Newcomers self-introduction

All Newcomers

Institut de Física d'Altes Energies

Welcome Day
24-10-2023

ADMIN

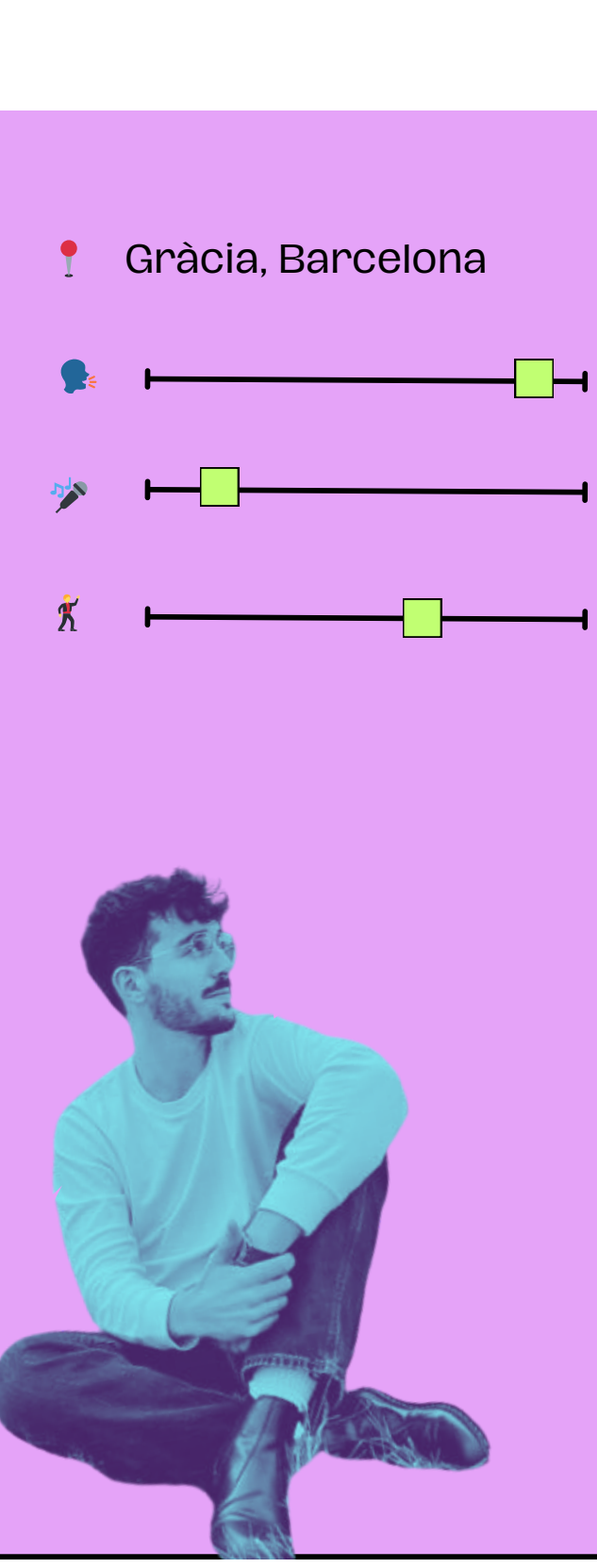
Gràcia, Barcelona

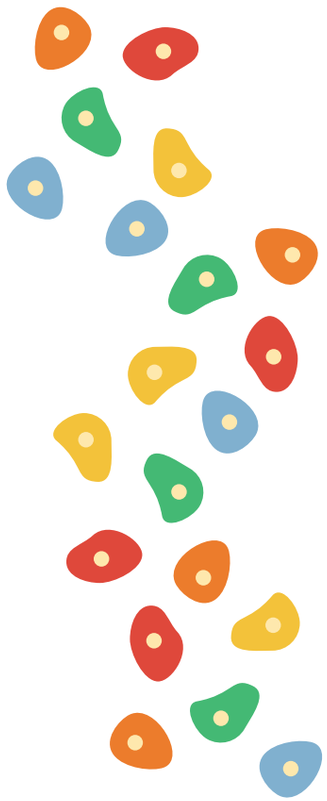
since 1990

Pep Freixanet

Communication & Outreach

jfreixanet@ifae.es





→ **Science Communicator**

→ **Biology UAB**

Maria Gracia Rosell

E-mail: mgracia@ifae.es

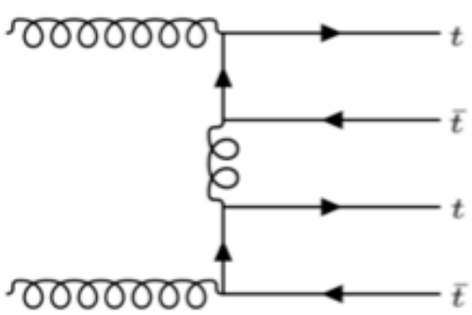
Phone: +34 93 164 16 54

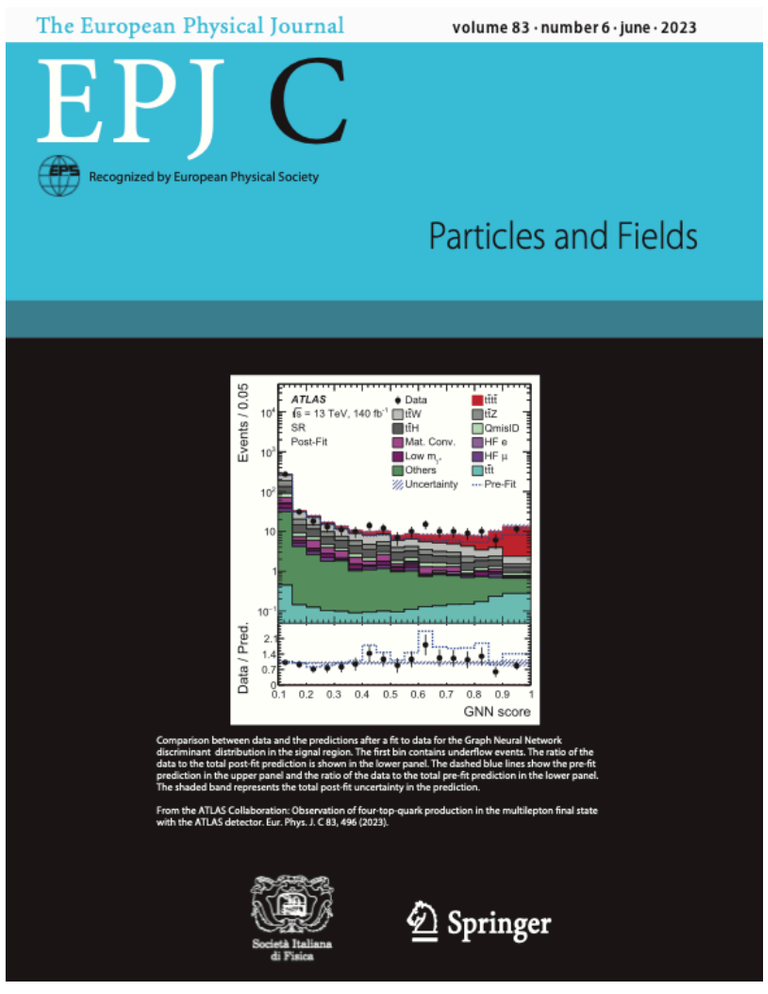
Office: C7b-104

ATLAS

Yang Qin a.k.a. Quake

ATLAS EXPERIMENT





MANCHESTER CITY 1894

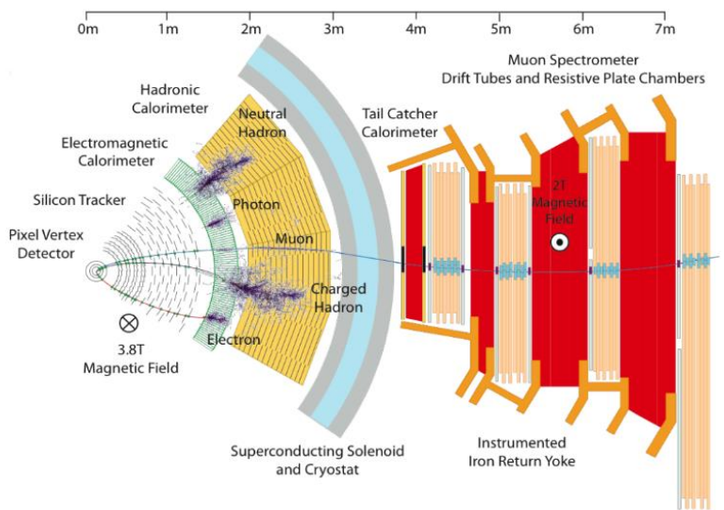
MANCHESTER 1824
The University of Manchester

