ESRs Day

Invisibles24 Workshop ESRs Day

Thursday, July 4,2024

Bologna

ESR = Early Stage Researcher

Brussels parlance for young scientists

ESRs Day

Invisibles24 Workshop ESRs Day

Thursday, July 4,2024

Bologna

ESRs Day

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Thursday, July 4,2024

Bologna

Coordinator Belen Gavela

Coordinator Belen Gavela

Coordinator Silvia Pascoli

Complementary networks:

Coordinator Belen Gavela

Coordinator Pilar Hernandez

ESRs Day

Invisibles24 Workshop ESRs Day

Thursday, July 4,2024

Bologna

EU ITN (Initial Training Network)

INVISIBLES

2012 slide

INVISIBLES: a bunch of physicists…. who want to do physics !

2012 slide

Not politics!

INVISIBLES: a bunch of physicists…. who want to do physics !

PASSIONATE ABOUT PHYSICS, ABOUT RESEARCH, ABOUT EXPLORING…

Not power games!

INVISIBLES: a bunch of physicists…. who want to do physics !

PASSIONATE ABOUT PHYSICS, ABOUT RESEARCH, ABOUT EXPLORING…

INVISIBLES: a bunch of physicists.... who want to do physics !

We want to build the

New Standard Model of Particle Physics

The road to building the New Standard Model (νSM) of particle physics is clear: this theory needs to encompass the nature and properties of neutrinos and dark matter, as well as those of ordinary matter.

2012 slide

We cannot do that alone:

Phenomenology in a network of

→ { *** theory and experiment**

*** particle physicists, astrophysicists and cosmologists**

to explore neutrinos, DM… and their connection

(with the background of the Higgs and DE quests)

2012 slide

Young scientists are essential for this

They will be the major asset, and the "glue", of INVISIBLES

2012 slide

INVISIBLES: a bunch of physicists.... who want to do physics !

We want to build the

New Standard Model of Particle Physics

The road to building the New Standard Model (νSM) of particle physics is clear: this theory needs to encompass the nature and properties of neutrinos and dark matter, as well as those of ordinary matter. The mission of **Inνisibles** is to train the new generation of young researchers to accomplish this task, allowing them to build the necessary background in particle physics and astrophysics, and fostering their growth as independent researchers, within **the first transnational program focused on neutrino and dark matter physics.**

2012 slide

The ESRs… plus 3-4 times more youngsters with other funds

Internally, we did not make any difference whatsoever between these other youngsters and the ESRs

The ESRs… plus 3-4 times more youngsters with other funds

Internally, we did not make any difference whatsoever between these other youngsters and the ESRs

—> Staff exchange complementary grants,
for >1 month visits of juniors and seniors:

The unspoken underlying values:

Foster **CREATIVITY**

SOLIDARITY

Togetherness/networking

Borderless, Diverse and Inclusive

The unspoken underlying values:

Foster **CREATIVITY**

SOLIDARITY

Togetherness/networking

Hours and hours of work seeking to raise excellent diverse candidates

Borderless, Diverse and Inclusive

The unspoken underlying values:

Foster **CREATIVITY**

SOLIDARITY

To… …etworking

…derless, Diverse and Inclusive

Pass it on !

What the name **INVISIBLES** refers to?

1) neutrinos, DM etc

AND

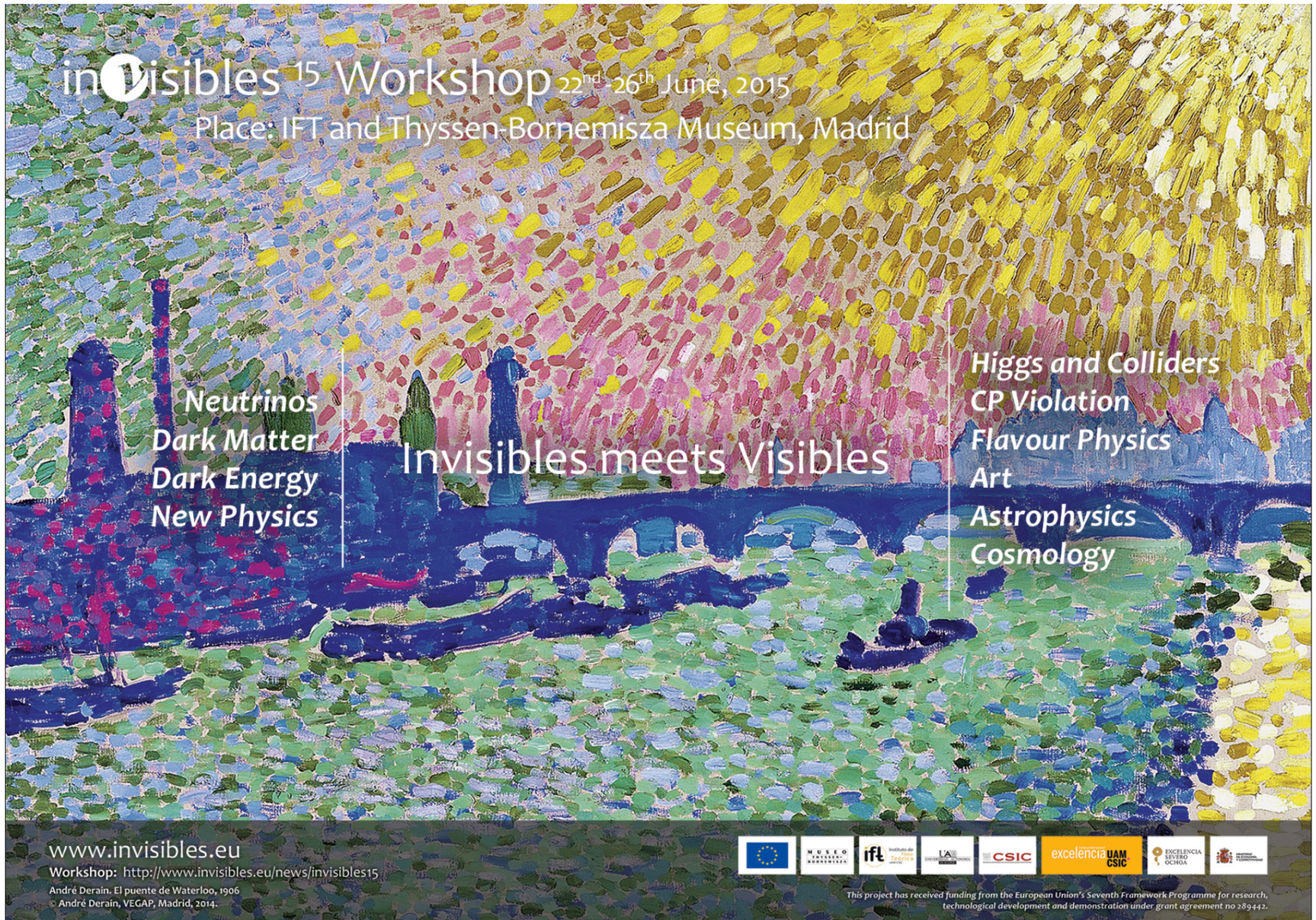
2) females and social minorities

We want(ed) to make the invisible visible

Another characteristics of in all networks:

the aim to broaden your social and cultural experience

ART-SCIENCE interface in network events



e.g. Invisibles15 in Thyssen-Bornemisza museum (Madrid), with artists

ITN INVISIBLES (2012-2016)

