

# IGFAE report

Carlos A. Salgado

2nd workshop *da irmandade* LIP-IGFAE  
Santiago de Compostela - 26 abril 2019



## Joint research center of the University of Santiago de Compostela and Xunta de Galicia - created in 1999

### Legally under the administrative structure of the university, not independent for

- Hiring personnel
- Managing funds (contract, etc) in particular overheads
- Decide on premises
- etc.

**But governance, etc fixed by own regulations**

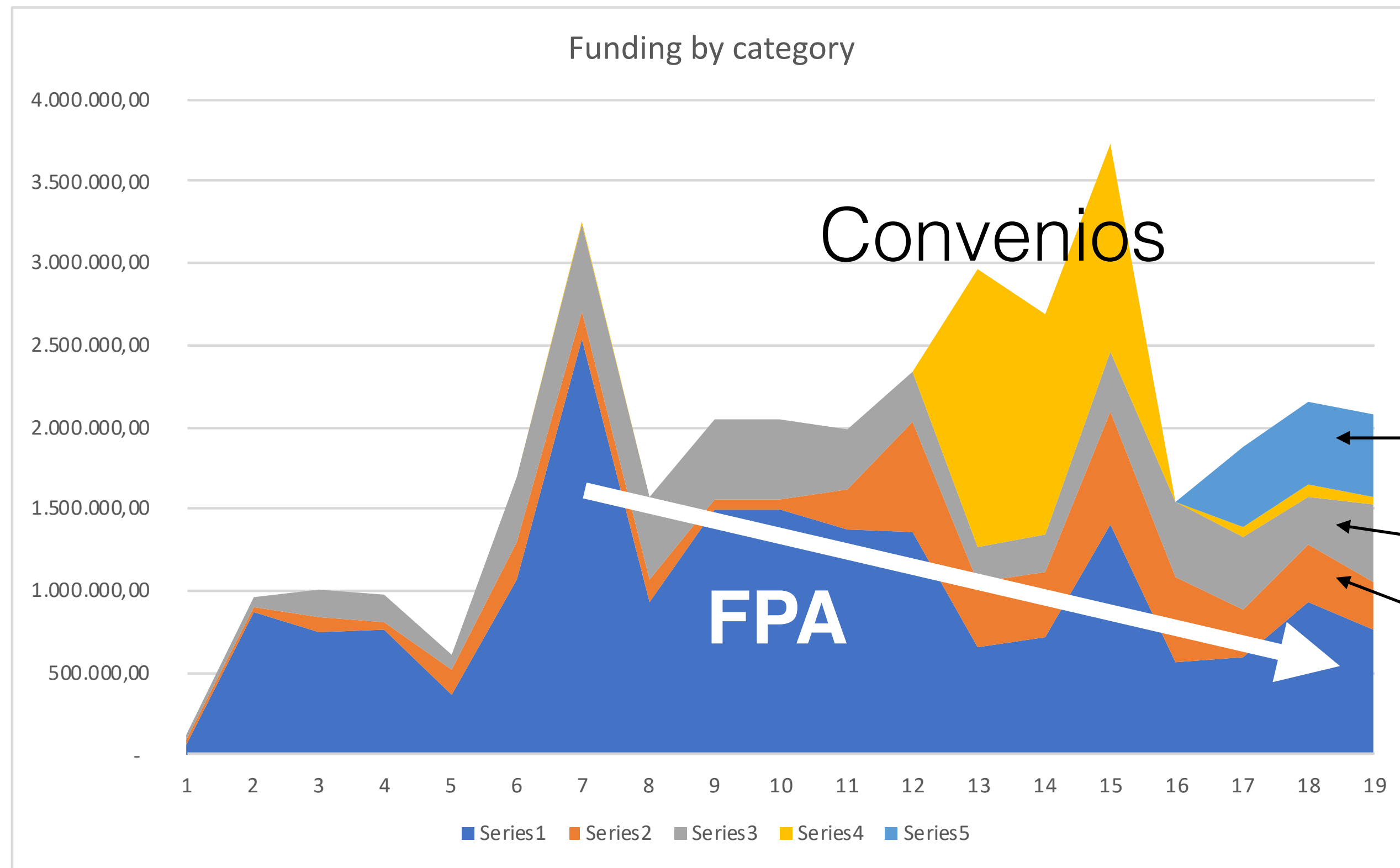
This fixes strong boundary conditions for most of our actions but also provides some stability, e.g. in administration and professor positions

### The university main contributions are

- salaries of professors (all permanent positions except one)
- premises, etc
- Common administration



# Fundraising

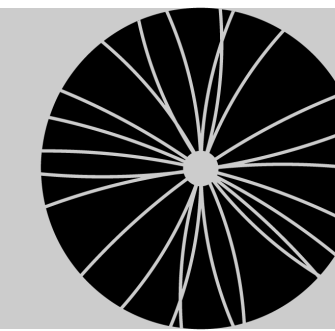


**We have diversified our sources of funding in the last <10yrs**

MdM  
Xunta  
EU

**Clear trend towards a strong reduction from FPA (usual national funds for projects)**

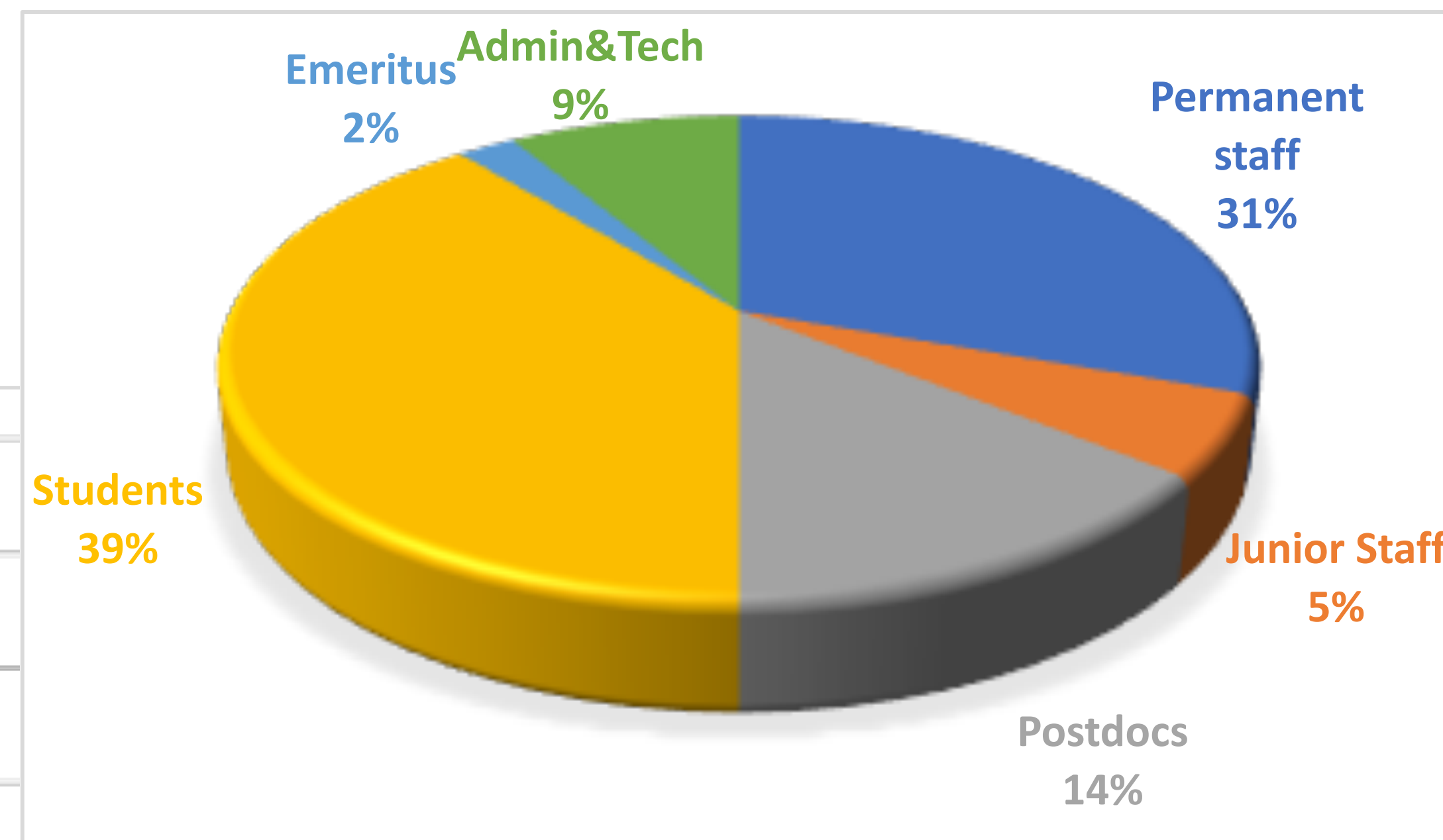
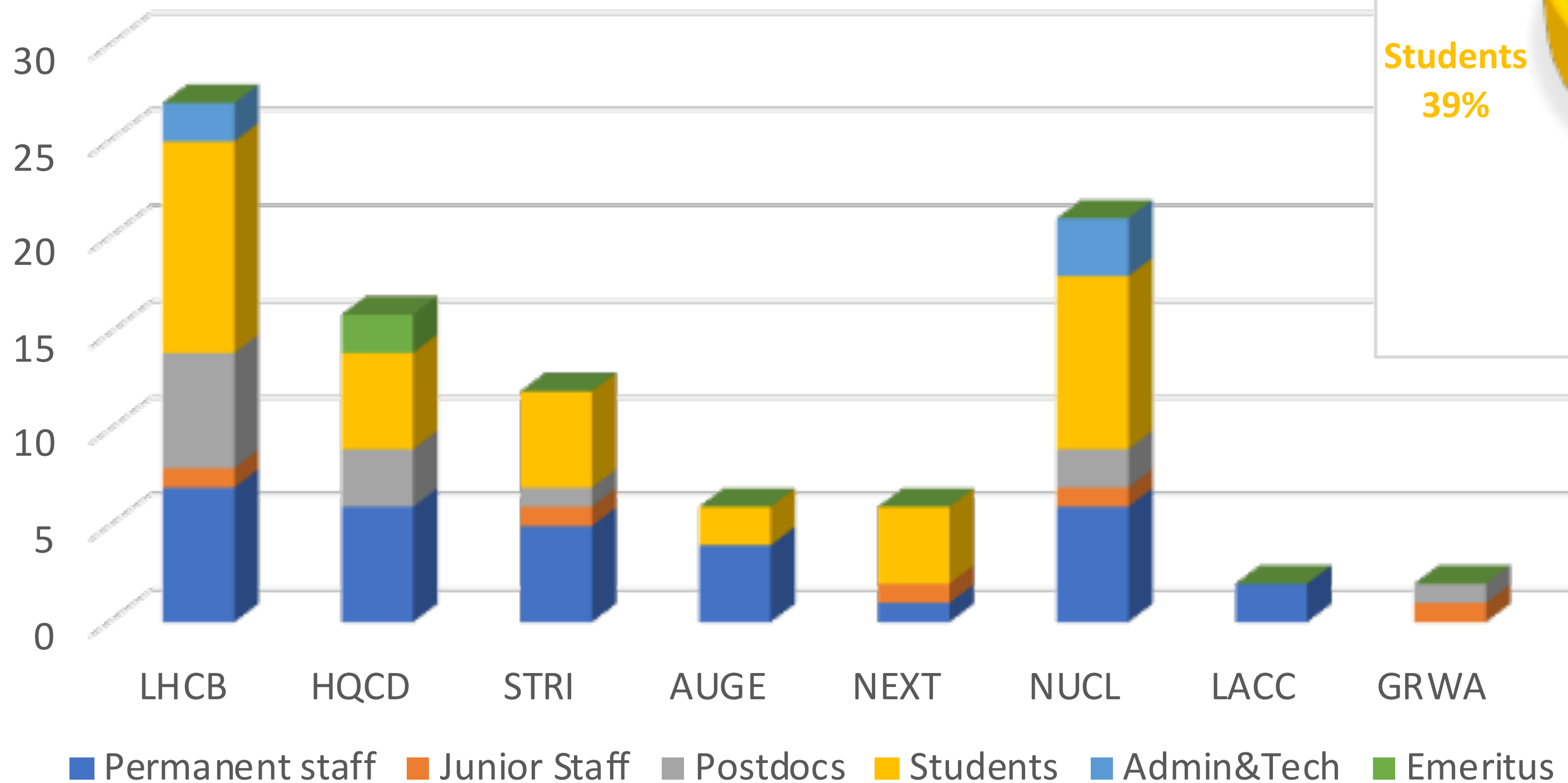
# Personnel