- football, snowboarding, climbing, guitar, **DRINKING**

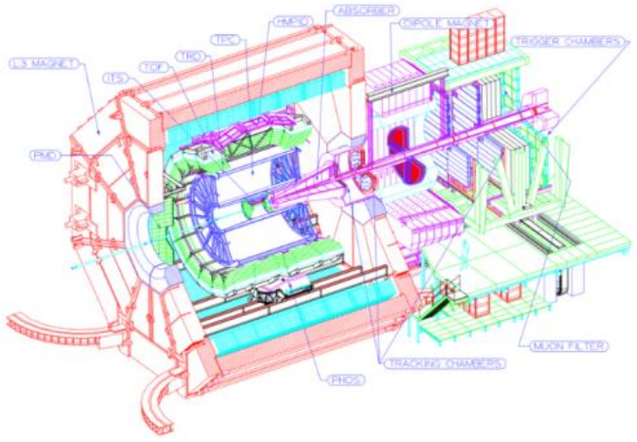
UNICAM – SOFIA U

CERN

Fermilab



CMS – BRIL Medipix - Outer Tracker Upgrade



ALICE - Bent MAPS

Collider Physics Group

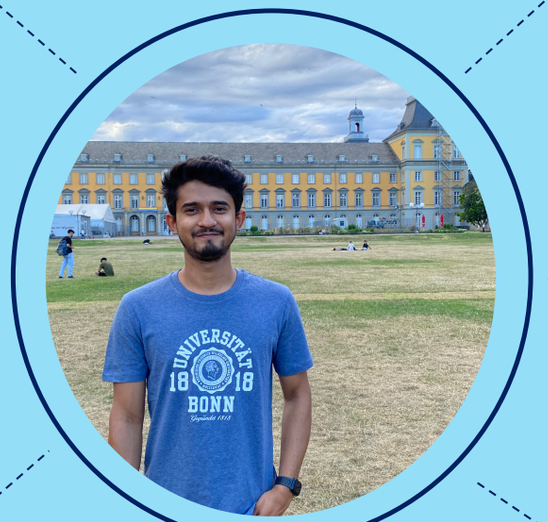
IFAE Institut de Física d'Altes Energies

ATLAS – TileCal SUSY-ML

STEM - Outreach

ATLAS PIXELS

NIRAJ KAKOTY



About me

- 26, Assam, India
- PhD: IFAE Pixel Group
- nkakoty@ifae.es

Education

- B.Sc: University of Delhi, India
- M.Sc: University of Bonn, Germany

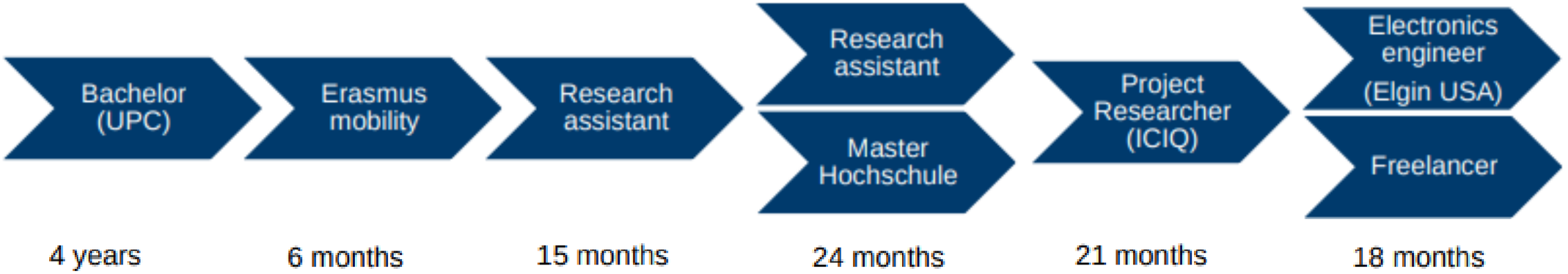
Hobbies & Passion

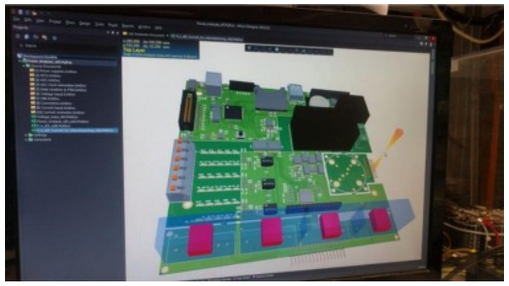
- Badminton, Football (Up for any sport!)
- Cooking
- Hiking
- Cultural exchange