Scientists from 7 EU countries and 7 non-EU countries

* Core: neutrino and DM phenomenology

2012 slide

SIBLES EU

EU

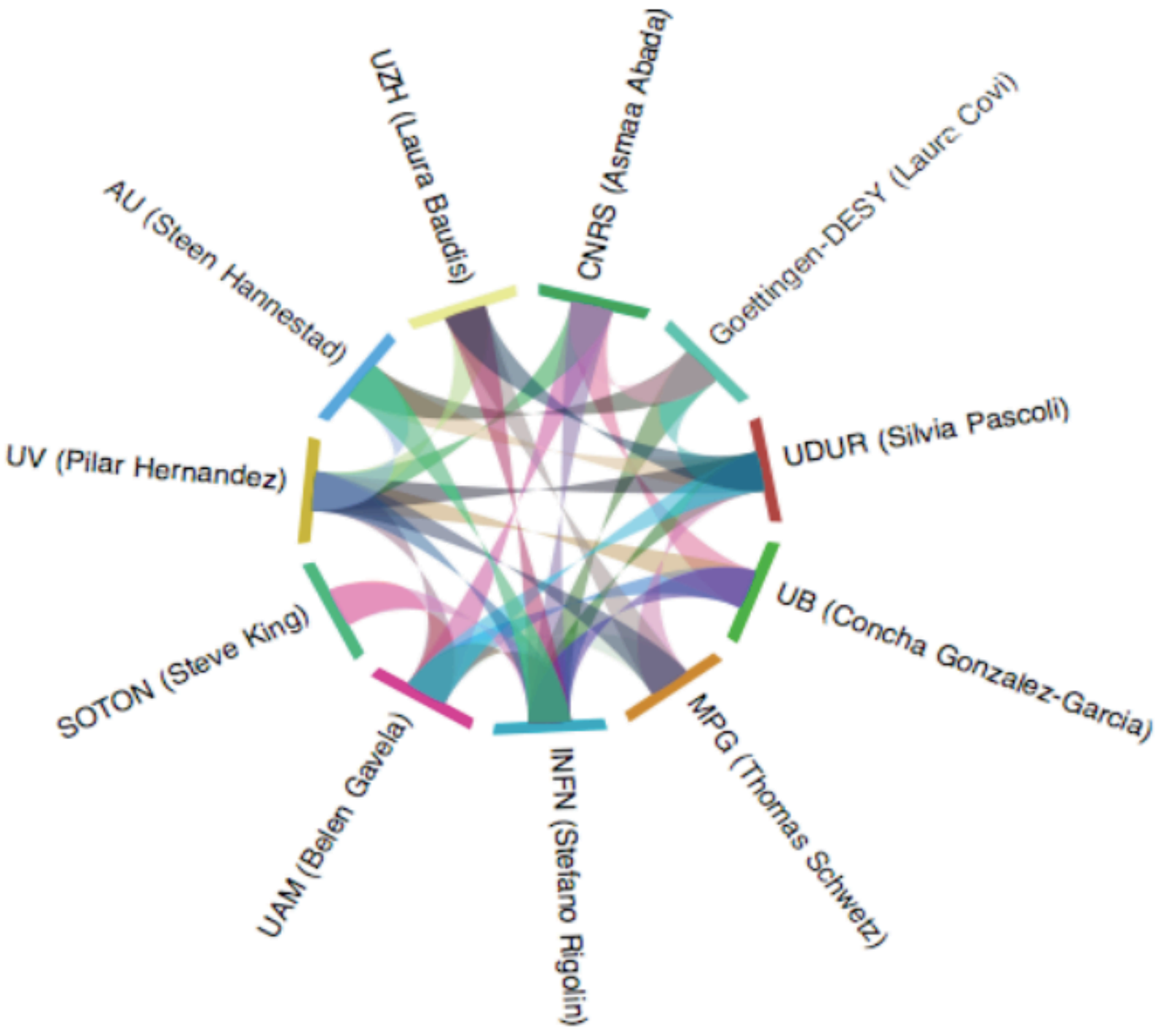
2012 slide

SIBLES EU

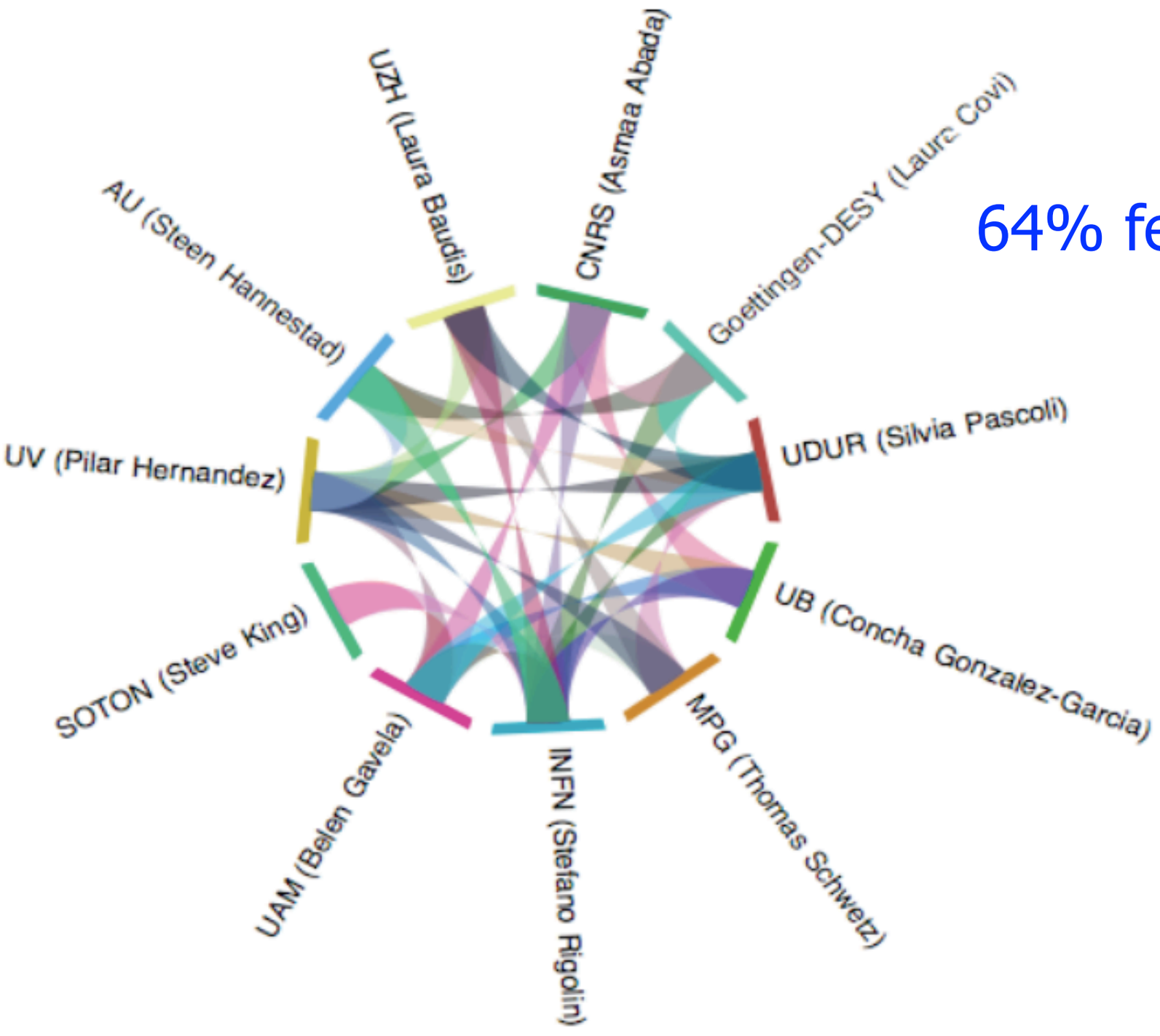
EUROPE:

* Lots of ν phenomenology
* DM phenomenology
* Exptal ν in INFN, Valencia, Madrid and Zurich
* Experimental DM in Zurich

2012 slide

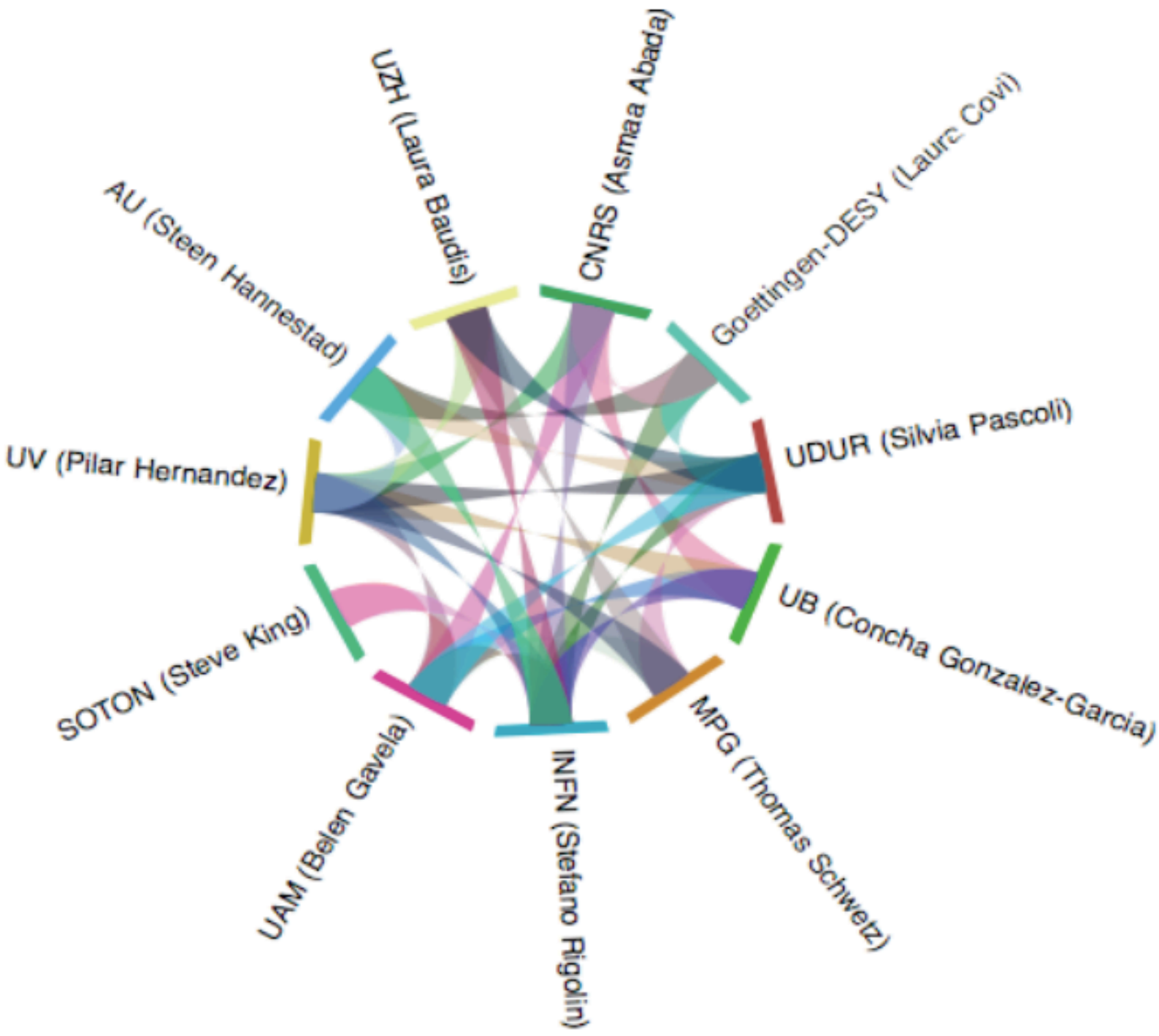

UZH (Laura Baudis)
CNRS (Asmaa Abada)
AU (Steen Hannestad)
Goettingen-DESY (Laura Covi)
UV (Pilar Hernandez)
UDUR (Silvia Pascoli)
SOTON (Steve King)
UB (Concha Gonzalez-Garcia)
UAM (Belen Gavela)
INFN (Stefano Rigolin)
MPG (Thomas Schwetz)

EU nodes



64% female PIs

EU nodes



``Secondments'':

Our young people will work in (at least) one of them for (at least) 2-3 months

SIBLES EU

*Very strong experimentally in "major labs" associated

*Fermilab: all ν and DM experiments
* Columbia U: XENON experiment

*CERN ν R&D and accelerators, LHC

*Japan: Tokyo U., ICCR
SK, T2K etc..

*Harvard U. Theory
* Fermilab

*CERN Theory

*Japan: IPPMU

* Also strong theoretically in "major labs" associated

2012 slide

*Fermilab: Steve Parke (Steve Brice)
* Columbia U: XENON, Elena Aprile
* Harvard University: Lisa Randall

*CERN: Elena Wildner (Gian Giudice)

*Japan: Takaaki Kajita
(Hitoshi Murayama)

2012 slide

*Fermilab:
* Columbia U: XENON
* Harvard University

*CERN

*Tokyo Univ. ICCR and IPPMU

Our young people will work in (at least) one of them for (at least) 2-3 months

2012 slide

SIBLES FEU

Other excellent scientific associated partners with unique expertise absent in the rest of the network

*Iran: ν
Yasaman Farzan

*India, 2 nodes:
-HRI: ν ; Sandya Choubey
- Delhi U.: ν, LHC; Brajesh Choudhary

*Egypt: DM, BSM
Shabaab Khalil

*Colombia:LHC
Marta Losada

* Brazil: ν and DM;
Renata Zukanovich-Funchal
(Ivonne Alburquerque)