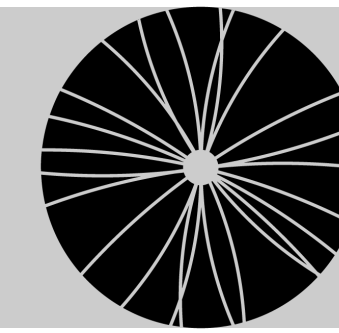
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**Total number of people working at IGFAE: 92**

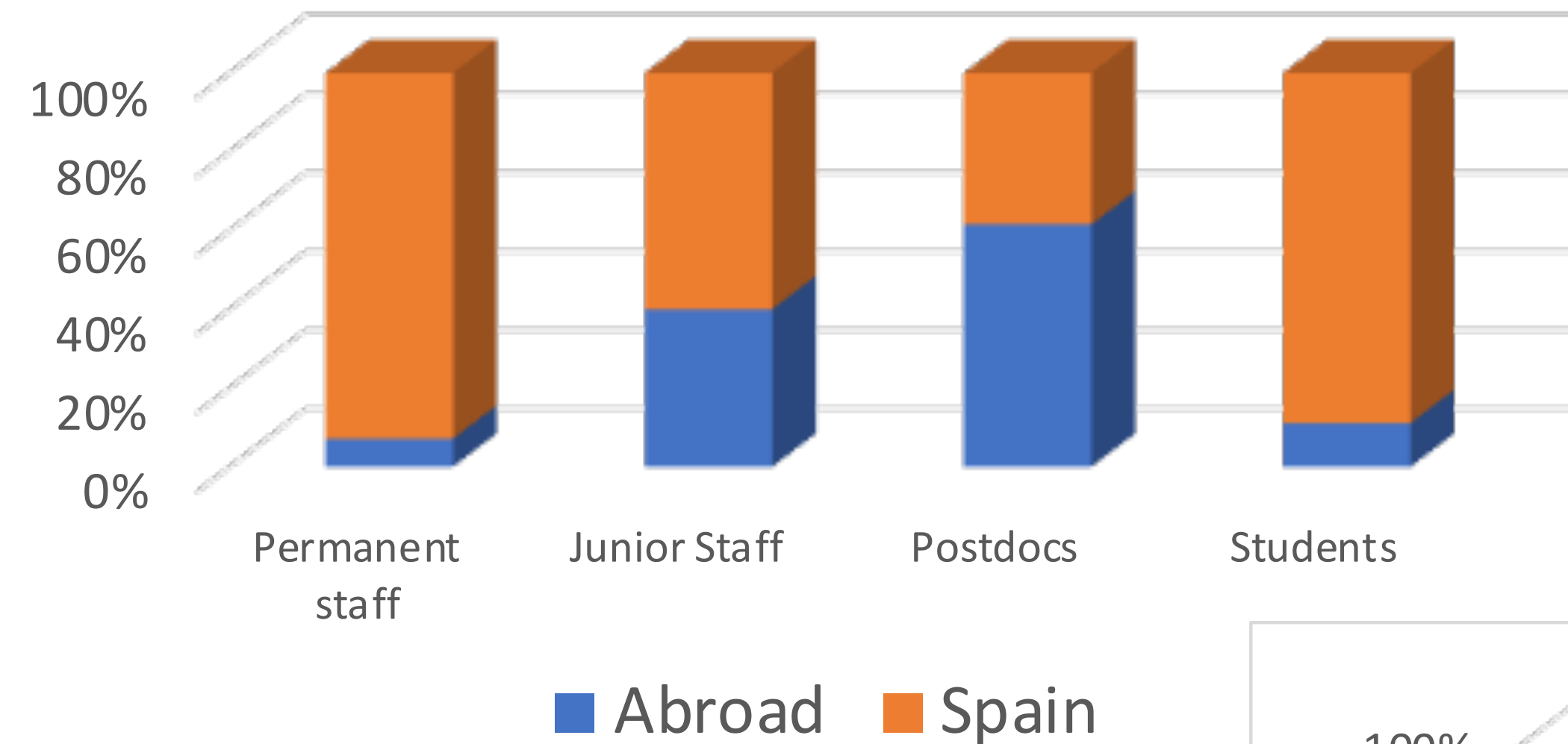


# Personnel distribution



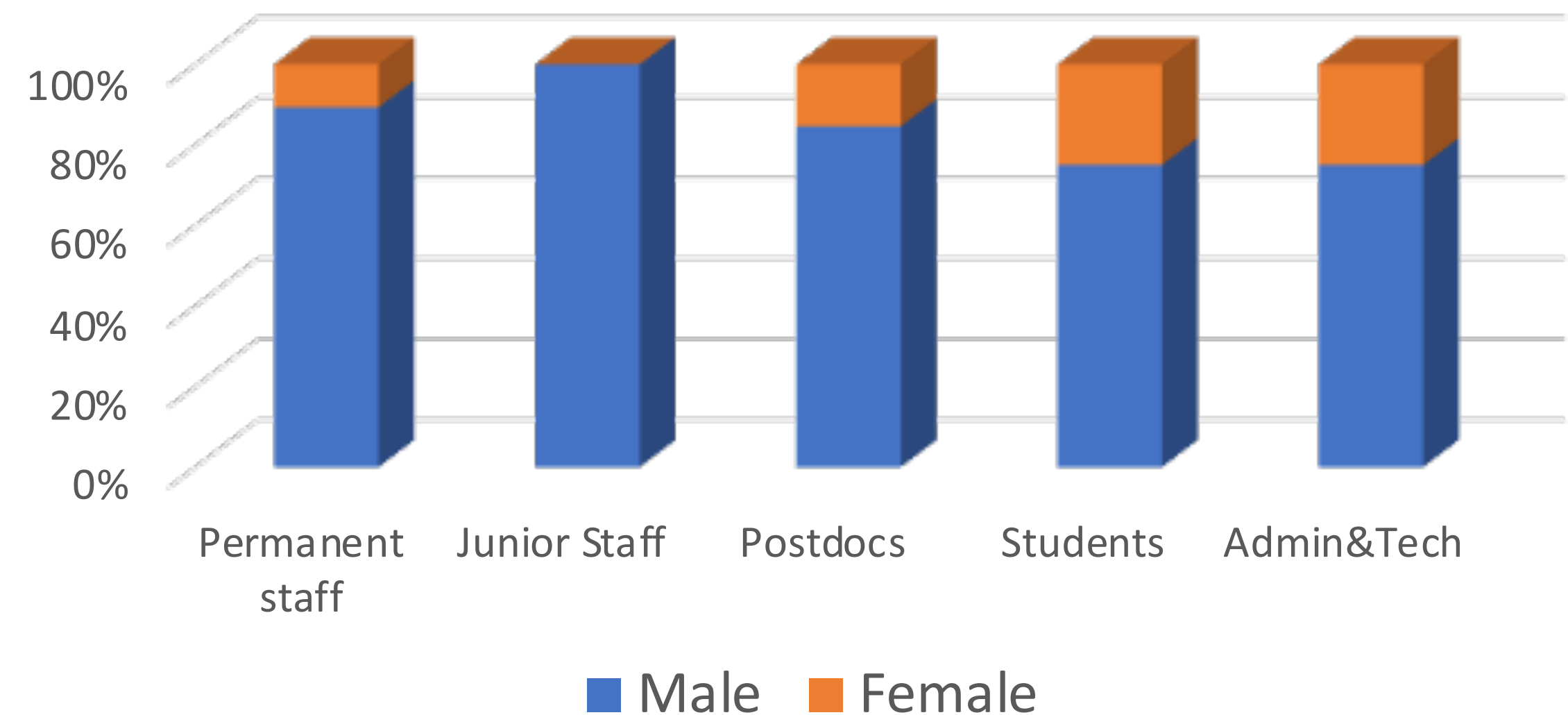
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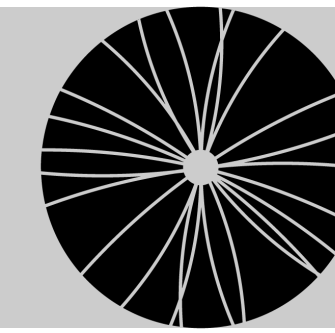
**% of foreigners low in permanent and students**

**% of women low in all categories**





# IGFAE premises

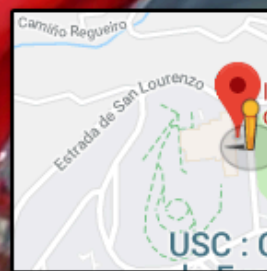


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New facilities for IGFAE under discussion at the university