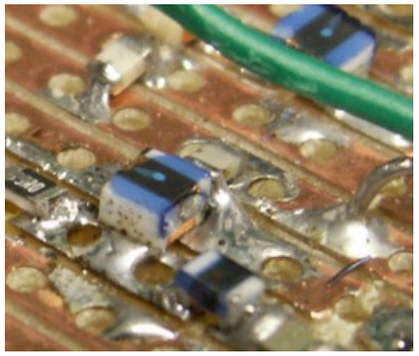
Research Interest

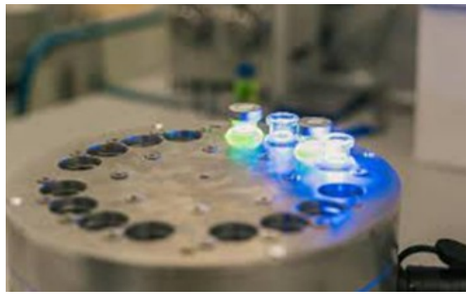
- Experimental Particle Physics
- Collider/Detector R&D
- Chip characterization & Testing
- Currently, ATLAS Itk Module assembly & timing of 3D pixel sensore

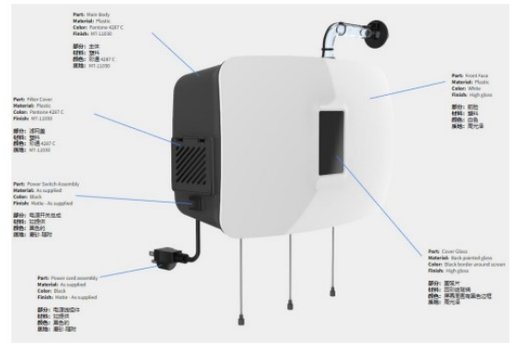
Welcome Day! Joaquim Piñol, PhD student











Tools:

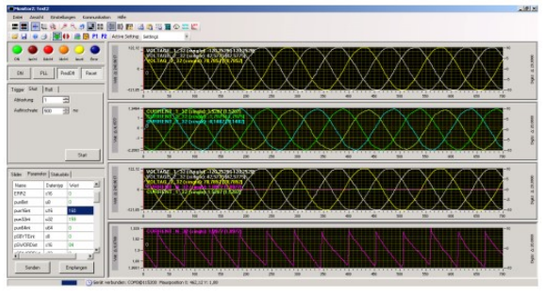
- Altium Designer
- LTSpice
- MatLab
- SolidWorks

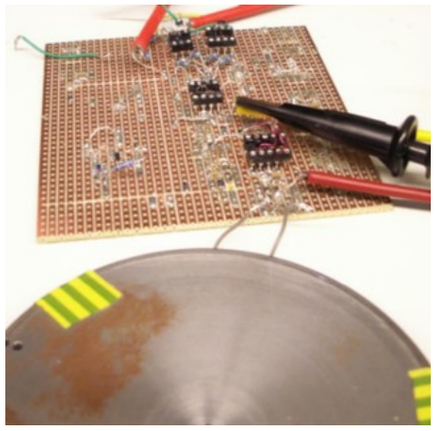
Programming:

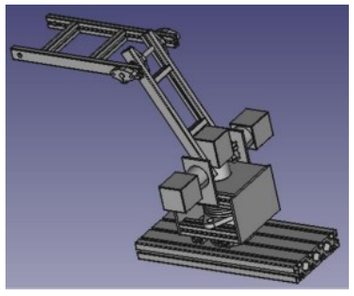
- C for MCU
- Java
- Python
- Haskell

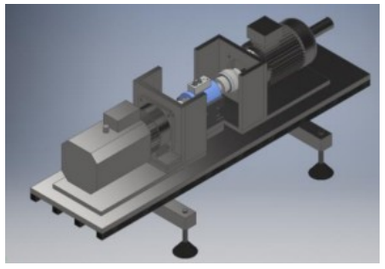
Interests:

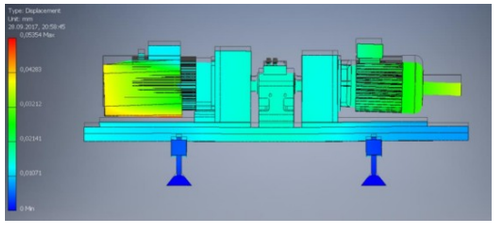
- Instrumentation
- FPGA
- Photonics
- RF



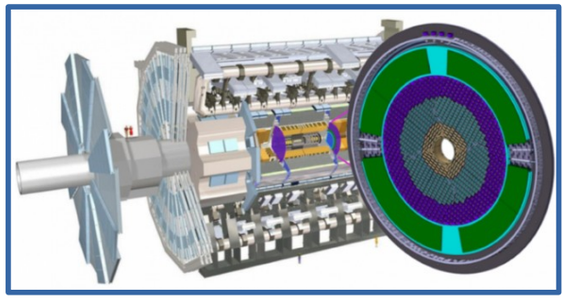








Now!

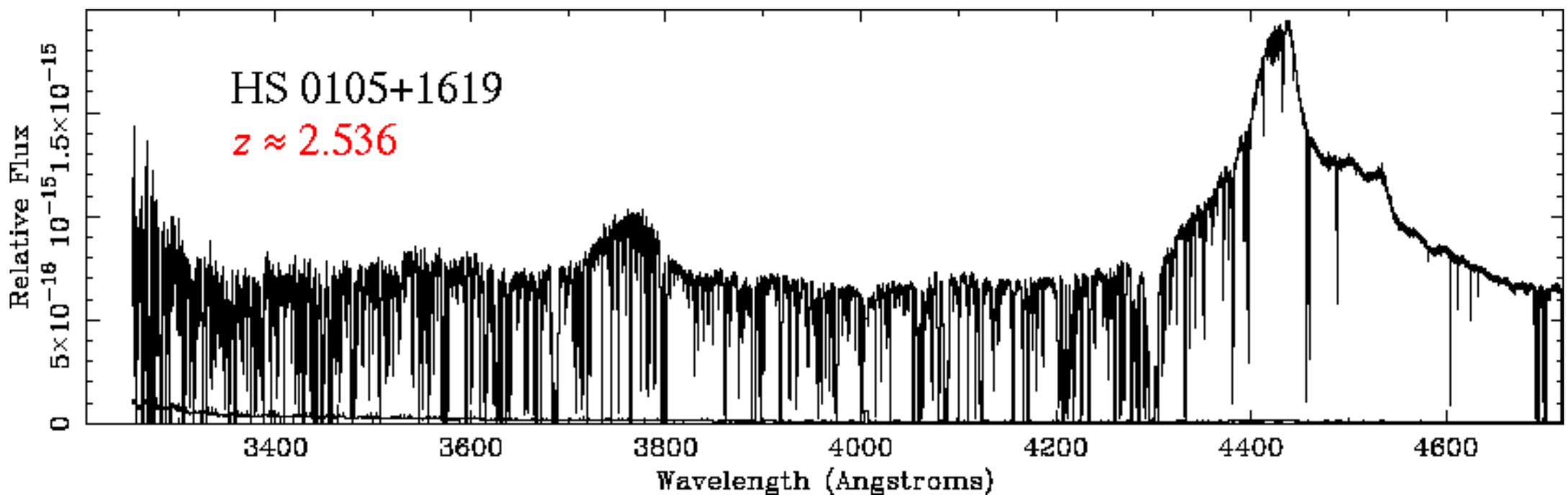


COSMO

Laura Casas

Trajectory: I studied mathematics at Imperial College London and did my master in theoretical physics in the University of Edinburgh.