2012 slide

SIBLES EU

Private sector associated partners

*UK:Kromek

*Spain:2 nodes
-GMV
-Narcea

*Italy/EU: Medialab

*Japan: Hamamatsu

2012 slide

SIBLES EU

Private sector associated partners

*UK:Kromek

*Spain:2 nodes
-GMV
-Narcea

*Italy/EU: Medialab

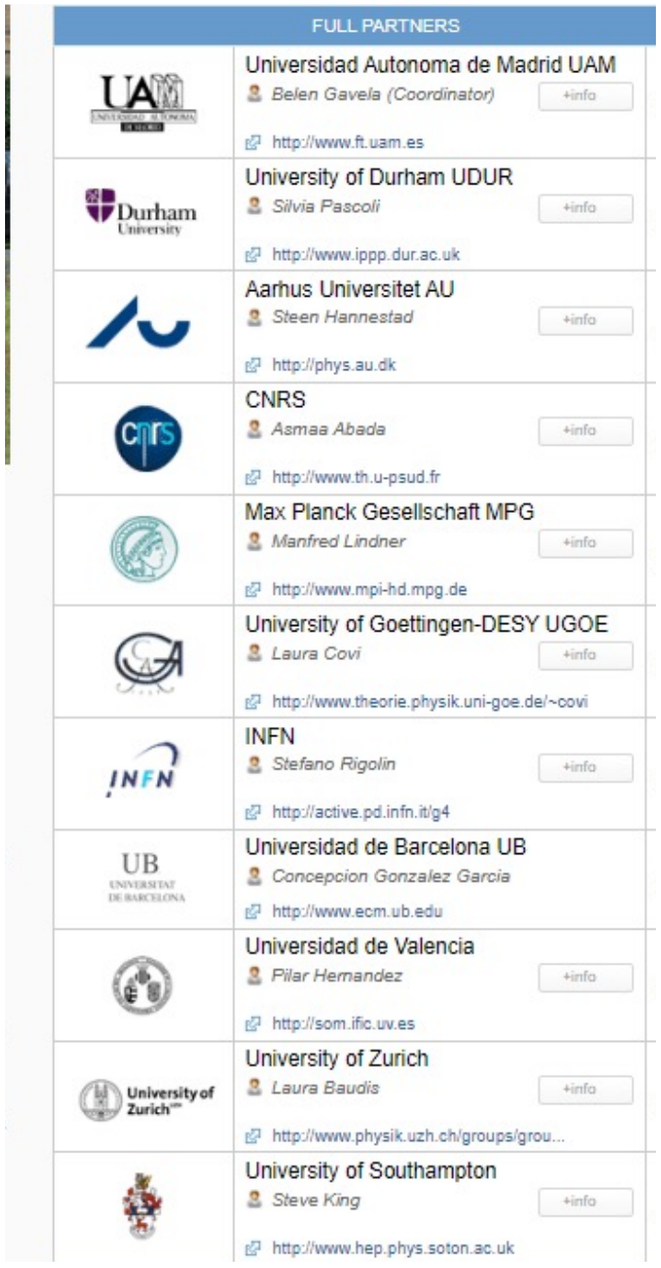
*Japan: Hamamatsu

Our young people will work in (at least) one of them for (at least) 1 week-1 month

2012 slide

ITN INVISIBLES (2012-2016)

Invisibles European ITN project (FP7-PEOPLE-2011-ITN, PITN-GA-2011-289442-INVISIBLES (April 2012-March 2016)



55% female PIs

Friends of Invisibles

FRIENDS OF INVISIBLES

Membership of this group is open to organisations interested in being part of the network on an informal basis. There will be opportunities to share information, learn about project developments, workshops and activities, and to collaborate with members of our ITN.

	Albert Einstein Center for Fundamental Physics *Marc Schumann* http://www.einstein.unibe.ch
ASU Arizona State University	**Arizona State University** *Cecilia Lunardini* http://www.cosmology.asu.edu
	Centro Atómico Bariloche *Esteban Roulet* http://fisica.cab.cnea.gov.ar/particulas/index.php
	Duke University *Chris Walter* +info http://neutrino.phy.duke.edu/
ITP	**Heidelberg University** *Joerg Jaeckel* http://www.thphys.uni-heidelberg.de/index.php?lang=e
	Kavli Institute for Theoretical Physics China, Institute of Theoretical Physics, Chinese Academy of Sciences *Yu-Feng Zhou* http://www.kitpc.ac.cn http://www.itp.cas.cn
KTH	**KTH, Sweden** *Mattias Blennow* +info http://www.theophys.kth.se/tepp/
	Institute of Physics, Bhubaneswar, India *Sanjib Kumar Agarwalla (Assistant Professor)* http://www.iopb.res.in/index.php
	National Institute of Chemical Physics and Biophysics (NICPB) *Martti Raidal* +info http://coe.kbfi.ee
UCLA	**The University of California, Los Angeles (UCLA)** *Graciela Gelmini* http://home.physics.ucla.edu/
	The University of Edinburgh *Alex Murphy* +info http://www.ed.ac.uk
	Tokyo Metropolitan University *Osamu Yasuda* http://musashi.phys.se.tmu.ac.jp/English/index_e.html
ULB	**Université Libre de Bruxelles** *Thomas Hambye* http://www.ulb.ac.be/sciences/physth/
	University of California, Irvine *Mu-Chun Chen* +info http://www.physics.uci.edu
W	**University of Washington** *Ann Nelson* https://sharepoint.washington.edu/phys/Pages/default.aspx
The Ohio State University	**The Ohio State University** *John Beacom* http://ccapp.osu.edu
	School of Physical Sciences, Jawaharlal Nehru University *Poonam Mehta* http://www.jnu.ac.in/SPS/
	PUCP Pontificia Universidad Católica del Perú *Joel Jones-Pérez* http://www.pucp.edu.pe/

*First line left to right: Valerie Domcke, Maria Archidiacono, Nassim Bozorgnia, Ninetta Saviano, Valetina de Romeri, Ilaria Brivio, Marija Kekic and Daniel Mayani.

*Second line left to right: Johannes Bergström, Takashi Toma, Michele Lucente, Aaron Vincent, Pedro Machado, Mark Ross-Lonergan, Thomas Neder, Giorgio Arcadi, Kirill Kanshin, Peter Barrow and Miguel Hierro.

A cocktail of genders, nationalities and origins:
New Zeeland, Sweden, Italy, Canada, Serbia,
Japan, Ireland, Germany, Russia, Spain, UK
Mexico, Iran, USA, Brazil