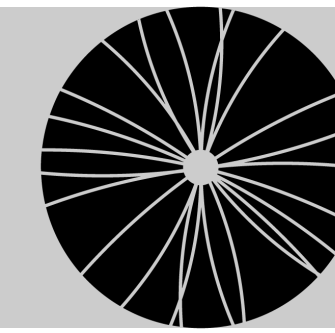


Google

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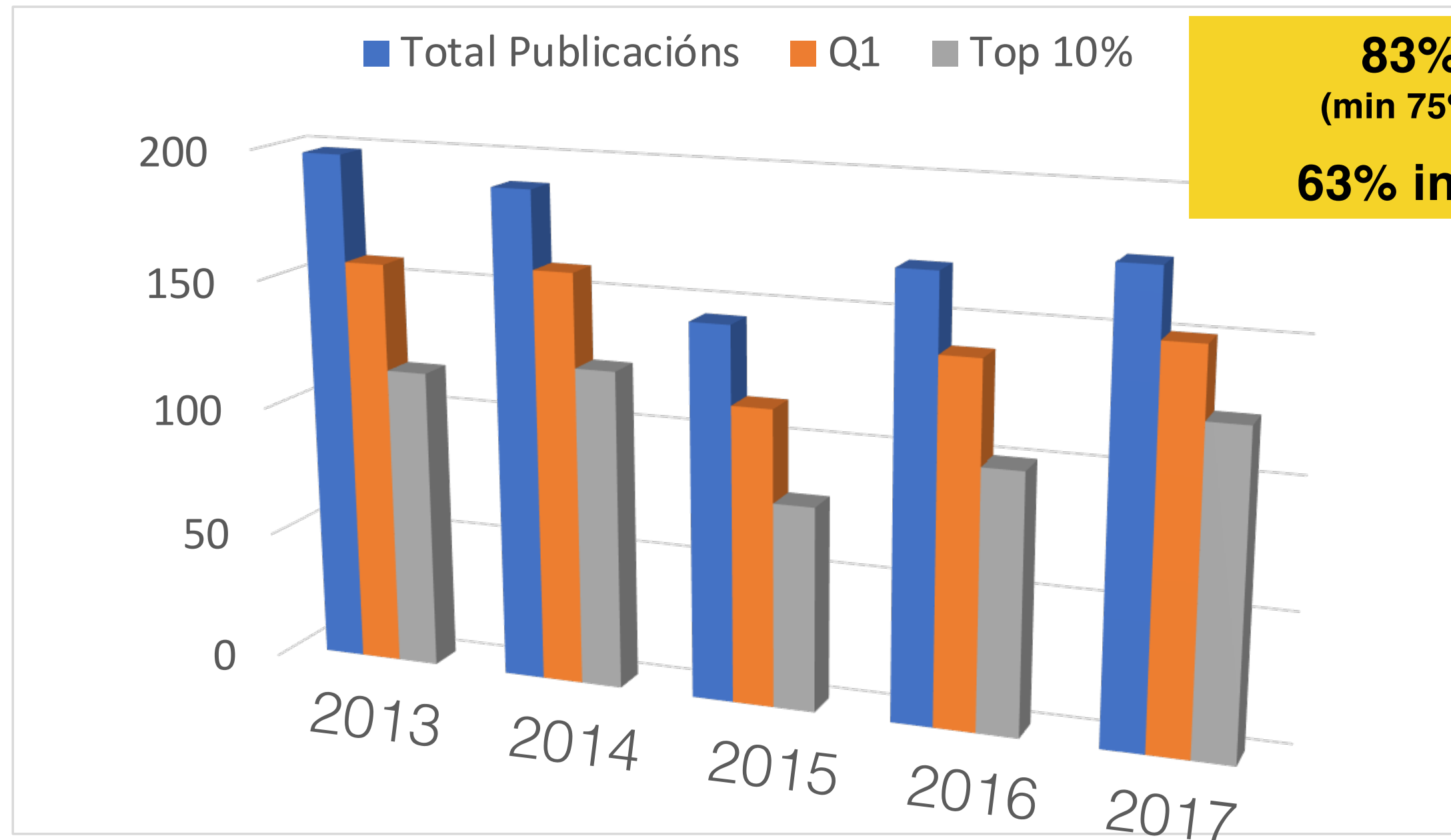


# IGFAE publications



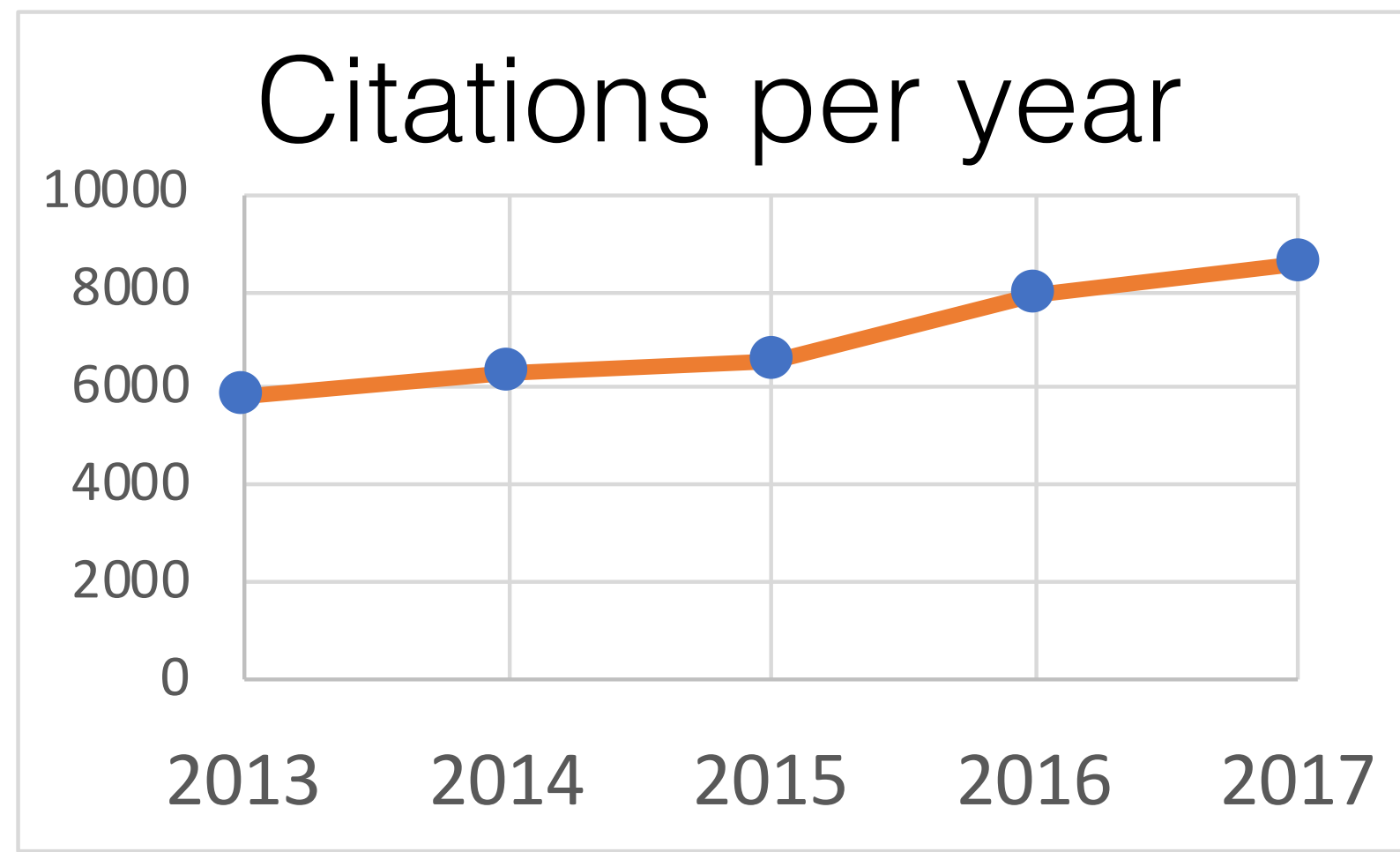
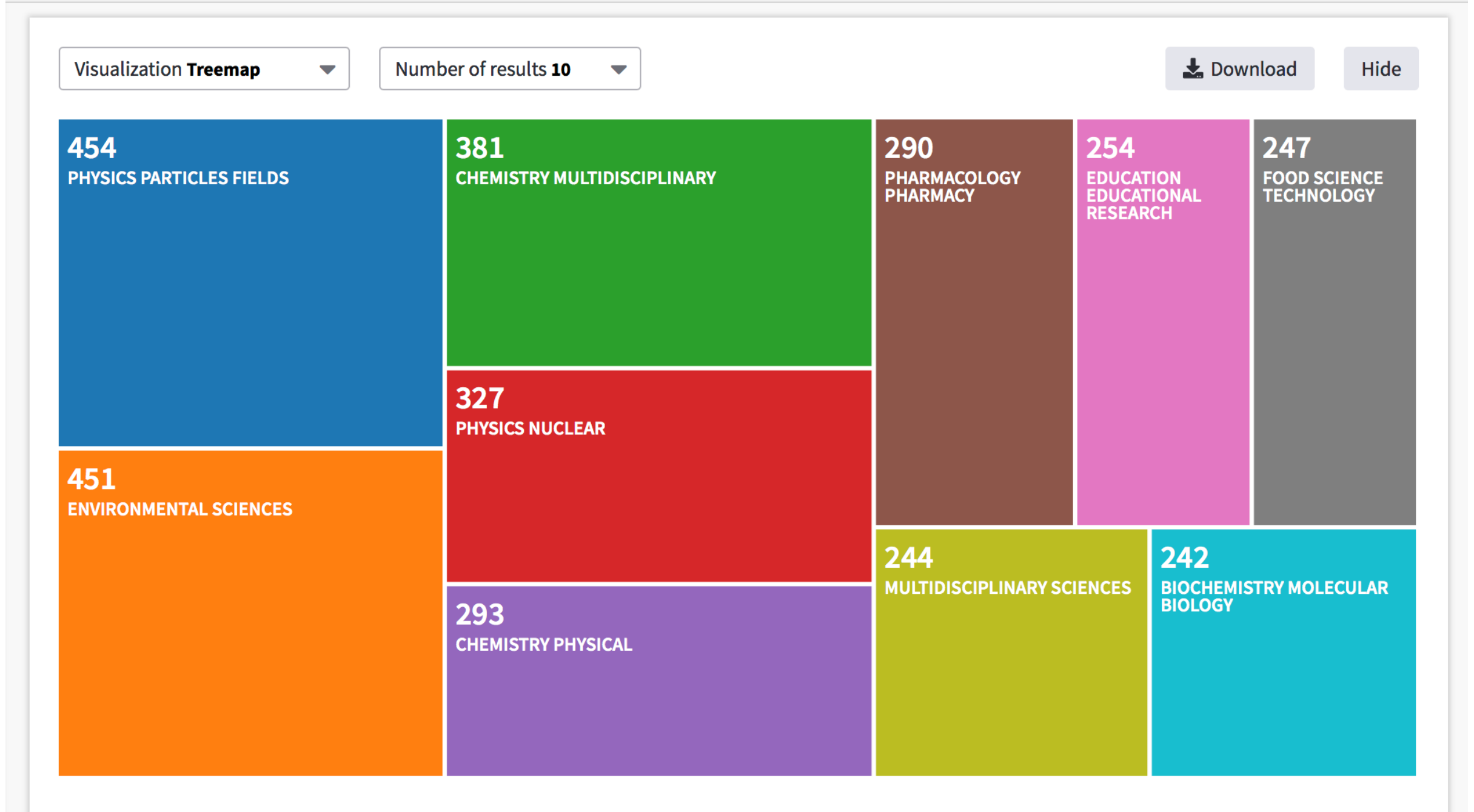
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10% of the scientific production of the University of Santiago de Compostela