Currently: I have joined the observational cosmology group at IFAE where I will be doing my PhD analyzing DESI data and generating simulated data within the Lyman-alpha forest group.



Hui Kong

- Postdoc at IFAE since October 2022
- 2016-2022 PhD at the Ohio State University, USA
- Originally from Yangzhou, China
- Working within IFAE Cosmology group – Analyzing data from Cosmological surveys: DESI, LSST, Euclid
- I play Spanish guitar. I’d like to have meetup/duo collab with guitar players!

Dane Cross

- 2nd year PhD student
- From San Jose, CA
  - Undergrad: Physics & Computer Science at UC Santa Cruz
  - Master's: Physics at Indiana University
- Research: Cosmology, S_8 tension
  - Supernova Peculiar Velocities
  - (Inverse) Galaxy Galaxy Lensing with DES & LSST
  - Photometric Redshifts for DES Y6

Carles Sánchez

RyC Fellow at UAB / IFAE

Since Jan 2023

Previously

- LaCaixa Junior Leader Fellow at ICE (2022)
- Postdoc at UPenn (Philadelphia, 2017-22)
- PhD Student at IFAE (2013-2017)

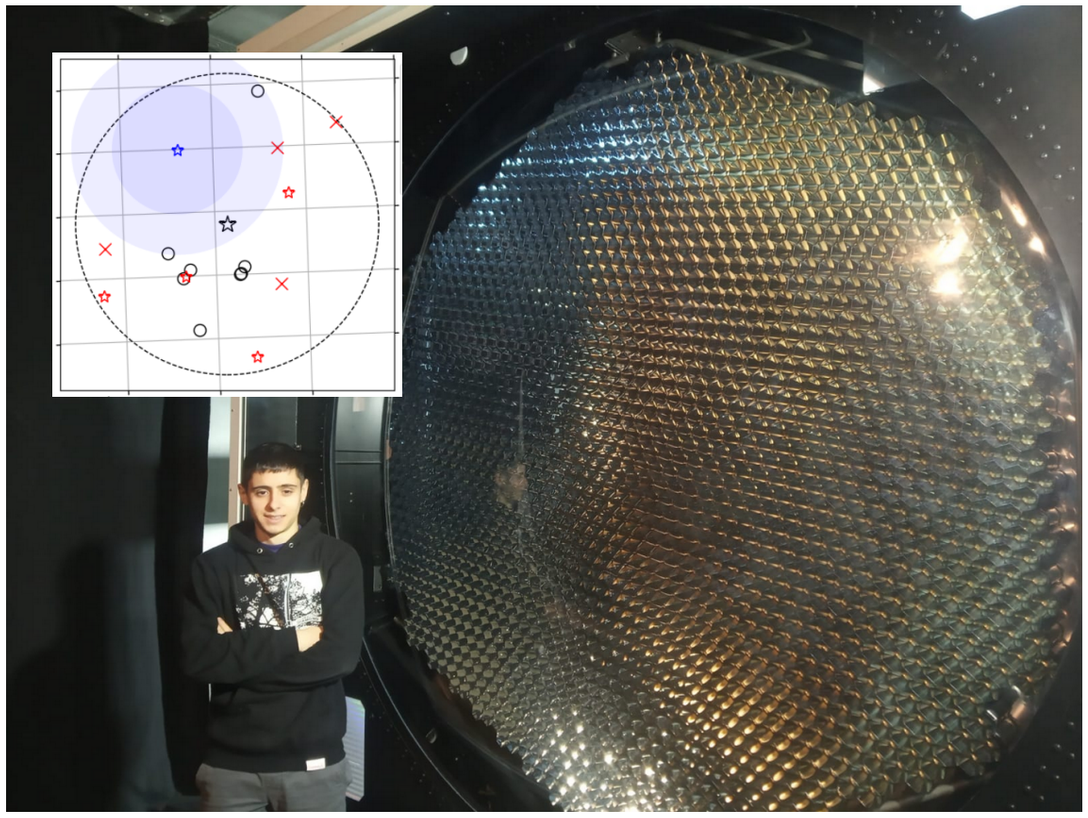
Interests

- Cosmology and Astrophysics as probed by the LSS of the Universe
- Weak gravitational lensing of galaxies and CMB
- Galaxy clustering and the galaxy-halo connection
- Bayesian Characterization of Galaxy Redshift Distributions from Photometry
- Currently involved in the Dark Energy Survey (DES) and the Vera Rubin Observatory LSST
- Also, Outreach and Science Communication!

carles.sanchez@uab.cat

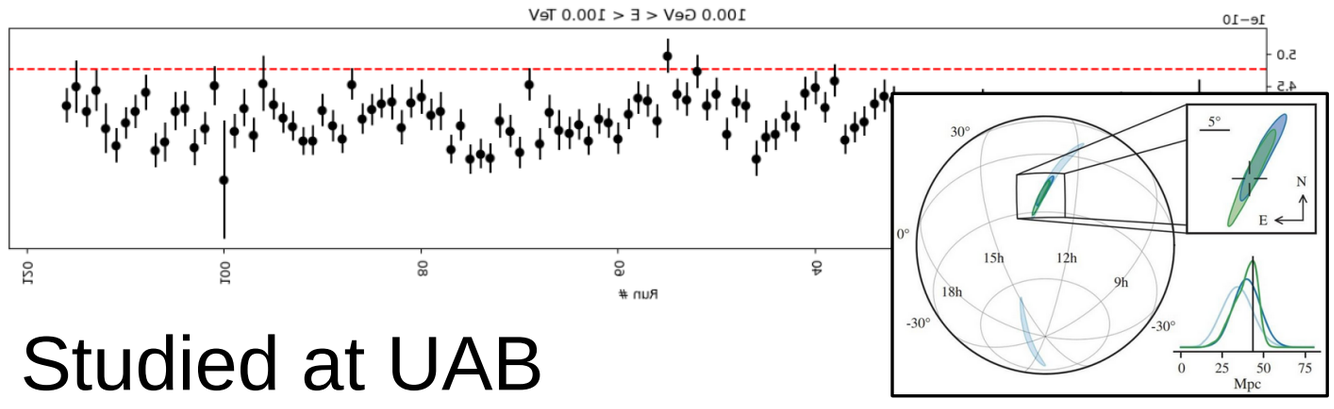
GAMMAS

Juan Jiménez Quiles



Gamma-ray group

LST-1 Camera & Transients



- Studied at UAB
- Just started PhD

GW

Hi, I am Monica Seglar Arroyo

Degree in Physics
- Universidad de Valencia
- University of Bonn (Germany)