37% female
63% male

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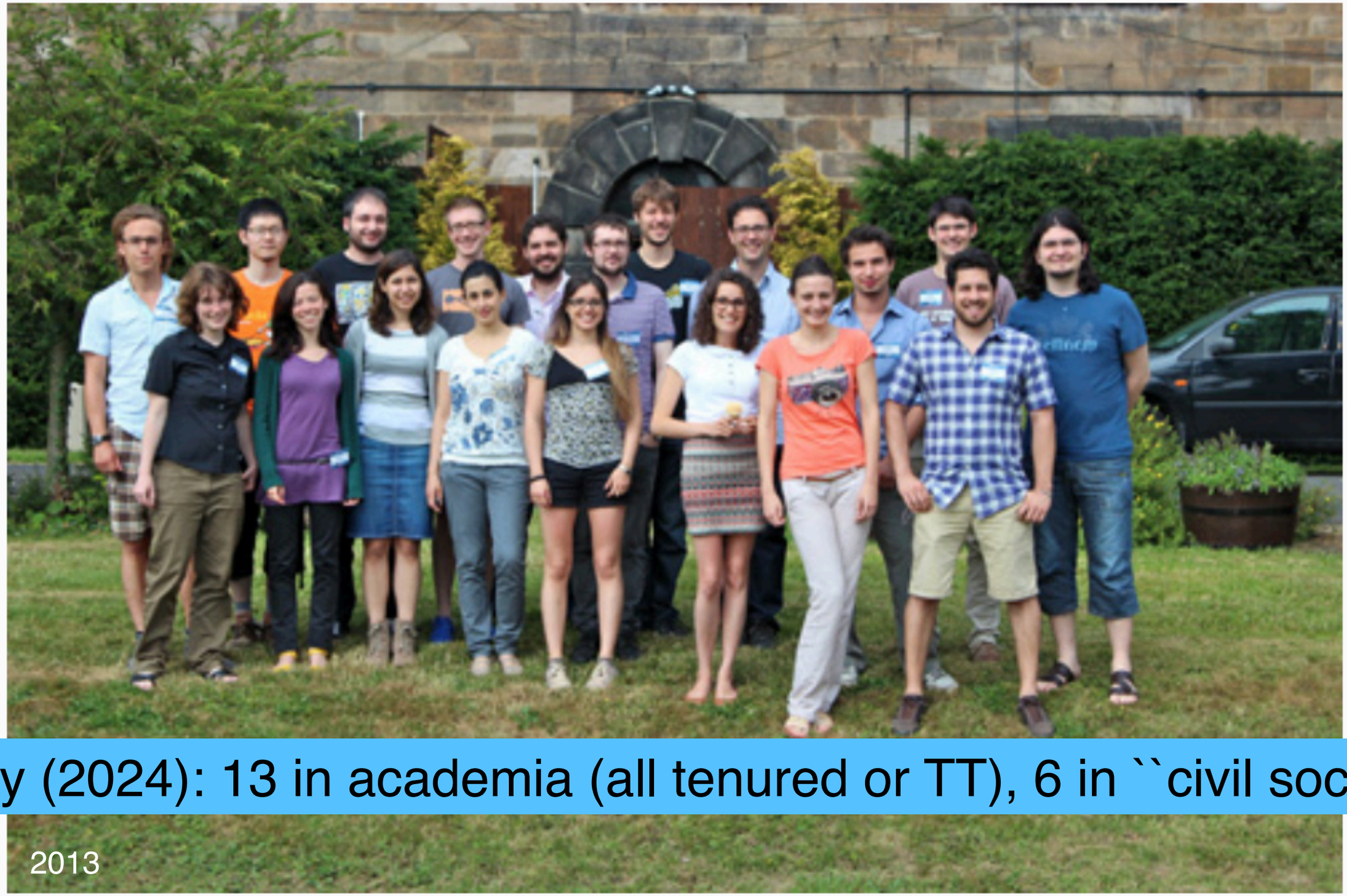

Today (2024): 13 in academia (all tenured or TT), 6 in ``civil society”

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Example:

Valerie Domcke _ ESR Trieste-INFN Padua node.

During my time as Invisibles ESR, I worked on early universe cosmology, including inflation, dark matter, baryogenesis and gravitational waves

After my first postdoc as an Invisibles ESR in Trieste, Italy, I moved for a postdoc to Paris (APC), before starting a junior faculty position at DESY, Hamburg. Since 2020 I am a faculty member at in the CERN Theory Department.

I am still fascinated by early universe cosmology. The topics I work on today include CP violating processes in the early Universe and gravitational waves across all frequencies.

Similar descriptions for (almost) all of them in back up slides

(Thank you very very much to Rebeca Bello !!!)

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1st female permanent staff at CERN TH ever!!

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1st female permanent staff at CERN TH ever!!

(a network senior was already the first fixed-term CERN TH staff ever…
but now Valerie really broke that ceiling)

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She also is now the network PI for CERN

Similar descriptions for (almost) all of them in back up slides

(Thank you very very much to **Rebeca Bello** !!!)

Elena Perdomo _ ESR SOTON.

I worked on: "Flavour from the grand unification scale to the electroweak scale"

After the PhD, I did a Yoga Teacher Training and started teaching Yoga during covid. Since then, I have created my own Yoga business with classes, workshops and retreats online and in person around the world.

As the owner of my own business, right now I am working on understanding better marketing, sales, leading my Instagram account, how to improve my webpage for the members, etc. Apart from that I keep both teaching and learning about flexibility, strength and balance.

ITN ELUSIVES (2016-2020)

ITN ELUSIVES (2016-2020)

Elusives European ITN project (H2020-MSCA-ITN-2015//674896-ELUSIVES, April 2016-March 2020)

elusives
neutrinos, dark matter & dark energy physics

BENEFICIARY NODES	
UAM	Universidad Autónoma de Madrid UAM *Belén Gavela (Coordinator)* http://www.uam.es/ss/Satellite/FisicaTeorica...
Durham University	University of Durham UDUR *Silvia Pascoli* https://www.dur.ac.uk/physics/...
cnrs	Centre National de la Recherche Scientifique CNRS *Asmaa Abada* http://www.th.u-psud.fr/annuaire2.php3...
	Max Planck Gesellschaft Zur Foerderung Der Wissenschaften MPG *Georg Raffelt* http://wwwth.mpp.mpg.de/members...
KIT	Karlsruher Institut fuer Technologie KIT *Thomas Schwetz* http://www.ikp.kit.edu...
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UB	Universitat de Barcelona UB *María Concepción González García* http://www.ecm.ub.es/~concha/
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	University of Southampton SOTON *Steve King* http://www.hep.phys.soton.ac.uk/...
	Ruprecht-Karls-Universitaet Heidelberg UHEI *Joerg Jaeckel* http://www.physik.uni-heidelberg.de/...

PARTNERS	
	ICRR and KAVLI IPMU, the University of Tokyo TOKYO *Takaaki Kajita* http://www.icrr.u-tokyo.ac.jp... http://www.ipmu.jp
CERN	European Organization for Nuclear Research CERN *Marzio Nessi* http://home.cern/
	Columbia University in the New York City COLUMBIA *Elena Aprile* http://xenon.astro.columbia.edu
	Fermi National Accelerator Laboratory FERMILAB *Stephen Parke* http://theory.fnal.gov
	Institute of High Energy Physics, Chinese Academy of Sciences IHEP *Jun Cao* http://sourcedb.ihep.cas.cn...
W	University of Washington UW *David Kaplan* https://phys.washington.edu...
	Harvard University HARVARD *Lisa Randall* http://www.physics.harvard.edu
BERKELEY LAB	University of California LBNL (Berkeley) *Mary K. Gaillard* http://www.lbl.gov/
Stony Brook University	Stony Brook University SB *Concha González García* http://www.stonybrook.edu
USP	Universidade de Sao Paulo USP *Renata Zukanovich* http://www.fma.if.usp.br
UAN	Universidad Antonio Nariño UAN *Nicolás Bernal* http://www.uan.edu.co
	Zewail City of Science and Technology ZEWAIL *Shaaban Khalil* http://www.zewailcity.edu.eg/...
	University of Delhi UD *Brajesh Choudhary* http://www.du.ac.in/du/
HCRI	Harish-Chandra Research Institute HRI *Sandhya Choubey* http://www.hri.res.in