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## From the original proposal

The Strategic Plan presented here is an ambitious program designed to improve the **organizational and managerial structures**, to reinforce the **recruitment of young researchers** with potential to become world-leaders, to strengthen the **talent management** at all stages of the career development and to **improve the impact** of the Institute's performance following the principles of **Responsible Research and Innovation**.

Organization

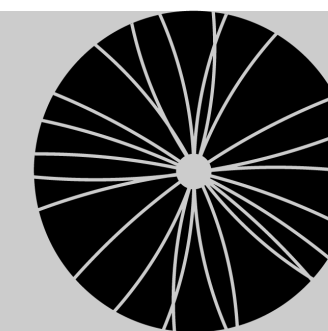
Recruitment  
& Training

Internationalization

Society

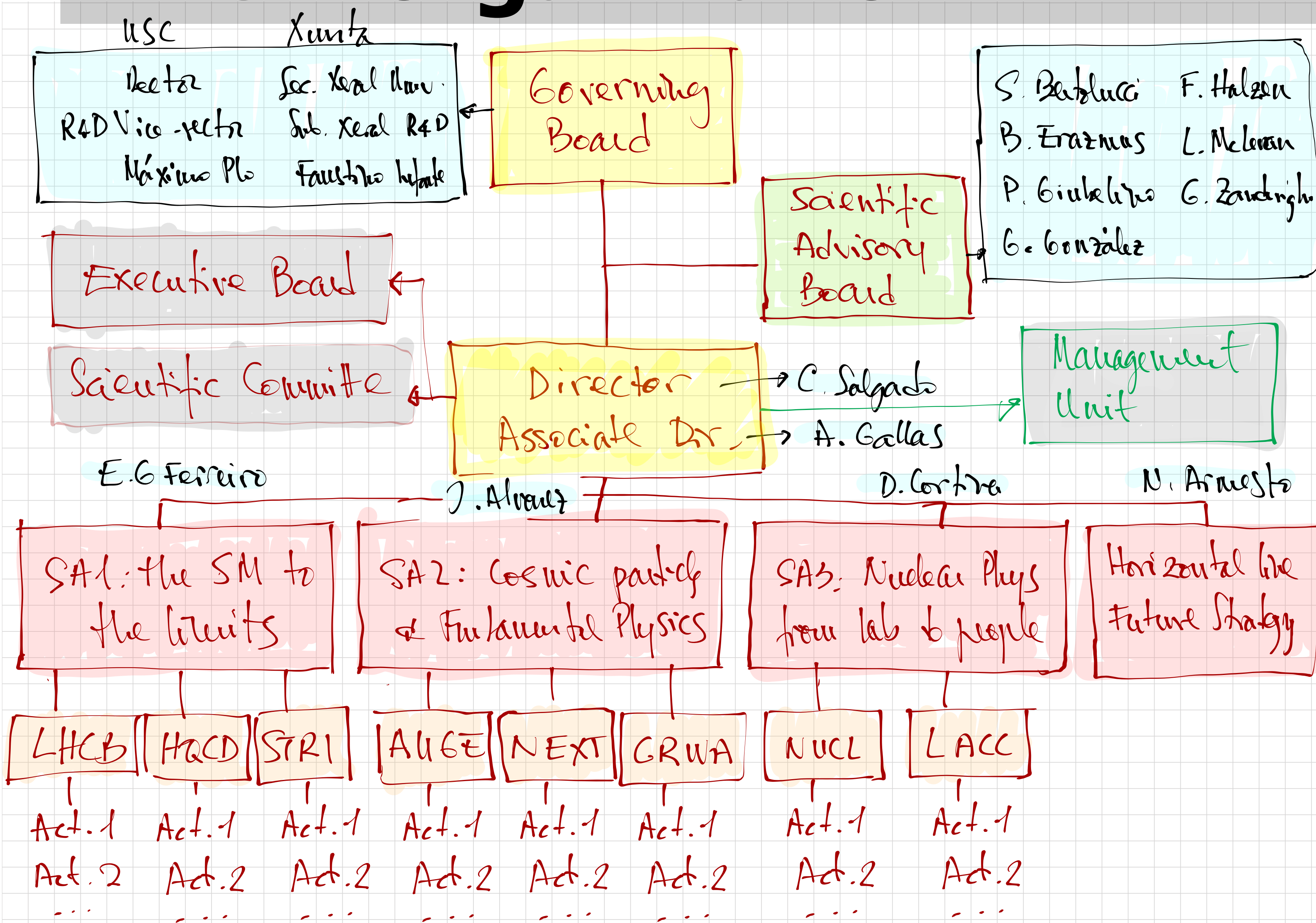


# New organization

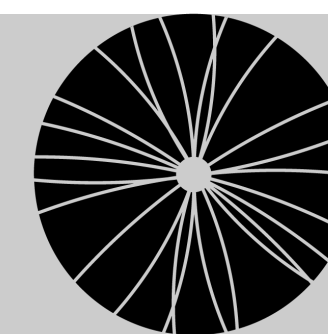


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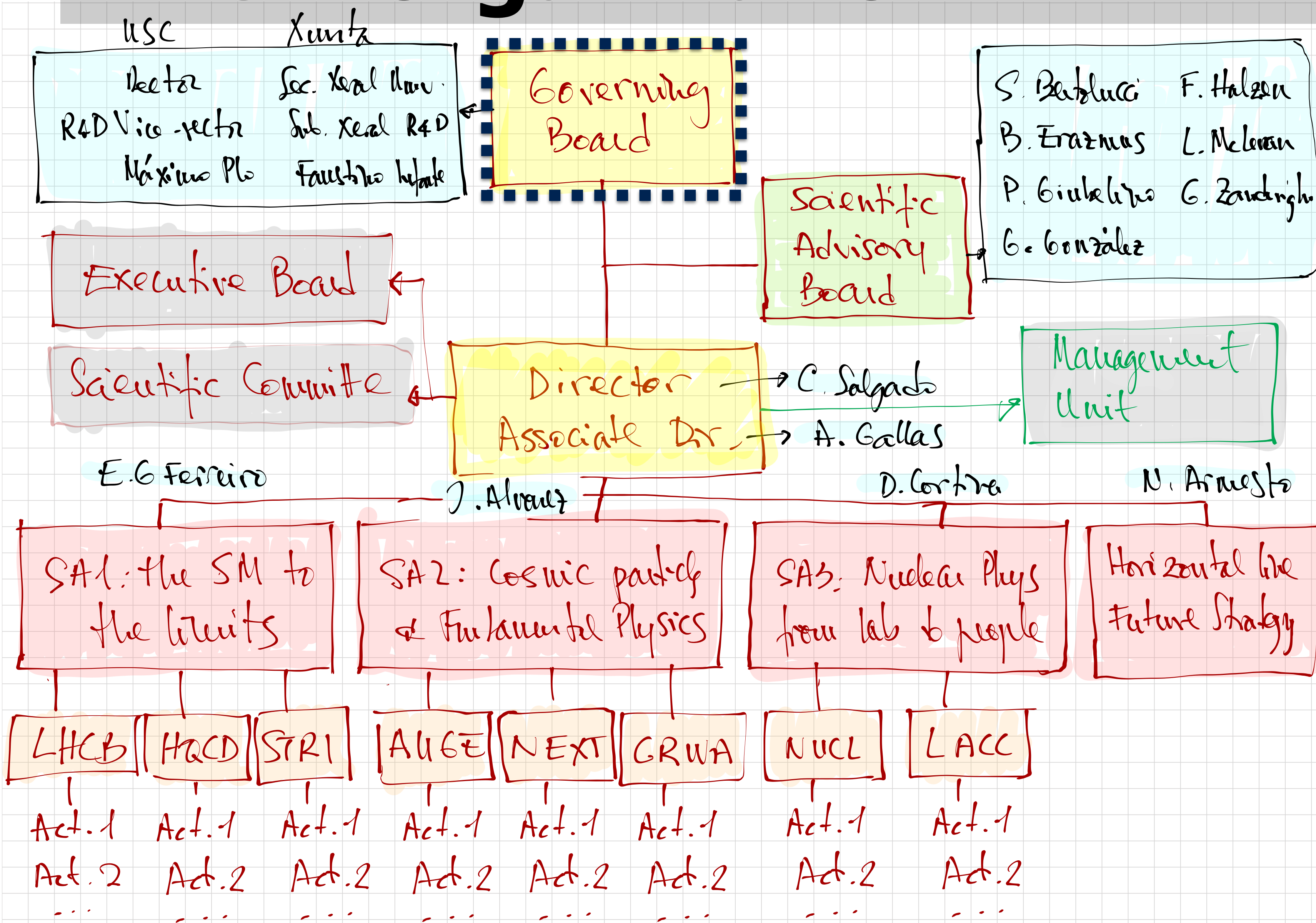


# New organization



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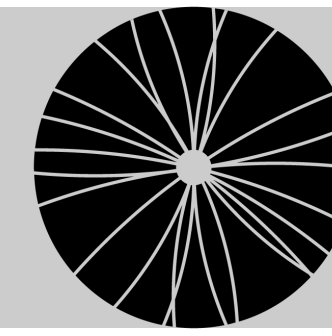
Instituto Galego de Física de Altas Enerxías