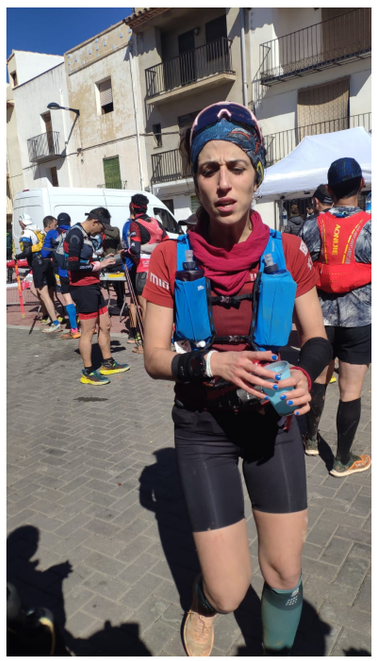
Master in Particles, Astroparticle and Cosmology in Grenoble (France)

CNRS Postdoc at LAPP, Annecy (France)
- GW group (Virgo) in **h(t) reconstruction**
- **Gamma-ray exgal transients** (CTA/LST)

Castelló de la Plana (Spain)

PhD at University Paris-Saclay (CEA-Saclay) and Penn State University
Gamma-rays extragalactic transients (HESS, HAWC, CTA)

At IFAE, Juan de la Cierva Postdoc (Nov. 2022) in **Virgo and CTA/LST**



Hiii, I’m Dounia

From Bordeaux, France

Master of Physics with Astrophysics Specialization
University of Manchester, UK

Master’s Thesis:

Mapping the large-scale structure with HI intensity mapping (SKA/MeerKAT radio data)

Other Projects:

Radio Astronomy
Computational Neuroscience
High Energy Physics ie. FERMI LAT

Now:

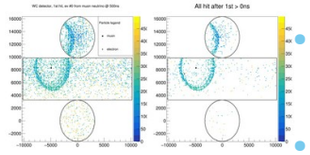
Gravitational waves group

When I don’t do physics:

NEUTRINO

Loris MARTINEZ – Neutrino PhD student

- EDUCATION:
  - PhD in Event Reconstruction with maximum likelihood: fiTQun (IFAE)
  - Master's degree in elementary particle and nuclear physics
    - Université de Genève · Genève (Switzerland)
    - Thesis topic: Impact of waveform digitizer on Hyper-Kamiokande reading output
    - Supervisor: Prof. Federico Sánchez Nieto

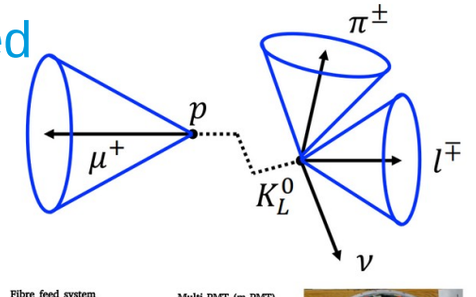


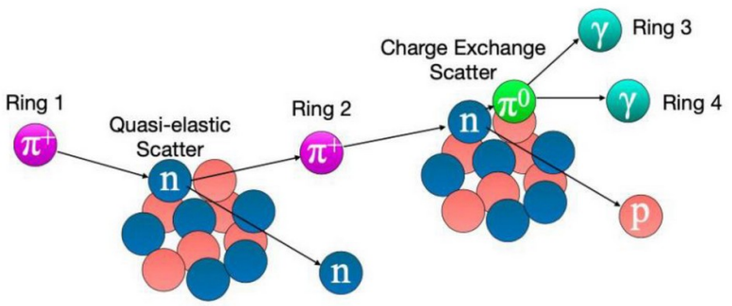
  - Master's degree in nuclear engineering specializing in nuclear safety
    - Université Grenoble-Alpes · Valence (France)
  - Bachelor's degree in physics (with honors)
    - Université Joseph Fourier · Grenoble (France)

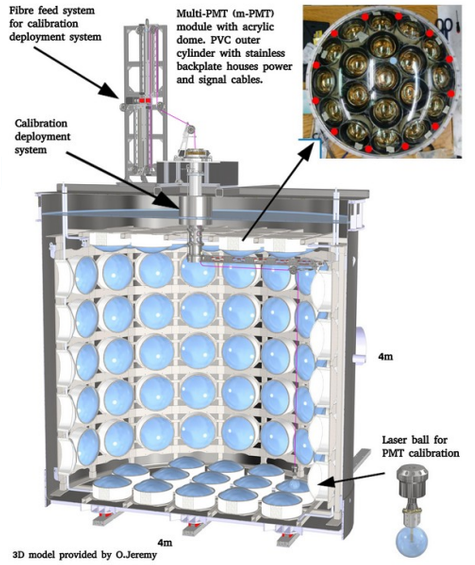
$$L(\mathbf{x}) = \prod_{j}^{unhit} P_j\left(unhit|\mathbf{x}\right) \prod_{i}^{hit} P_i\left(hit|\mathbf{x}\right) f_q\left(q_i|\mathbf{x}\right) f_t\left(t_i|\mathbf{x}\right)$$

Likelihood to maximise · Candidate track hypothesis · Probability of no hit at PMT · Probability of hit at PMT · Hit charge probability density · Hit time probability density

- Multi-vertex fiTQun implemented for proton decay
- The Water Cherenkov Test Experiment (WCTE)
- Reconstruction of pions in final state is challenging due to modeling of hadronic scattering with limited data on Oxygen







PIC

PIC
port d'informació
científica

Martin Eriksen
eriksen@pic.es

- New “Applied AI” group at PIC since last September.
- Deep learning applied to different fields.
- 3 PhD students, ½ post.doc.
- Collaborations with ALBA on material science and ICFO on bioimaging.
- Connections with multiple IFAE groups.
- Previously a post.doc. at Leiden observatory and IFAE.

Elizabeth J. Gonzalez

Institut de Física d'Altes Energies

PIC port d'informació científica

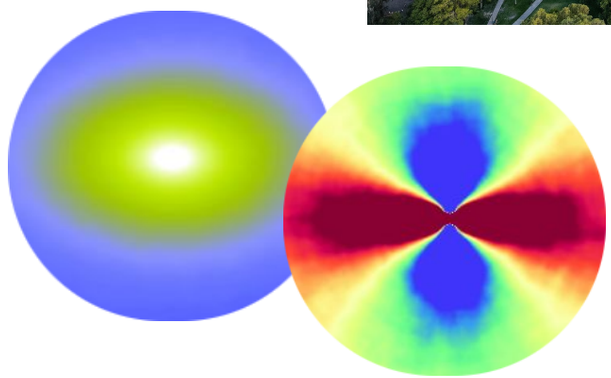
CONICET UNC Universidad Nacional de Córdoba