IPM	Institute for Research in Fundamental Sciences IPM *Yasaman Farzan* http://physics.ipm.ac.ir
HAMAMATSU	Hamamatsu Photonics HAMAMATSU *Yuji Yoshizawa* http://www.hamamatsu.com/...
gmv	GMV Aerospace and Defense SA Unipersonal GMV *Ana Curiel* http://www.gmv.com/en/
kromek	Kromek Group PLC KROMEK *Max Robinson* http://www.kromek.com
medialab	Sissa Medialab MEDIALAB *Enrico Balli* http://medialab.sissa.it/...
phpdocx	phpdocx https://www.phpdocx.com
EL PAÍS	El País *Patricia Fernández de Lis* http://www.elpais.com

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	Fermi National Accelerator Laboratory FERMILAB *Stephen Parke* http://theory.fnal.gov
	Institute of High Energy Physics, Chinese Academy of Sciences IHEP *Jun Cao* http://sourcedb.ihep.cas.cn...
W	University of Washington UW *David Kaplan* https://phys.washington.edu...
	Harvard University HARVARD *Lisa Randall* http://www.physics.harvard.edu
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UAN	Universidad Antonio Nariño UAN *Nicolás Bernal* http://www.uan.edu.co
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phpdocx	phpdocx https://www.phpdocx.com
EL PAÍS	El País *Patricia Fernández de Lis* http://www.elpais.com

A major newspaper !

Friends of Elusives

FRIENDS OF ELUSIVES

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National Institute of Chemical Physics and Biophysics (NICPB) *Martii Raidal* http://coe.kbfi.ee/	Institute of Physics, Bhubaneswar, India *Sanjib Agarwalla* http://www.iopb.res.in/index.php
Duke University *Chris Walter* http://neutrino.phy.duke.edu/	Albert Einstein Center for Fundamental Physics *Marc Schumann* http://www.einstein.unibe.ch/
The University of Edinburgh *Alex Murphy* http://www.ed.ac.uk/	School of Physical Sciences, Jawaharlal Nehru University *Poonam Mehta* http://www.jnu.ac.in/SPS/
The University of California, Los Angeles (UCLA) *Graciela Gelmini* http://www.pa.ucla.edu/	The Ohio State University *John Beacom* http://ccapp.osu.edu/
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Arizona State University *Cecilia Lunardini* http://www.cosmology.asu.edu/	UNAM *Myriam Mondragón Ceballos* www.fisica.unam.mx
KTH, Sweden *Mattias Blennow* http://www.theophys.kth.se/tepp/	Dartmouth *Devin G. Walker* Particles, Fields, Gravitation, and Cosmology Group

Back row, L to R: *Rachel Houtz, Andrea Caputo, Chloe Ransom, Simon King, Olcyr Sumensari, Bruno Martin, Sam Witte, Elena Perdomo, Edoardo Vitagliano, Julia Stadler* and *Julia Gehrlein*

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+ Arseni Titov + Fiona Kirk + Laura P. Sinkunaite

A cocktail of genders, nationalities and origins:
Germany, Russia, USA, Italy, France, Portugal
Australia, Spain, UK, Lithuania

35% female
65% male

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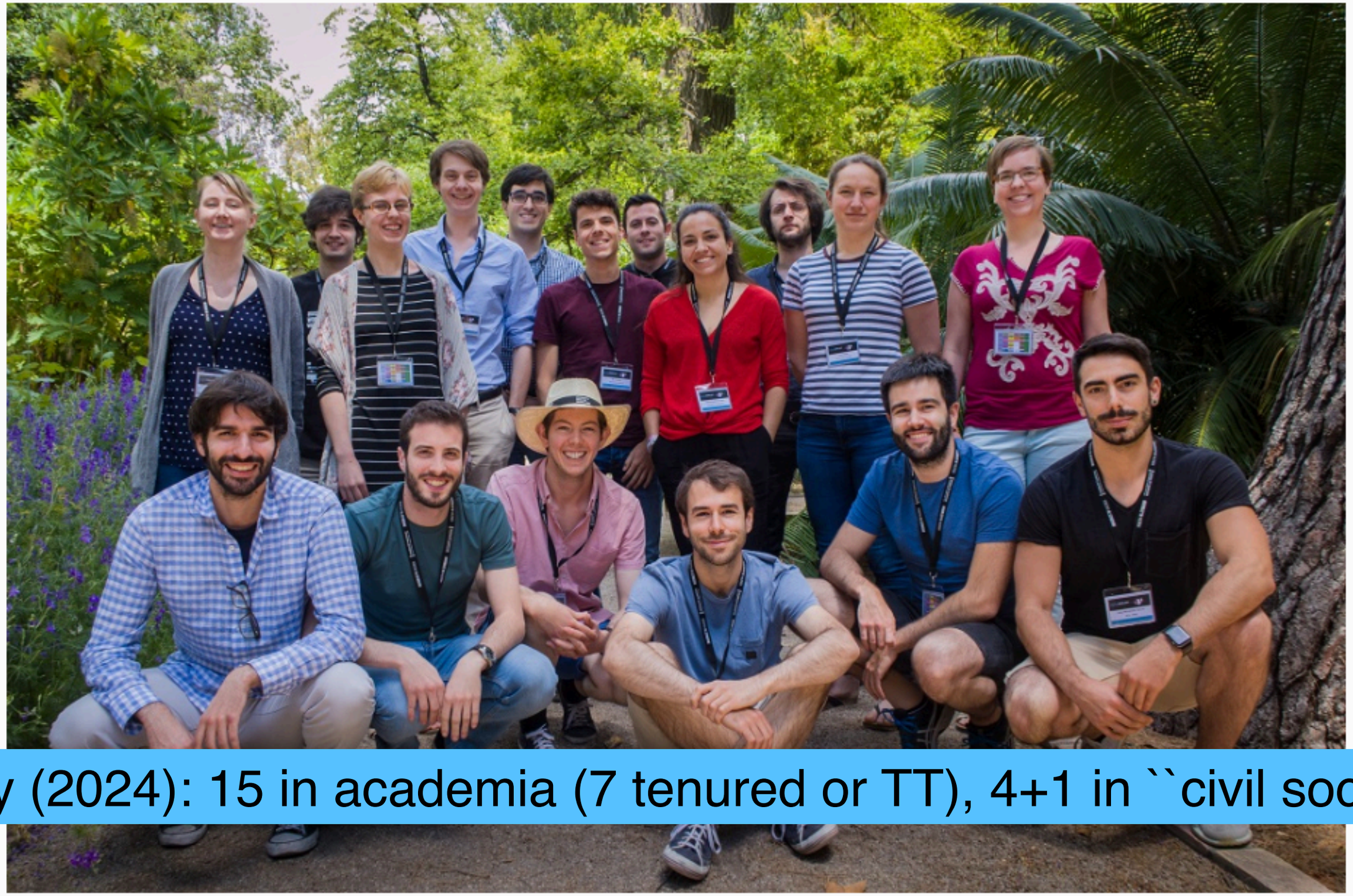
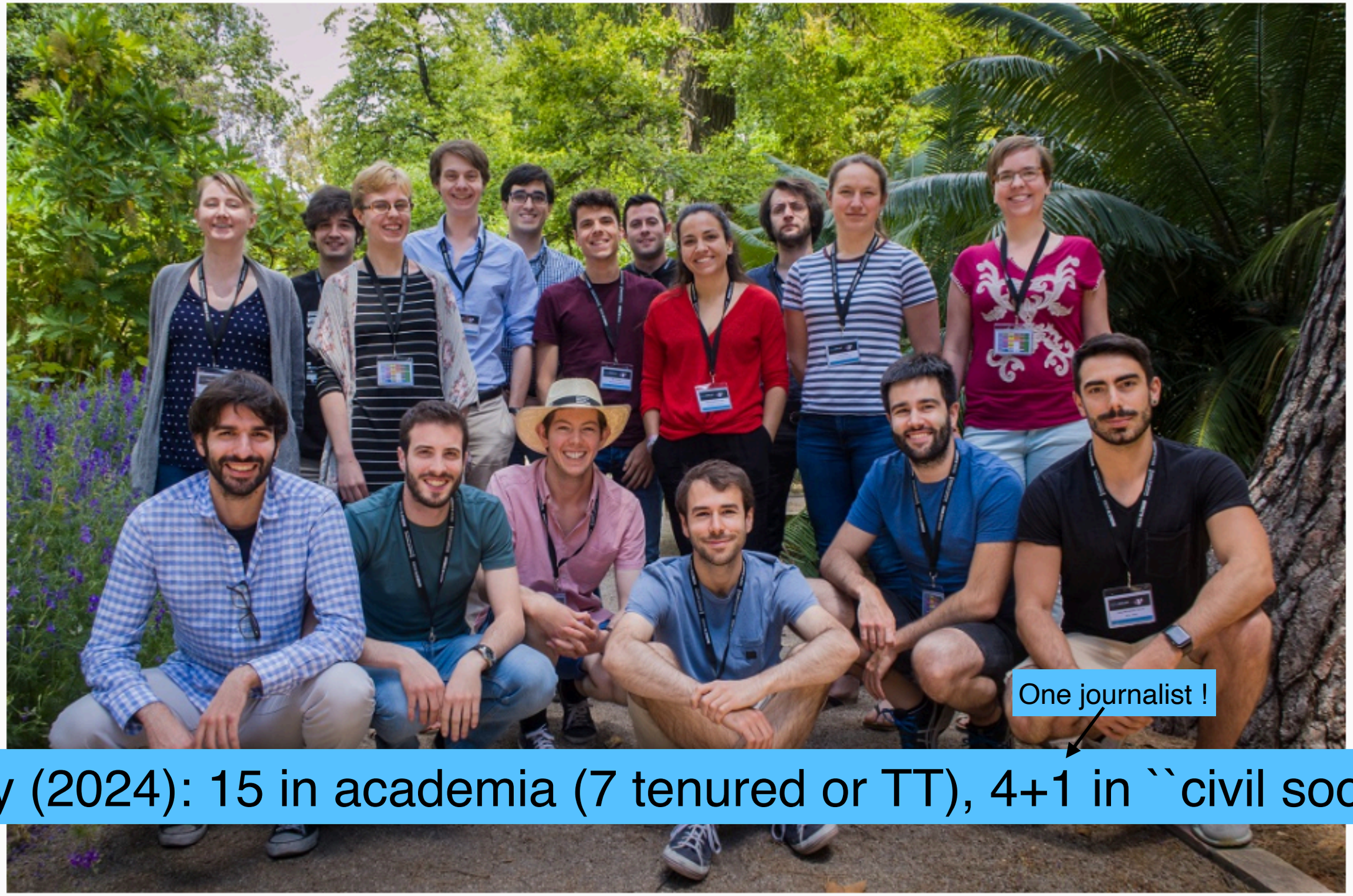