**Governing Board**  
Highest governing body formed by USC & Xunta

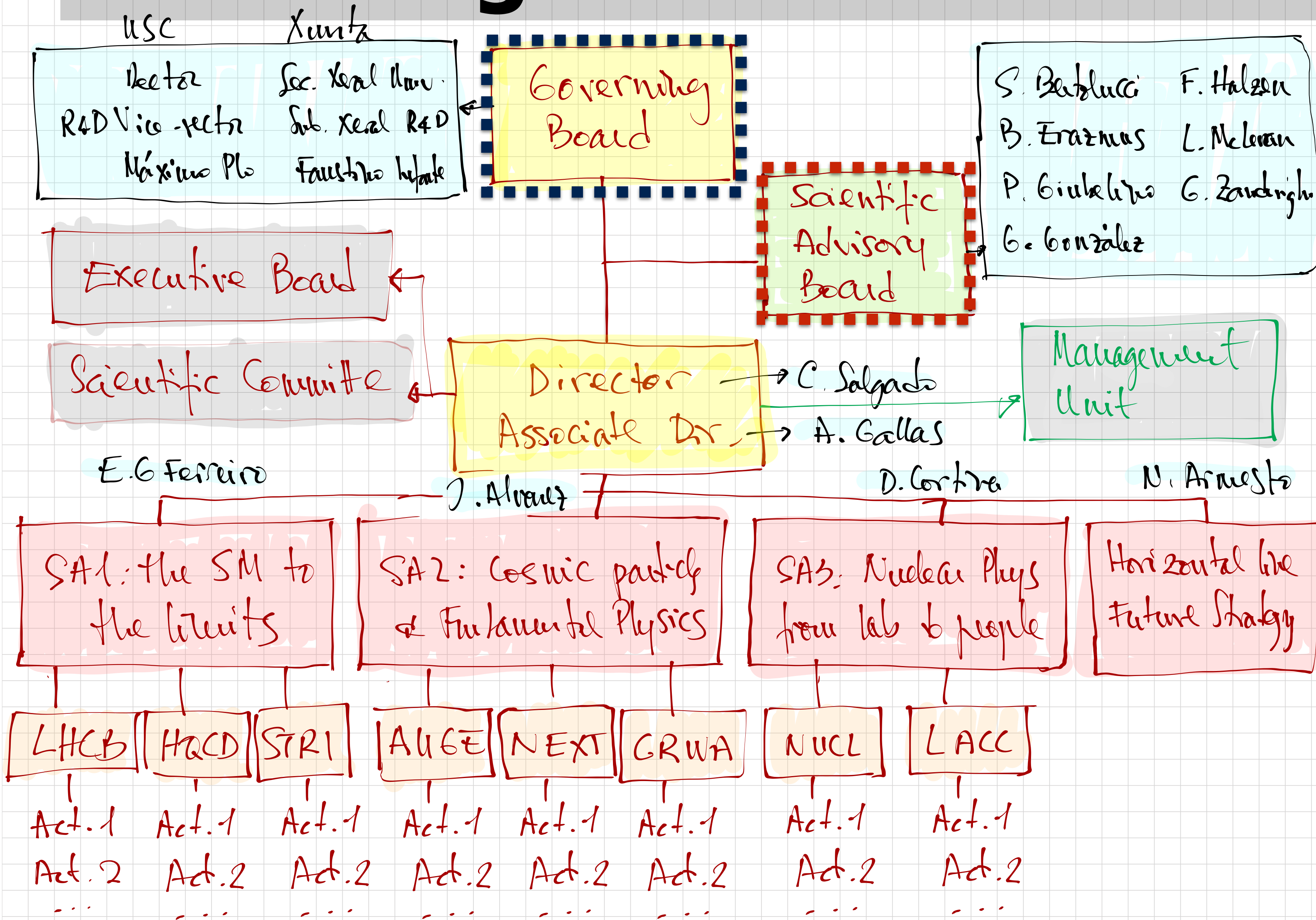


# New organization



**IGFAE**

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## Governing Board

Highest governing body formed by USC & Xunta

## Scientific Advisory Board

Advisory body, also in charge of periodic evaluation

- |              |               |
|--------------|---------------|
| S. Berlucchi | F. Halzen     |
| B. Erasmus   | L. Melon      |
| P. Giukelwa  | G. Zanderighi |
| G. Gonzalez  |               |

Director → C. Salgado  
 Associate Dir. → A. Gallas

Management Unit

E. G. Ferreira      J. Alvarez      D. Cortina      N. Arnesen

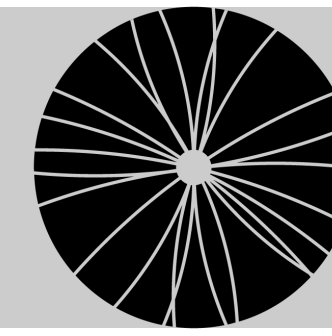
SA1: the SM to the limits  
 SA2: Cosmic part of Fundamental Physics  
 SA3: Nuclear Phys from lab to people  
 Horizontal line Future Strategy

LHCB    HQCD    STRI    AUGER    NEXT    GRWA    NUCL    LACC

Act. 1    Act. 1    Act. 1    Act. 1    Act. 1    Act. 1    Act. 1    Act. 1  
 Act. 2    Act. 2    Act. 2    Act. 2    Act. 2    Act. 2    Act. 2    Act. 2  
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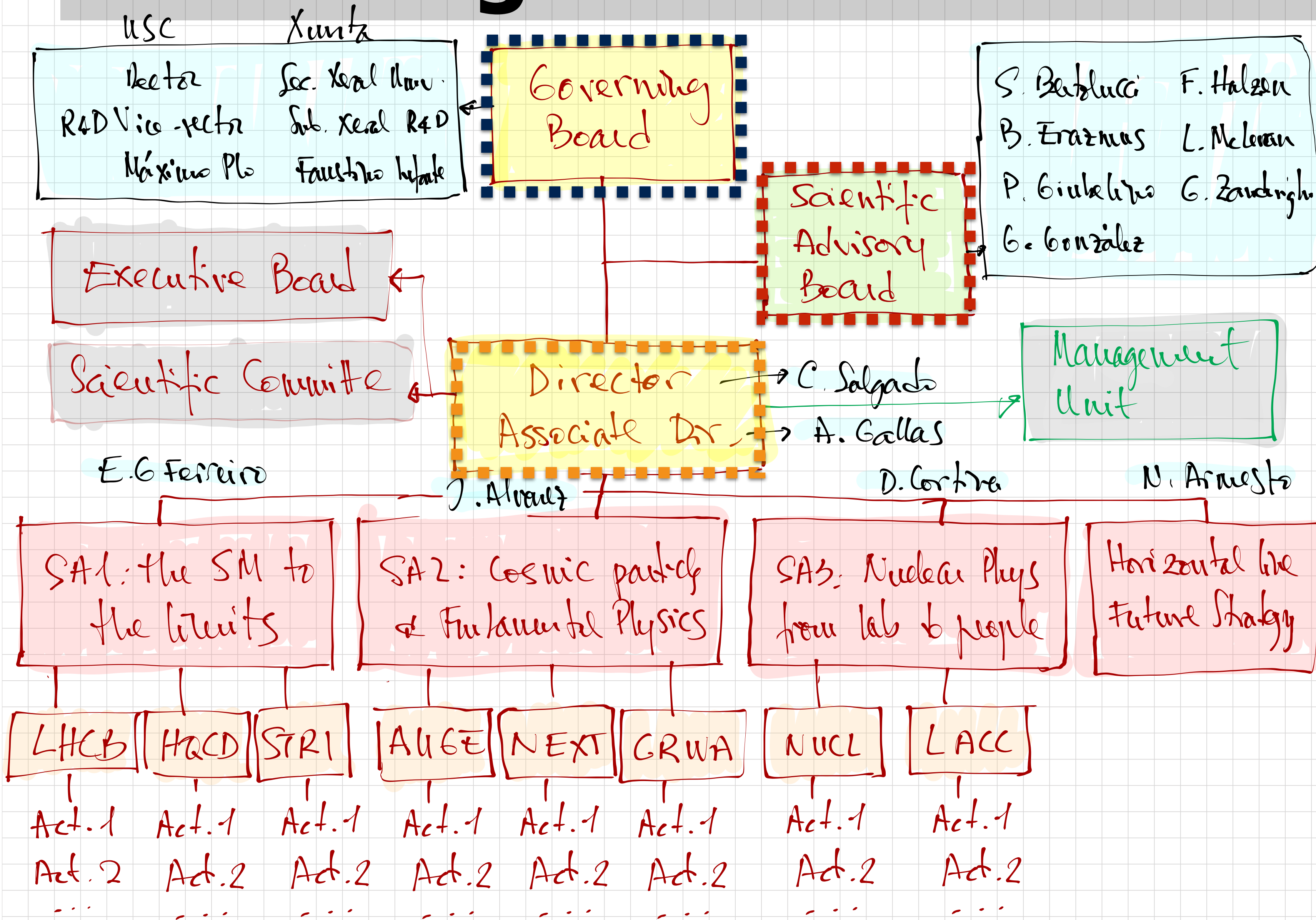


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Implement the strategy marked by the Governing Board

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 B. Erasmus L. Melosan  
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 G. Gonzalez