I A T E

Background

Grade Studies - FCEFyN UNSJ - San Juan, ARG
PhD - FAMAF UNC - Córdoba, ARG
Postdoc - IATE CONICET- Córdoba, ARG
Postdoc - CBPF - Rio de Janeiro, BRZ
Research Assistant - IATE CONICET- Córdoba, ARG

Main topic research: **Weak Lensing - Galaxy systems - Cluster halo shapes**



Currently working as a Postdoc at PIC making improvements on **SciPIC** (Halo properties - HOD - IA - Galaxy shape parameters)

Name: Jiefeng Chen
Email:jchan@pic.es

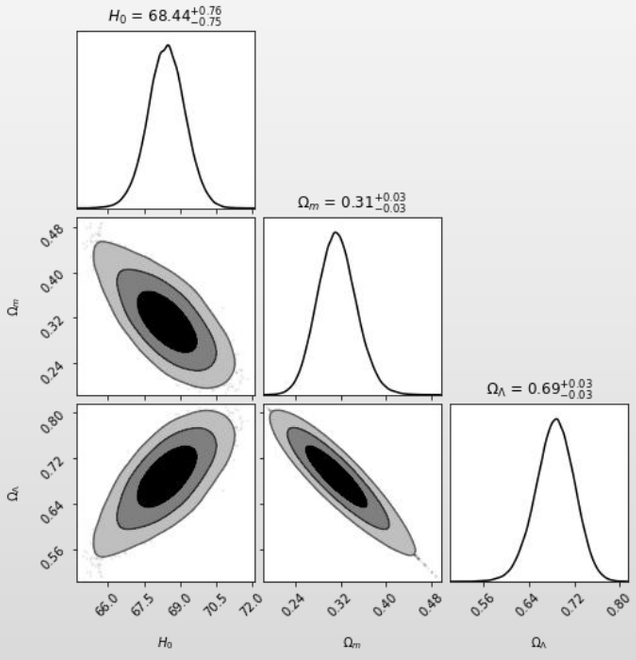
PIC
port d'informació
científica

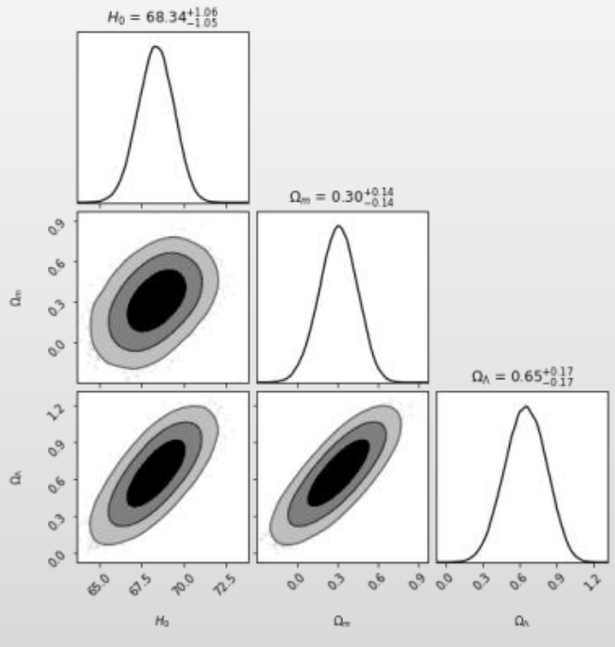
PhD student in Applied AI group
Student of Martin Børstad Eriksen
Funded by CSC(CHINA SCHOLARSHIP COUNCIL)

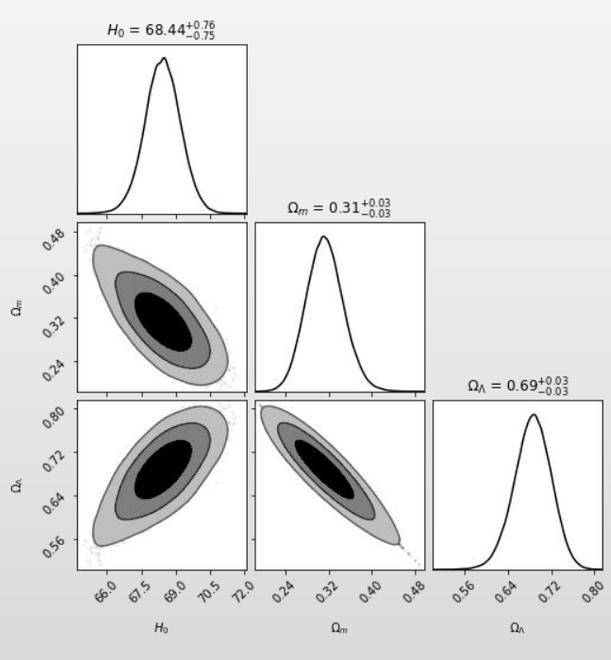
国家留学基金管理委员会 • CHINA SCHOLARSHIP COUNCIL •

2020.9-2023.7	Beijing Normal university	Astrophysics(master)
2016.9-2020.7	Jinan university	Applied physics(bachelor)