Today (2024): 15 in academia (7 tenured or TT), 4+1 in ``civil society”

Back row, L to R: *Rachel Houtz, Andrea Caputo, Chloe Ransom, Simon King, Olcyr Sumensari, Bruno Martin, Sam Witte, Elena Perdomo, Edoardo Vitagliano, Julia Stadler* and *Julia Gehrlein*

Front row, L to R: *Nuno Agostinho, Álvaro Hernández, Rupert Coy, Gonzalo Alonso, Xabier Marcano* and *Josu Hernández*

+ Arseni Titov + Fiona Kirk + Laura P. Sinkunaite



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ITN HIDDeN (2020-2024)

ITN HIDDeN (2020-2024)

HIDDeN
Hunting Invisibles: Dark sectors, Dark matter and Neutrinos

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Stony Brook University	Stony Brook University SB *María Concepción González García* http://insti.physics.sunysb.edu/...
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Columbia University	Columbia University in the New York City COLUMBIA *Georgia Karagiorgi*

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W	University of Washington UW *David Kaplan* https://phys.washington.edu/people/...
gmv	GMV Aerospace and Defense SA Unipersonal GMV *Ana Curiel* http://www.gmv.com/en/
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Hunting Invisibles: Dark sectors, Dark matter and Neutrinos

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nature	Nature Int. Journal of Science NATURE *Federico Levi* https://www.nature.com/
	Haus der Astronomie *Markus Pössel* https://www.haus-der-astronomie.de/en

FRIENDS OF HIDDEN

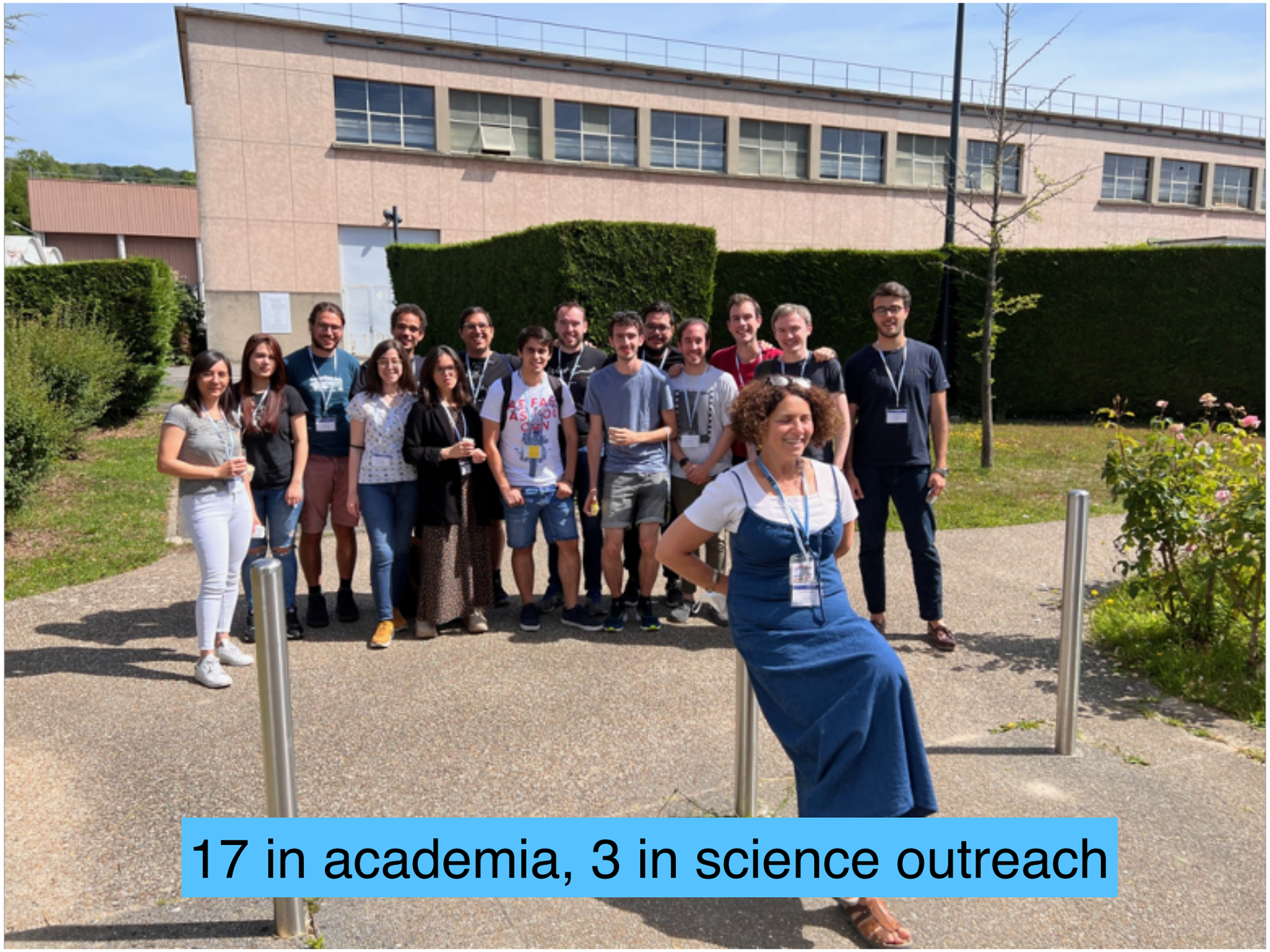
Membership of this group is open to organisations interested in being part of the network on an informal basis. There will be opportunities to share information, learn about project developments, workshops and activities, and to collaborate with members of our ITN.

