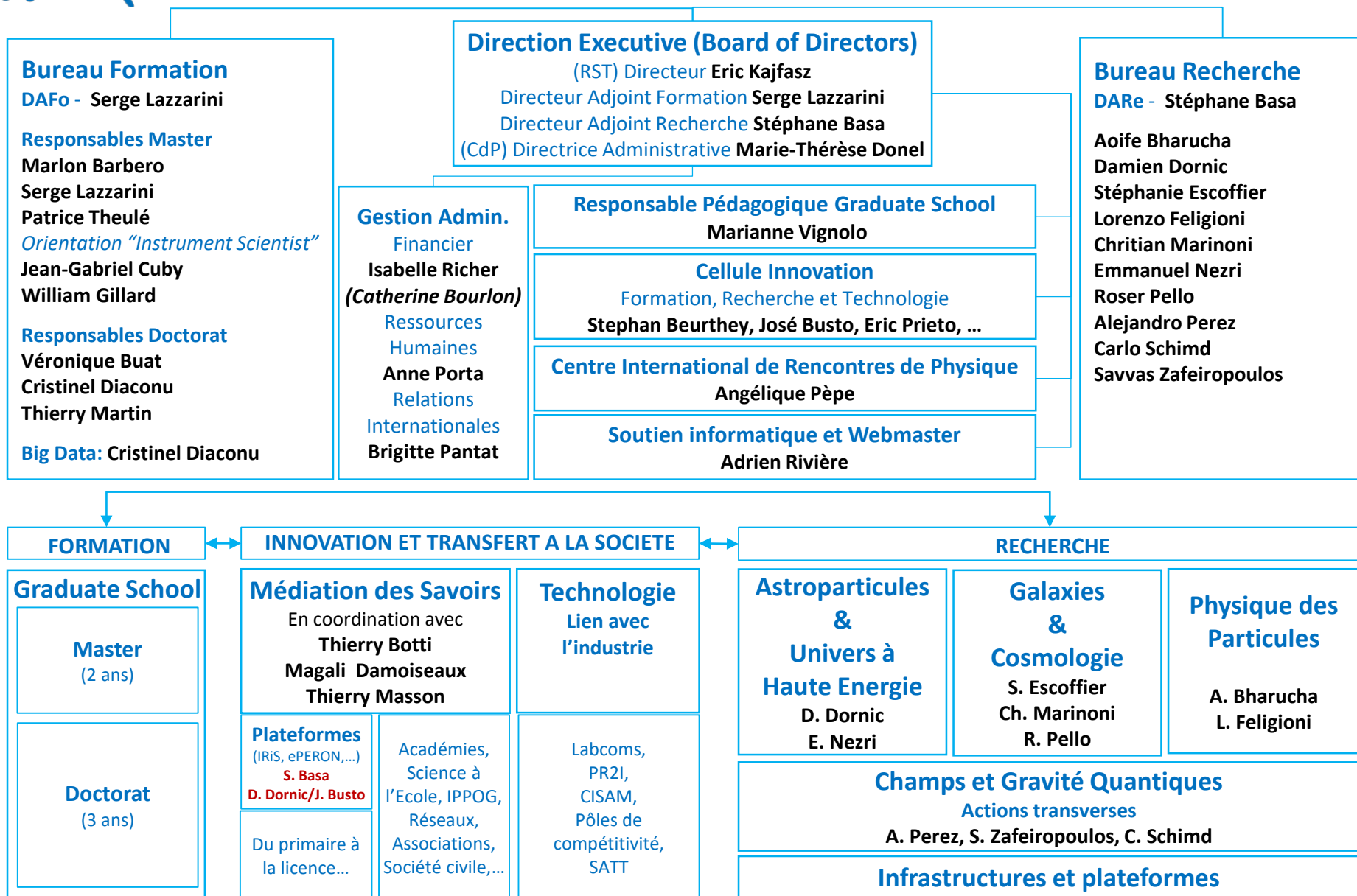
Director of the Doctoral College

Director of the Doctoral School ED352

Director of the Physics Department of the Faculty of Sciences

Student representatives

...