Governing Board

Scientific Advisory Board

Management Unit

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 Associate Dir. → A. Gallas

Executive Board

Scientific Committee

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SA1: the SM to the limits

SA2: Cosmic part of Fundamental Physics

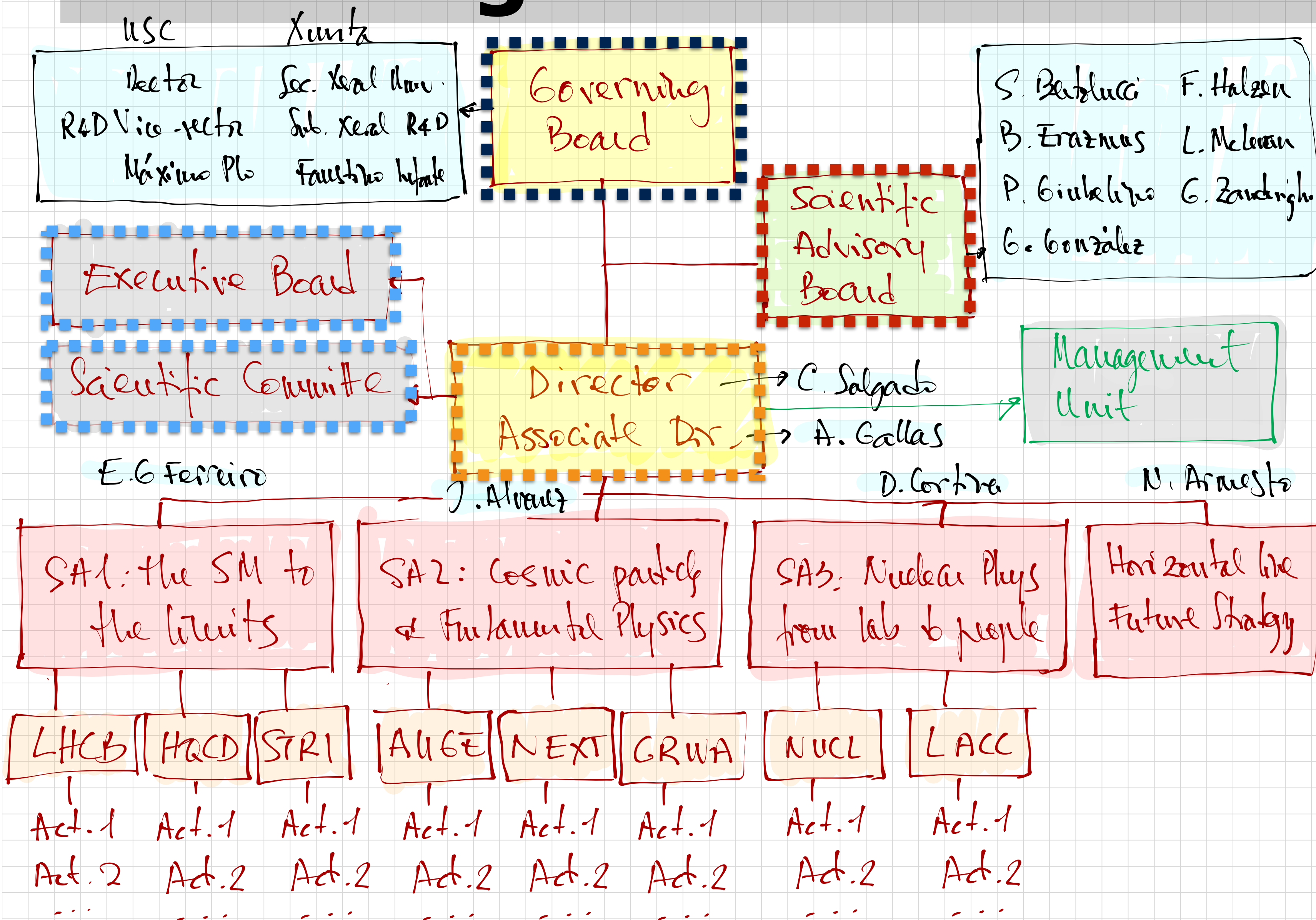
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Horizontal for Future Strategy

LHCb HQCD STRI AUGER NEXT GRWA NUCL LACC

Act. 1 Act. 1 Act. 1 Act. 1 Act. 1 Act. 1 Act. 1 Act. 1  
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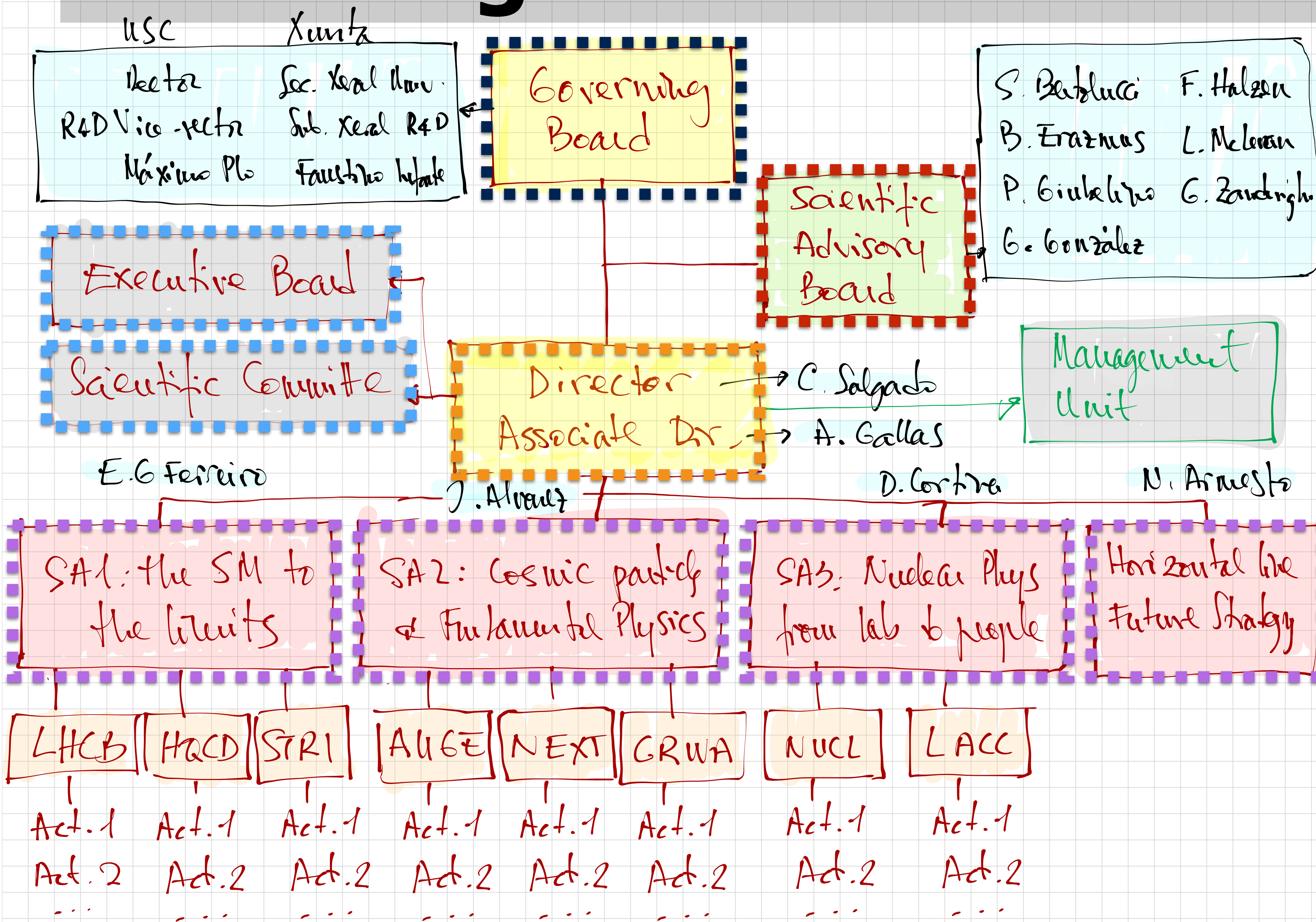
**Director and associate dir.**  
Implement the strategy marked by the Governing Board

**Executive Board**  
Weekly meetings

**Scientific Committee**  
Representatives of the programs



# New organization



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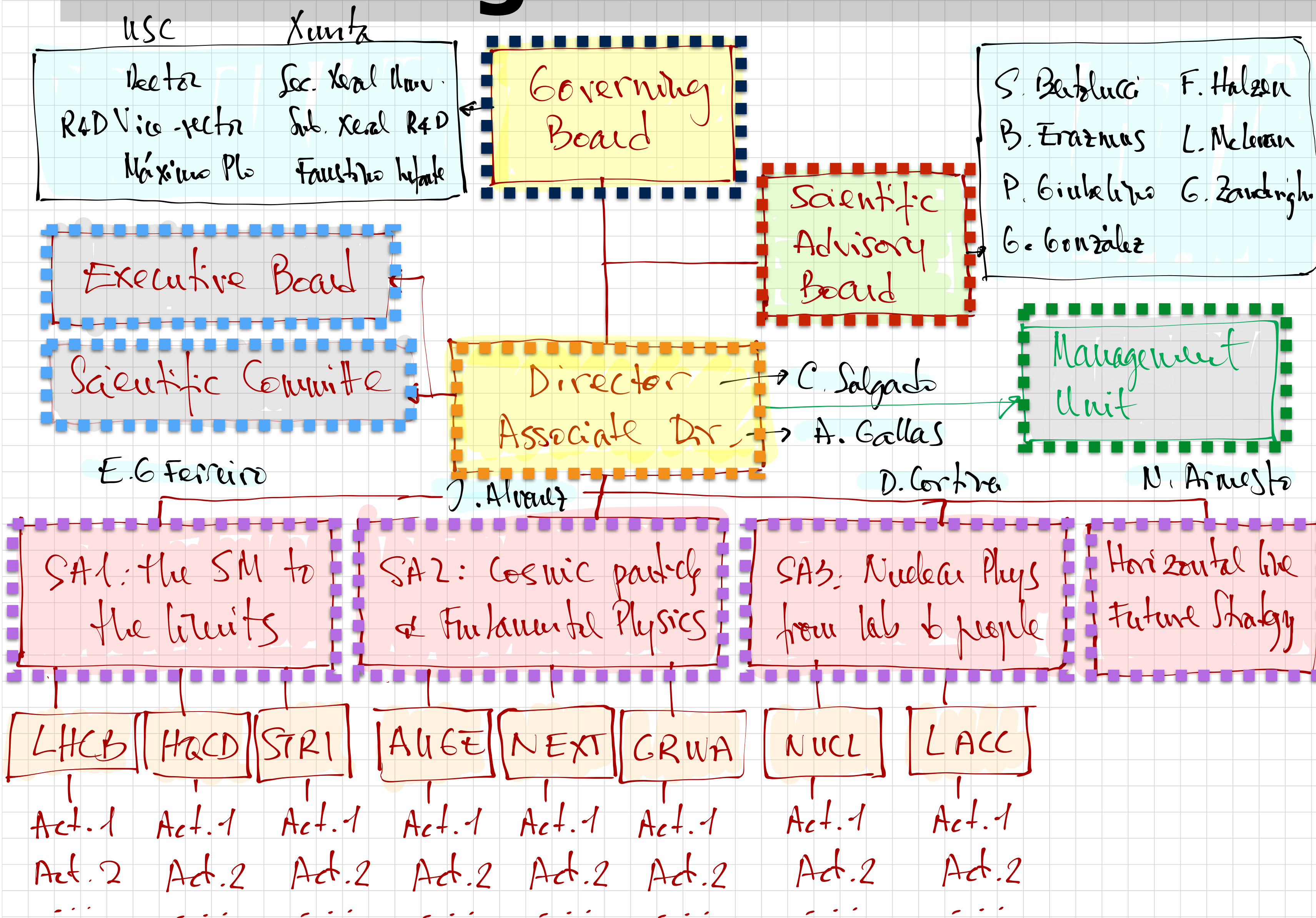
**Executive Board**  
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**Scientific Committee**  
Representatives of the programs