Master thesis: Cosmological parameters constraints with machine learning







Hanyue Guo

hguo@pic.es

PhD Student

Group: PIC Applied AI

Supervisor: Dr. Martin Eriksen

Funded by a CSC scholoarship

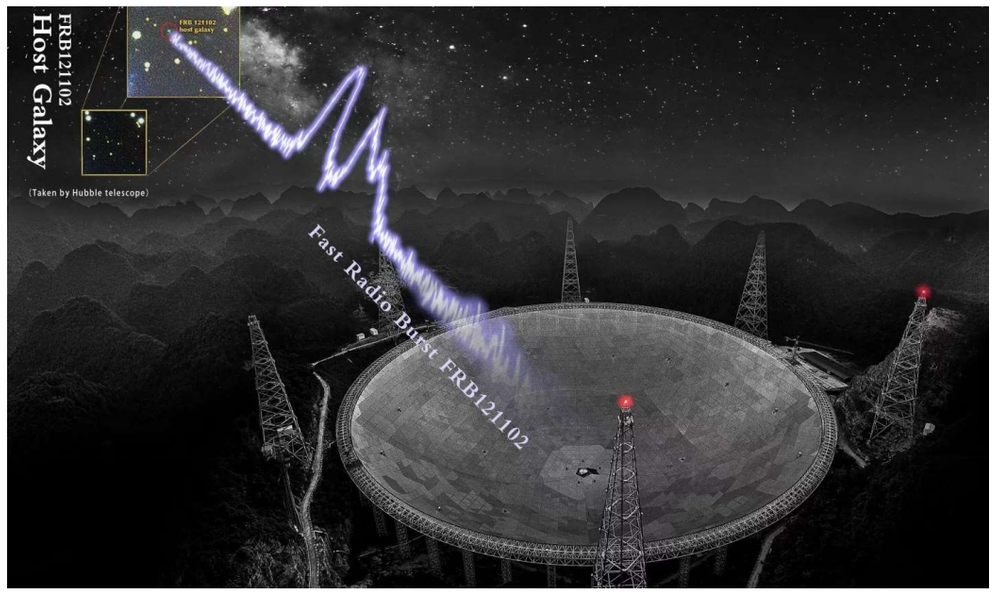
- Master in Physics

  Beijing Institute of Technology
- Bachelor in Physics

  Nanjing University of Information Science & Technology

➢ Before

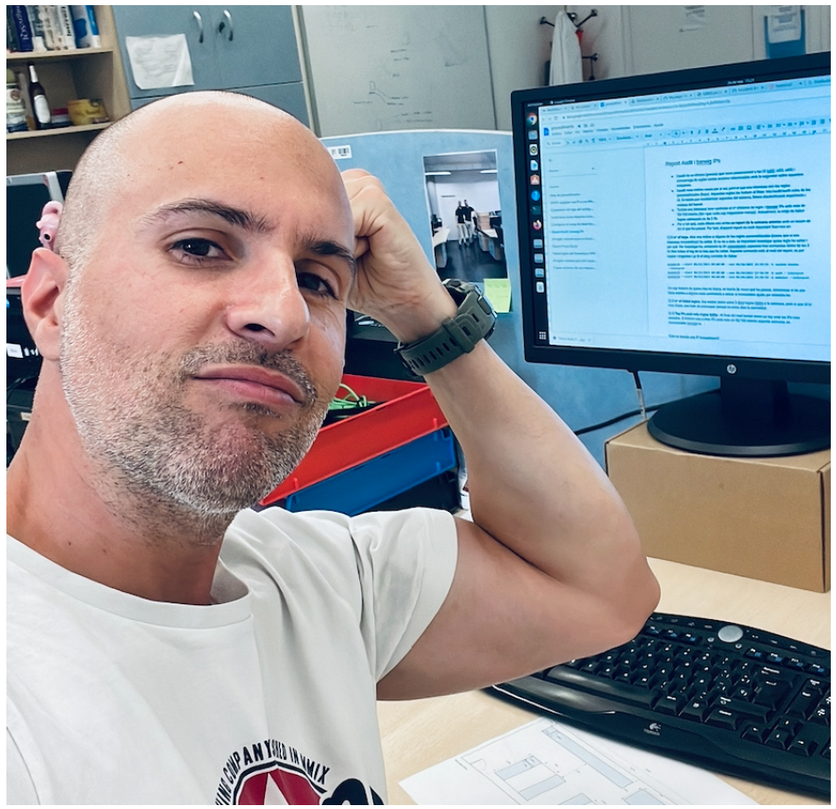
I studied Fast Radio Bursts



➢ Next…

I will study the applications of AI to galaxy surveys, cosmology and so on

Jaime Priego



Unfortunately my spoken english is not very good, so I'll introduce myself in spanish

I have been working at PIC since November 2022. At PIC, I assist in operating the datacenter, performing various tasks which include:

- installing servers
- handling hardware incidents
- maintaining up-to-date inventory records
- generating security and operation reports
- managing hardware stock
- learning linux and network administration

THEORY

Astrophysical methods

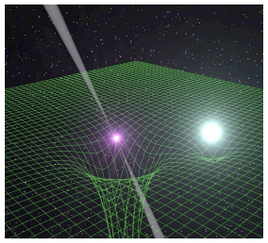
Precision devices

DIRECTION 1) Gravitational Waves (GWs)

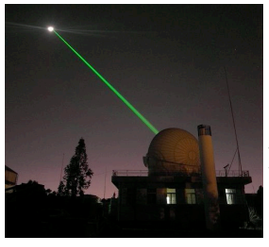
i) 2022: idea to start detecting GWs at μHz

Phys.Rev.Lett. 128 (2022) 10, 101103

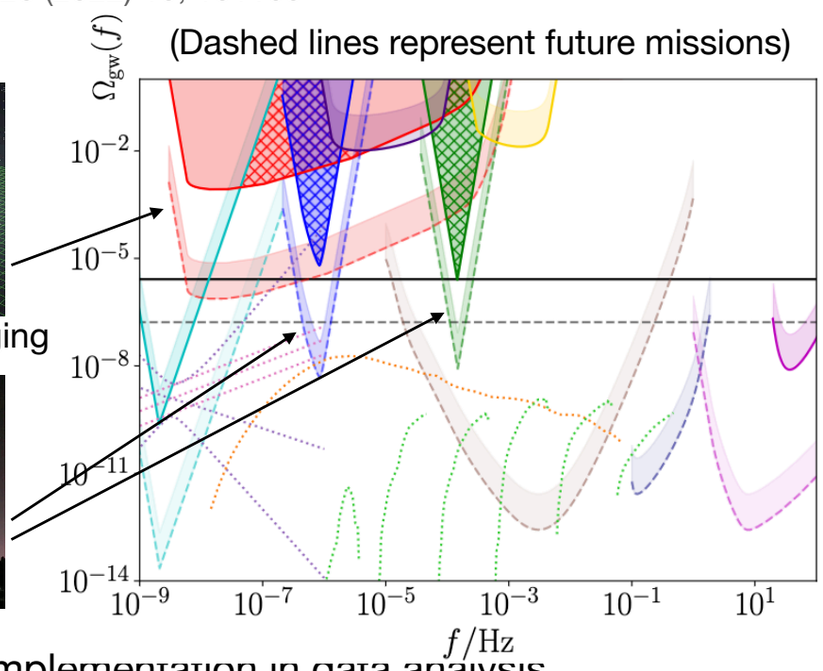
Binary pulsars



Moon/satellite ranging



(Dashed lines represent future missions)



Follow up: implementation in data analysis

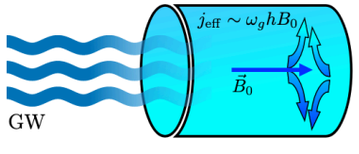
ii) 2022 + follow up 23: GWs at $\omega \gg 10\,\mathrm{kHz}$ in Microwave Cavities

arXiv:2303.01518 [hep-ph]

$\mathrm{GW} \rightarrow \mathrm{phonon} \rightarrow \mathrm{mode\ mixing}$

Phys.Rev.D 105 (2022) 11, 116011

$\mathrm{GW} + \overrightarrow{B} \rightarrow \gamma$



iii) LISA Consortium Activities: Topic Leader ("Dark Matter")

Mission: Optimize LISA for DM searches. Two main directions under scrutiny

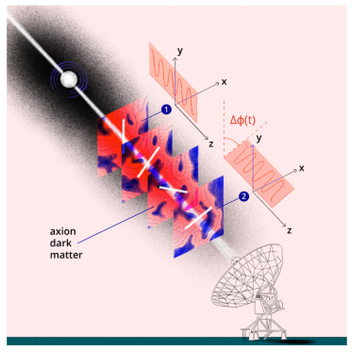
GWs from ultralight dark matter Effects on GWs from ambient dark matter