Context

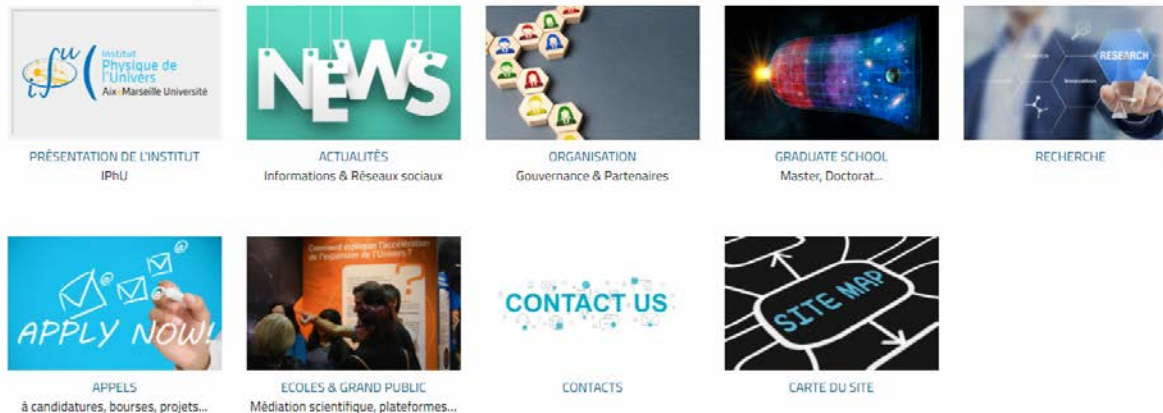
- Solicitations from all sides and many meetings set up by A*MIDEX
- Without trying to make excuses, Covid was not a facilitator
- I will not repeat (too much) what will be presented on Education and Research by my colleagues😊

Actions

- Launched the 2020 IPhU Call for Proposals late 2019 and processed it early 2020
- Implementation of IPhU web pages (and not a site!): <https://www.univ-amu.fr/iphu>
very constraining format which made us lose time and efficiency – still under construction in some parts



INSTITUT PHYSIQUE DE L'UNIVERS - IPhU (SITE EN CONSTRUCTION)



Actions (cont'd)

- Currently finalizing implementation of online application forms (M1, M2, PhD,...); AMU did not want to share tools already developed for AMIDEX; too time consuming for DOSI to adapt to the needs of the institutes
- Currently working on setting up collaborative tools in addition to managing meeting agendas with indico (<https://indico.in2p3.fr/category/873/>)

Accueil
Créer un événement
Mon profil

Home » IN2P3 » Laboratoires » IΦU/PhU - Institute for the Physics... » Meetings » Institute Council Meetings

Institute Council Meetings

octobre 2020

13 oct. Réunion du Conseil d'Institut (protégé)

février 2020

10 févr. Réunion d'arbitrage AAP#1

Accueil
Créer un événement
Mon profil

Home » IN2P3 » Laboratoires » IΦU/PhU - Institute for the Physics... » Meetings » Executive Boards Meetings

Executive Boards Meetings

Board of Research Meetings	3 événements	⇒
Board of Education Meetings	5 événements	⇒
Board of Directors Meetings	47 événements	⇒
Innovation Cell Meetings	1 événement	⇒
Communication and Outreach Cell Meetings	vide	⇒

Actions (cont'd)

- Implementation of a monthly Newsletter.
AMU did not want to share its tools, so we had to manage on our own (topol.io) ...

NEWSLETTER



Institut
Physique de
l'Univers
Aix-Marseille Université

DECEMBER 2020

General Event - Please join...

IPhU Days

A year after the creation of the Institute for the Physics of the Universe (IPhU) by AMU, this event aims at bringing together the IPhU community to assess the status of its beginning, its present and of its future that we need to build together in all its entangled aspects: Research, Education, Innovation and Transfer.

Hope you will be numerous to join and take part in the videoconferencing meeting.

Organized by IPhU
11-12 Janvier 2021
via Zoom

[MORE INFO HERE](#)

Graduate School - Master Program - We need you!



Call for IPhU internship topics at the Master level

Actions (cont'd)

- News and Tweet AMU on 22/07 about the outstanding SDSS results in which teams from CPPM and LAM in the IPhU Galaxies and Cosmology WG have been strongly involved ☺

LES ACTUALITÉS D'AIX-MARSEILLE UNIVERSITÉ

INSTITUT-IphU

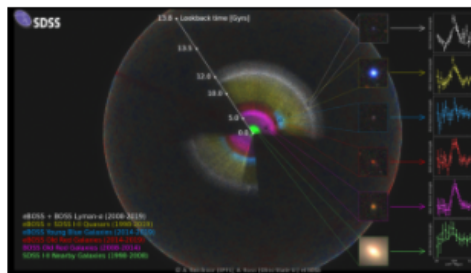
PAR T

RECHERCHE

INSTITUT-IPHU

11 MILLIARDS D'ANNÉES D'EXPANSION DE L'UNIVERS RÉVÉLÉS !

Modifié le : 22/07/2020 - 17:18



Le Sloan Digital Sky Survey (SDSS) vient de publier une analyse complète de la plus grande carte tridimensionnelle de l'Univers jamais créée, permettant de reconstruire l'histoire de son expansion sur une période de 11 milliards d'années. Les équipes du CPPM et du LAM du groupe Cosmologie de l'Institut de Physique de

l'Univers sont très impliquées dans cette prouesse scientifique et technique.

EN SAVOIR PLUS ➔

- Launched the 2nd IPhU Call for Proposals on 24 Nov 2020. Deadline for submission 20 Jan 2021.