**Scientific Research Areas (SA)**  
Large IGFAE thematic areas



# New organization



## Governing Board

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## Executive Board

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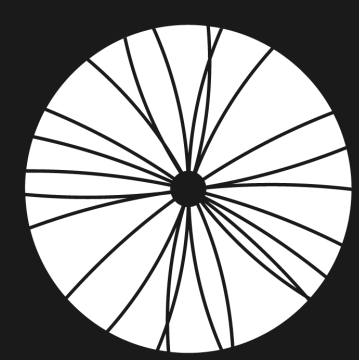
## Scientific Research Areas (SA)

Large IGFAE thematic areas

## Management unit

Weekly meetings





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# Scientific Advisory Board



Sergio Bertolucci

Università Bologna  
CERN Scientific  
Director  
2009-2015



Barbara Erazmus

SUBATECH Nantes  
President EPS-HEP  
Board



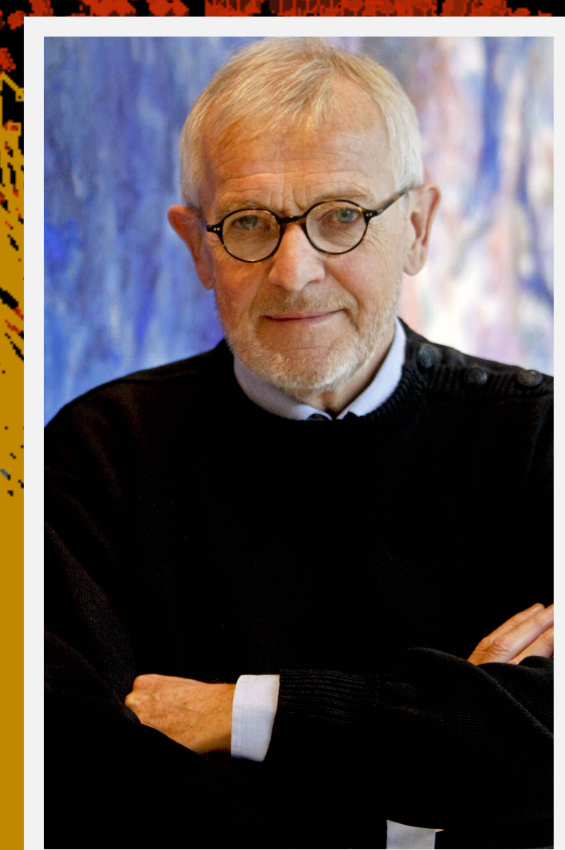
Paolo Giubelino

INFN Torino  
Scientific Director  
GSI/FAIR



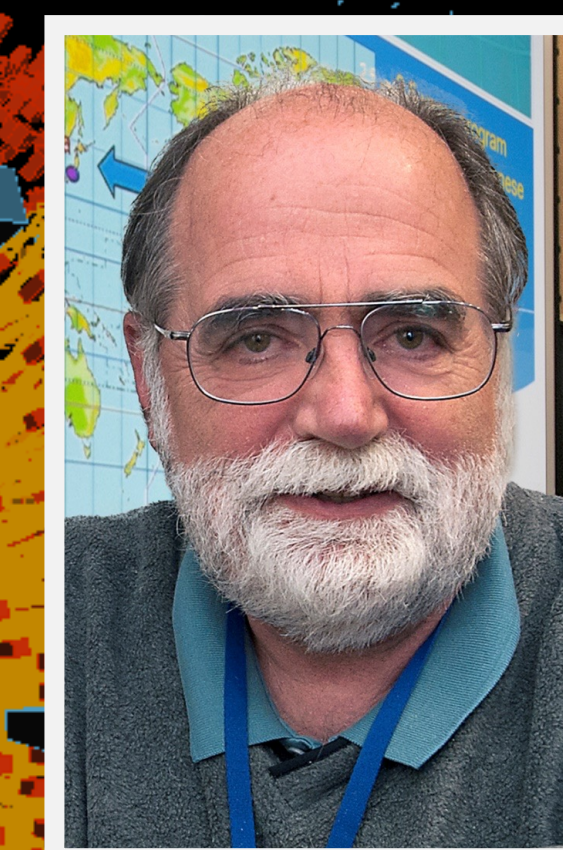
Gabriela González

Louisiana State  
University  
Spokesperson  
LIGO 2011-2017



Francis Halzen

Univers. Wisconsin  
Spokesperson  
IceCube



Larry McLerran

Director - Institute  
for Nuclear Theory  
Seattle

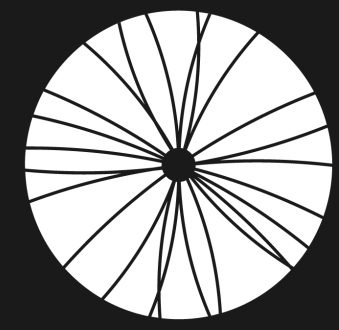


Giulia Zanderighi

CERN & Max  
Planck München

## 1st meeting in March 2019 - report to be received soon



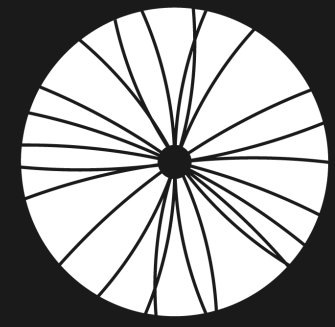


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# Strategic Research Areas





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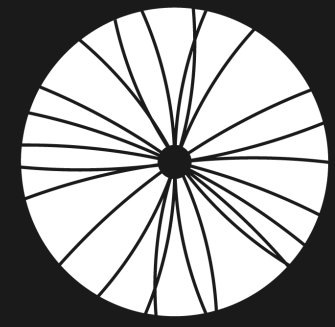
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# Strategic Research Areas



SA1: The Standard Model to the limits





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# Strategic Research Areas

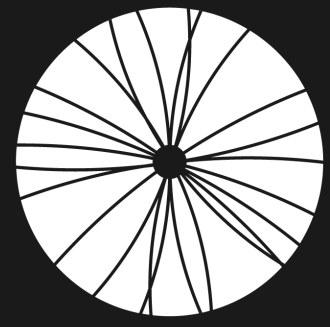


SA1: The Standard Model to the limits



SA2: Particles from the Cosmos and fundamental Physics





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# Strategic Research Areas



SA1: The Standard Model to the limits

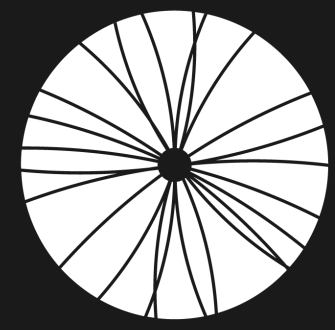


SA2: Particles from the Cosmos and fundamental Physics



SA3: Nuclear Physics from the lab to improve people's health





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# Strategic Research Areas

SA1: The Standard Model to the limits

LHCb  
QCD  
String Theory  
Phenomenology

SA2: Particles from the Cosmos and fundamental Physics

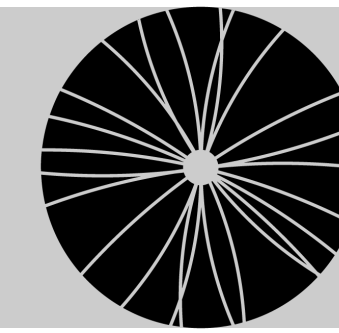
Pierre Auger  
LIGO  
Next  
Phenomenology

SA3: Nuclear Physics from the lab to improve people's health

GSI-FAIR  
ACTAR  
Laserpet



# Strategic Research Area 1



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## The Standard Model to the Limits



European Research Council  
Established by the European Commission



European Research Council  
Established by the European Commission



European Research Council  
Established by the European Commission

Beyond the SM  
searches with LHCb

### Participation in LHCb

Large group with important  
contributions to analysis,  
instrumentation, computing and  
phenomenology

Hot and dense QCD in  
the LHC era and beyond

### TH and pheno

Jet quenching, quarkonia,  
nPDFs, CGC - small systems  
Regge and string models  
Improved Skyrme models

String theory and  
related fields

### Mostly AdS/CFT - related

Applications of AdS/CFT  
Integrability in AdS/CFT  
GR to Quantum Gravity



# Strategic

Long-lasting collaboration (started by Dias de Deus and Pajares) in heavy-ion collision phenomenology

Some recent activity

- Some 70 papers in Inspire
- Organization of several conferences (e.g. Initial Stages)
- Common proposal for Quark Matter conference (failed)
- Participation in Strong2020 - INFRAIA - EU funds
- ERC Advance Grant (IGFAE - LIP Lisboa - Jyvaskyla)



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## Limits



## T

erc

European Research Council  
Established by the European Commission



erc

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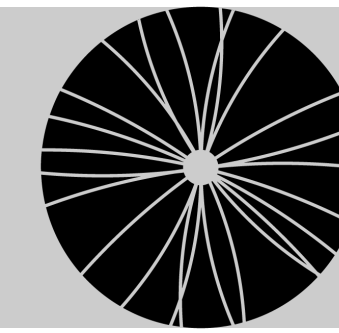
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Applications of AdS/CFT  
Integrability in AdS/CFT  
GR to Quantum Gravity





## Cosmic Particles and Fundamental Physics

Extremely energetic  
cosmic rays and neutrinos

### **Participation in Pierre Auger**

UHE cosmic rays and neutrinos

Radiodetection

Multimessenger

Dark Matter and the  
nature of neutrinos

### **Participation in NEXT**

Neutrino-less double beta decay

R&D for next gen experiments

Gravitational Wave  
detection

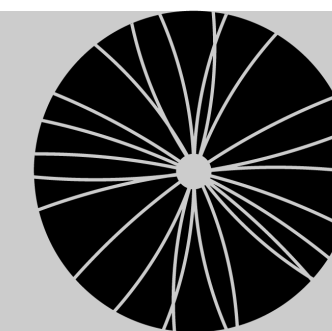
### **Participation in LIGO**

Search for coalescence of  
compact binary systems

Astrophysics

Multimessenger





## With LIP Lisbon

Participation in Pierre Auger and phenomenology of ultra-high energy cosmic ray induced air showers  
(Pimenta — Zas/Alvarez Muñiz)

## With LIP Coimbra

Development of RPC detectors to use in Cosmic Ray and applications — collaboration started within HADES