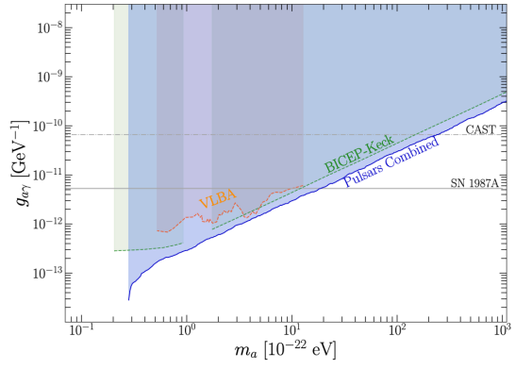
Amaro Seoane et al Gen.Rel.Grav. 54 (2022) 1, 3

DIRECTION 2) Dark matter searches

i) 2022: axion-like particles in polarization of pulsars

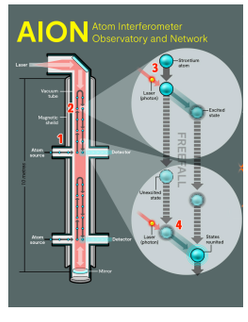
JCAP 06 (2022) 06, 014





ii) AION Collaboration Activities: Leader of WP Physics

Mission: Precision simulations and new physics in large scale Atomic Interferometers



Ziyu Dong

- 2014-18 B.Sc. *University of Science and Technology of China,*
- 2018-23 Master & Ph.D. *Institute of Theoretical Physics, Beijing, China,*
- 2021-23 Visitor *Cornell University, USA.*

Research Focus

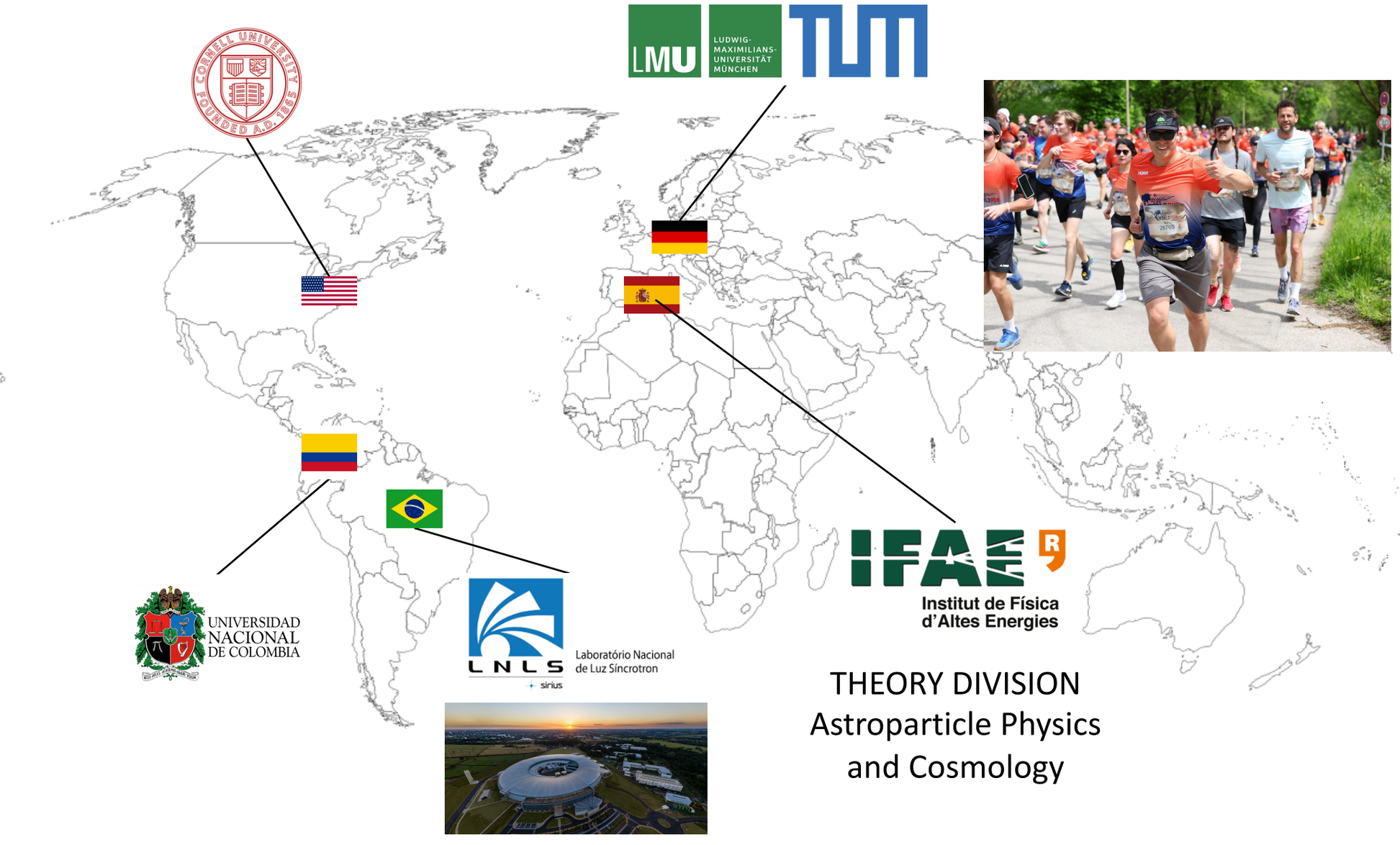
- Sum rules and Bootstrap;
- Soft theorems and Asymptotic symmetry of Monopoles;
- Effective Field Theory and Phenomenology.

Francesco Montagno

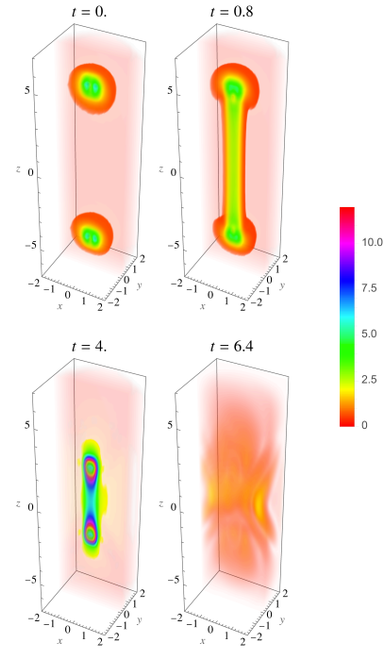
Theory Group

- **Bachelor's Degree:** University of Catania (UNICT)
- **Master's Degree:** University of Bologna (UNIBO)
- **Master Thesis:** Leptoquark Phenomenology and the 4321 Model (F. Maltoni, UNIBO & U. Haisch, MPP)
- **Supervisor at IFAE:** Andrea Wulzer

Juan Sebastián Valbuena Bermúdez



THEORY DIVISION
Astroparticle Physics
and Cosmology



Thank you all!

And welcome to IFAE