Outreach and training platforms

- The person who was in charge of coordinating these actions left in July 2020 for other adventures ☹
- => difficulty: it should be possible to hire a new person, but ...
as a first attempt, we will try to organize ourselves differently

Scientific Communication

- Try to identify a few actions each year that the persons in charge of communication in our 3 labs would help to implement in articulation with the labs communication.
- Involvement of one or more scientists
- Involvement of one or more interested PhD students

Teaching/Training Platforms

Collaboration agreement (in the process of being written) with the Aix-Marseille rectorate on scientific dissemination activities (including platforms) for secondary school classes.

Astronomy (see Stéphane Basa's talk)

- **IRiS** (@ OHP) – has worked really well for some years already; possible additional involvement of a school teacher and of a PhD student
- New project (not yet funded) of an antenna @ OHP for radio-astronomy

Cosmic Rays (see Damien Dornic's talk)

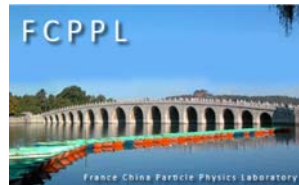
- **ePERON** – @ OPM in collaboration with OMP; new complementary deployment @ OHP in 2021
- Use of Open data from HESS/CTA (gamma) and ANTARES/KM3NeT (neutrinos)
- Identification of 2 highschool teachers interested in getting involved; add involvement of a PhD student

International – existing structures we can rely on

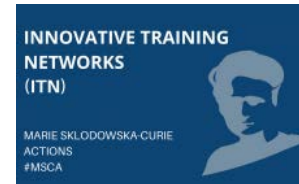
LIA/IRL ERIDANUS with Mexico



LIA/IRL FCPPL with China



Innovative Training Networks (EU) to develop with partners?



ERASMUS Mundus to develop with partners?



Possible education partnership that we explored at the time of the IPhU proposal submission:

UAB – U. of Bologna

and possibly UCL (University College London) for innovative teaching

Interest of some Russian universities to collaborate in the framework of the Franco-Russian University



International - CIVIS

- Participation in several meetings organized by AMIDEX
- In the projects supported by CIVIS there must be at least 3 universities involved.
- At the training level, want to make co-degrees in the first instance no clear added value compared to ERASMUS Mundus.
- Already strong collaboration in particle physics with Bucharest We need to try to identify other groups likely to work with us.
- Glasgow has asked to be integrate to or be associated with CIVIS; Difficulty because of Brexit, but could be interesting; they are for example on LISA and ATLAS, LHCb, ...




INNOVATION CELL


Implementation of the Innovation Cell of the Institute (see Stéphan Beurthey's talk)



Interdisciplinarity/transfer

- Met with AMI – Archimède Institute to try to develop a collaboration around “embedded AI” on a concrete project; we are still waiting for feedback...
- Met with InCIAM (Créativité et Innovation) :
 
 - To help us free and develop creativity on the technological and training aspects in the institute
 - Specifications are being written and work meetings are being set up... to be followed.
 - IPhU could be used as a testing ground for their ANR project "Démarche Innovante Participative" (Innovative Participative Approach).

Lien avec le monde socio-économique et culturel

- Met with Michela Mori from CISAM
 
 - participation in the 5-year roadmap of the Institute

- Met and discussed with CEO/people from a few companies: NEXVISION, INTEL/FPGA, LYNRED
Interest in working together with us and participating in the "Scientific Instrument" training of the Master's program currently under construction (through courses, seminars, welcoming trainees, even CIFRE PhD...). However, This has yet to be formalized and concretized.

Budget

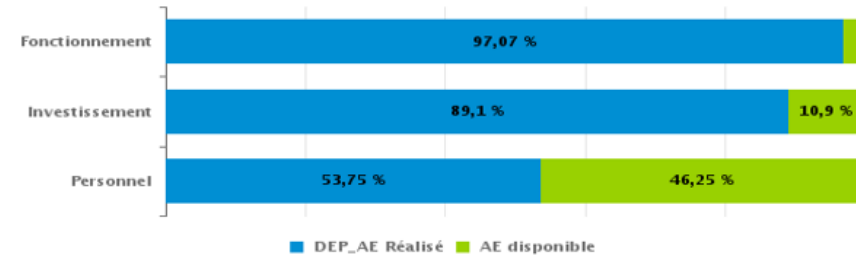
For 2020+2021 combined, IPhU has a global max budget of 800k€ (400+400)

Due to Covid, a large number of expenses have been delayed or canceled in 2020

Centre Financier : AMIDISIPHU

Budget d'Autorisations d'Engagement

	Budget	Consommations	Disponible	Taux d'exécution
Fonctionnement	77 300	75 039	2 261	97,07%
Investissement	14 181	12 635	1 546	89,10%
Personnel	52 950	28 459	24 491	53,75%
Total :	144 431	116 133	28 298	80,41%



Tomorrow we'll discuss the 2021++ budgets...

Thank you for your attention!

Any (more) questions?