# Particles and Fundamental Physics



Extremely energetic cosmic rays and neutrinos

### Participation in Pierre Auger

UHE cosmic rays and neutrinos  
Radiodetection  
Multimessenger

Dark Matter and the nature of neutrinos

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**With LIP Coimbra**  
Development of RPC detectors to use in Cosmic Ray and applications — collaboration started within HADES

**With LIP Coimbra**  
Participation in NEXT-VETO and others  
To be explored: participation in DUNE

Fundamental Physics



Extremely energetic cosmic rays and neutrinos

**Participation in Pierre Auger**  
UHE cosmic rays and neutrinos  
Radiodetection  
Multimessenger



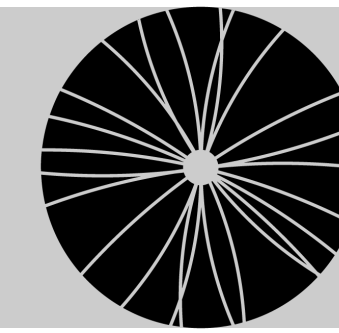
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## Nuclear Physics from the Lab to Improve People's Health

Structure of the nuclear many-body systems, astrophysical implications

### Participation in R3B - FAIR

Analysis and instrumentation  
(Dolores Cortina is spokesperson)

Experiments at **low-energy facilities**

Experiments at **n-ToF** facility

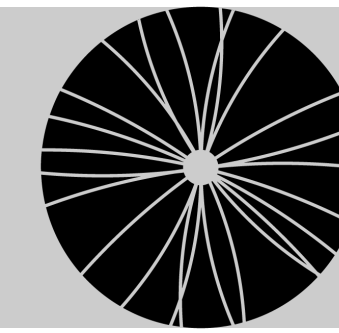
Exploitation of the Laser Laboratory of Acceleration and Applications

### Local infrastructure for laser-induced plasma acceleration

Use laser-induced plasma acceleration to produce short lifetime isotopes for medical use

Other applications, e.g. X-rays





## With LIP Coimbra

- ❑ Participation in R3B (FAIR) — Califa detector
- ❑ Use of the accelerator CTN/IST
- ❑ Collaboration in software development, data analysis... for GSI
- ❑ Interest in the exploitation of the IGFAE laser-induced plasma accelerator
- ❑ Participation in ENSAR\* — INFRAIA — EU funds

# Physics from the Lab to Improve People's Health



Structure of the nuclear many-body systems, astrophysical implications

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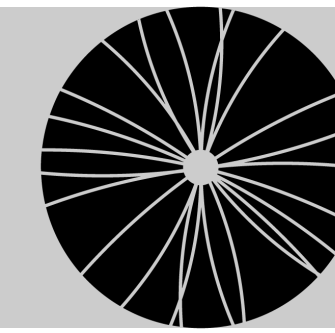
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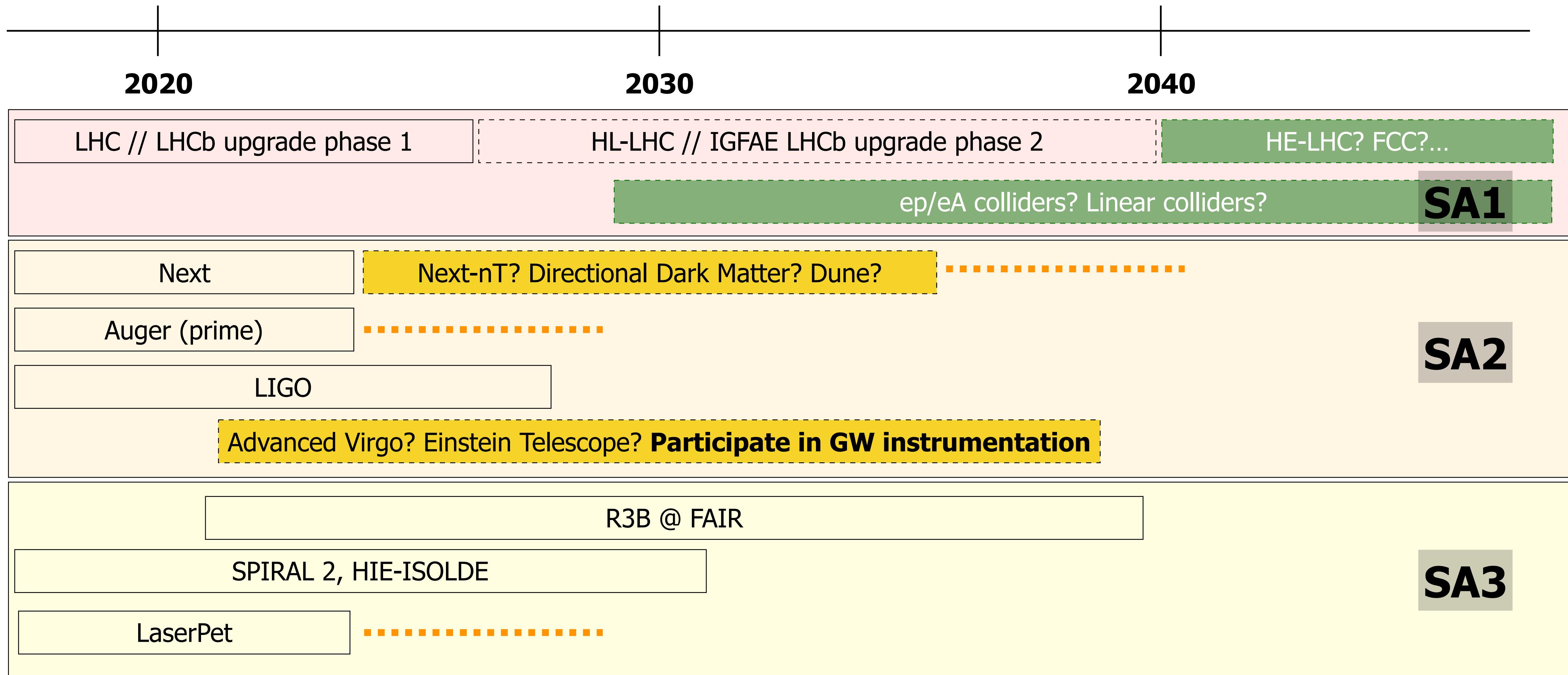


# Planning/strategy



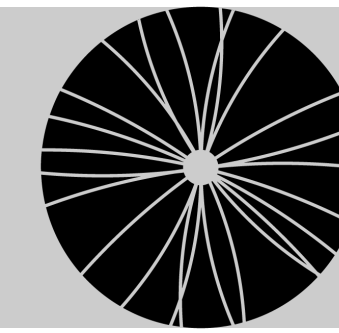
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# Recruitment and training



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**Cornerstone of the plan: recruit and train in the early stages of the career**

**International PhD program**

**Postdoctoral training program**

**Career development plan**

**Global Talent Program**

**Training in soft skills**

**Alumni**

**Gender Action Plan**



# Global Talent program



International open call with broad scope  
Target: excellent researchers to open new lines and/or consolidate existing (ERC/RyC profiles)

More than 400 applicants  
Search committee

A. Ramallo (Chair)  
J. Alvarez  
Imre Bartos  
D. Cortina

E. Ferreiro  
Tilman Plehn  
J. Saborido

## Global Talent

Thomas Dent  
Riccardo Borsato

Antonio Romero  
Jeremy Dalseno  
Miguel A. Escobedo  
Joshua Renner  
Yasid Ayyad (declined)

+ Four 2y postdocs

RL2: Petja Paakkinen  
RL4: ongoing search  
RL6: ongoing search  
RL8: Gareth Davis

[International Postdoctoral Training Program]



# RRI - Society



Coloquium Art and Science - 06.07.2019 ABANCA



Responsible Research and Innovation (RRI) implies that societal actors (researchers, citizens, policy makers, business, third sector organisations, etc.) work together during the whole research and innovation process



Responsible research and innovation is key action of the ‘Science with and for Society’ objective. RRI actions will be promoted via ‘Science with and for Society’ objective via:

Actions on thematic elements of RRI ([public engagement](#), [open access](#), [gender](#), [ethics](#), [science education](#)), and Integrated actions that for example promote institutional change, to foster the uptake of the RRI approach by stakeholders and institutions.



## A way to implement public engagement and improve communication and visibility

IGFAE  
TechTLAB

IGFAE  
ArtLAB

Irene dubrovsky  
Expo 1-15 March

IGFAE  
EduLAB

IGFAE  
CommLAB

## How many? Which of those? Are realistic / needed / useful

Our main focus is good research but investing a bit of effort in RRI is needed

Human Resources  
HRS4R

Diversity

Branding

Outreach

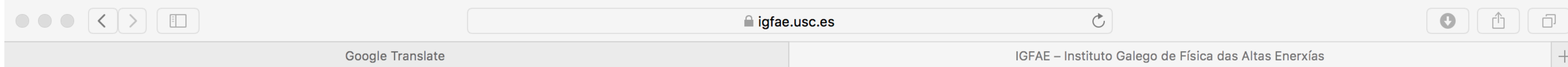


# Corporate identity



## New web page and corporate identity

(still a lot of work to be done but working... notice: **lists read from database!**)



CONTACT & LOCATION



WHO WE ARE? ▾ RESEARCH ▾ TRAINING & EDUCATION ▾ NEWS & EVENTS ▾ OUTREACH JOBS ENGLISH ▾









**All Severo Ochoa and Maria de Maeztu units have joined the SOMM alliance (promoted by the former secretary of state)**

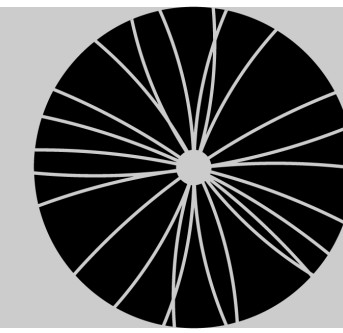


Excellent forum for discussion on scientific / organisational / political issues. Spanish TVA law changed thanks to SOMMa lobbying

**2nd meeting of SOMMa managers organized by IGFAE with strong support of USC and Xunta**



# Summary



IGFAE

Instituto Galego de Física de Altas Enerxías

- Long-lasting IGFAE-LIP friendship** with several on-going collaborations
- Both IGFAE and LIP are entering **new phase**
- Identify** some **concrete new lines** to be explored (some non-scientific examples)
  - \* Common application to EU-funds
  - \* Search for **private funds** for concrete actions (La Caixa, Santander, Abanca...)
  - \* PhD and postdoc training
  - \* Video-conferencing common events — for example, at IGFAE we have put in place periodic thematic, 1-week long, courses
  - \* Co-organization of scientific conferences (also host editions in conf. series)
  - \* Common RRI activities