OSU	Oklahoma State University *Vedran Brdar* osuhep.okstate.edu/	*Private*

A cocktail of genders, nationalities and origins:
Italy, Mexico, Germany, Portugal, UK, Russia,
Colombia, Belgium, Peru, Spain, Brazil

25% female
75% male

Paloma Cimental, Valentina Montoya, Francesco Costa, Federica Pompa,
Virgil Dandoy, Maria Ramos, Jaime Hoefken, Mario Fernandez, Giacomo Landini,
Xavier Ponce, Joao Paulo-Pinheiro, Salvador Rosauro, Arturo de Giorgi, Patrick Bolton,
Gioachinno Piazza. *+ Luca Marsili, Giuseppe Lucente*
+ Francesco Sergio, Diego Jimenez, Elina Merkel



Paloma Cimental, Valentina Montoya, Francesco Costa, Federica Pompa,
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Xavier Ponce, Joao Paulo-Pinheiro, Salvador Rosauro, Arturo de Giorgi, Patrick Bolton,
Gioachinno Piazza. *+ Luca Marsili, Giuseppe Lucente*
+ Francesco Sergio, Diego Jimenez, Elina Merkel

Did we succeed?

Did we succeed?

We certainly had and are having lots of fun with our research and community

Did we succeed?

I would say work in progress:

* We have not yet built the new Standard Model but we have certainly advanced much the frontiers of knowledge 😉 😊

* Even in gender (although 32% hired), equity and diversity much to improve 😢

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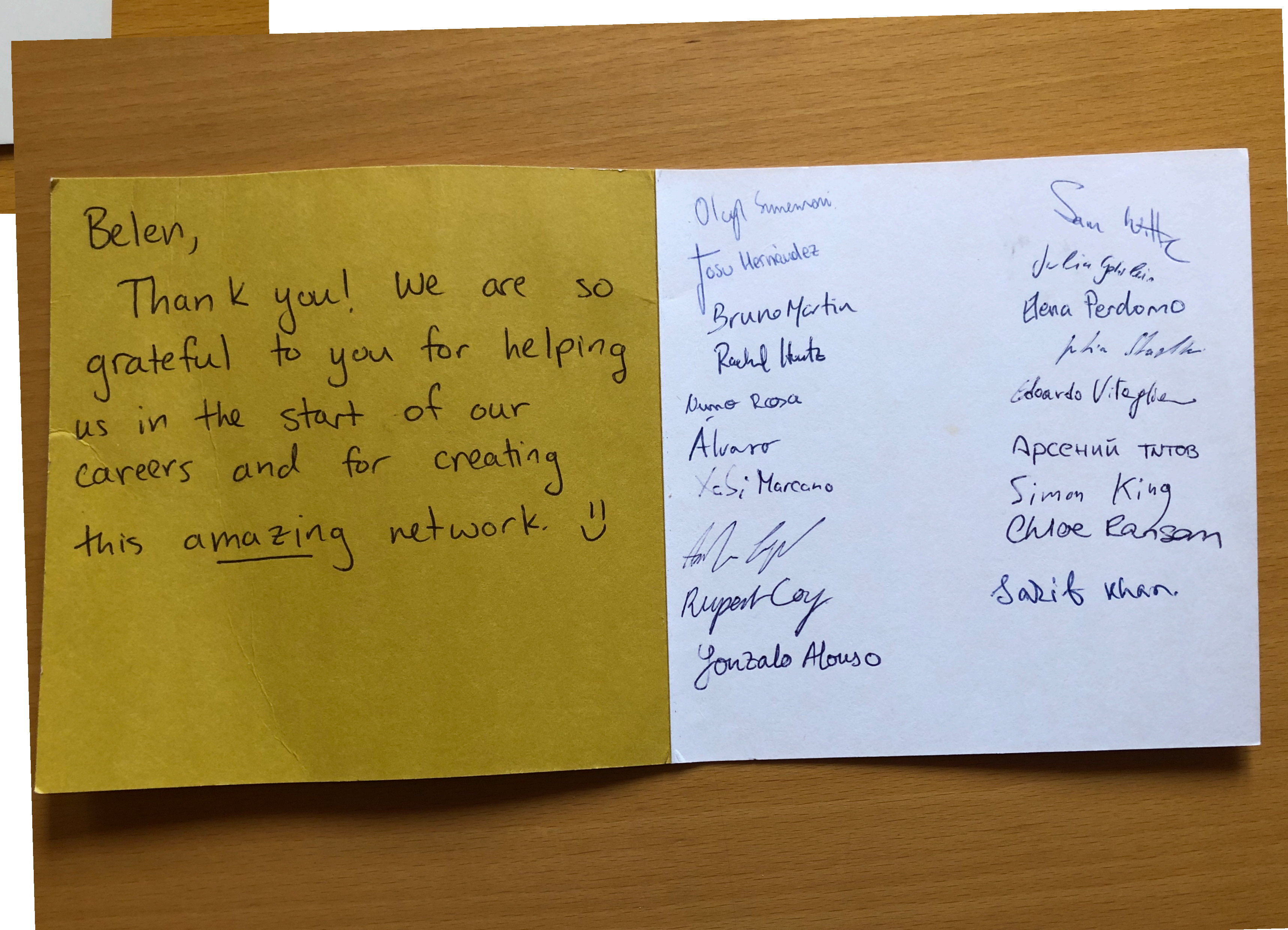
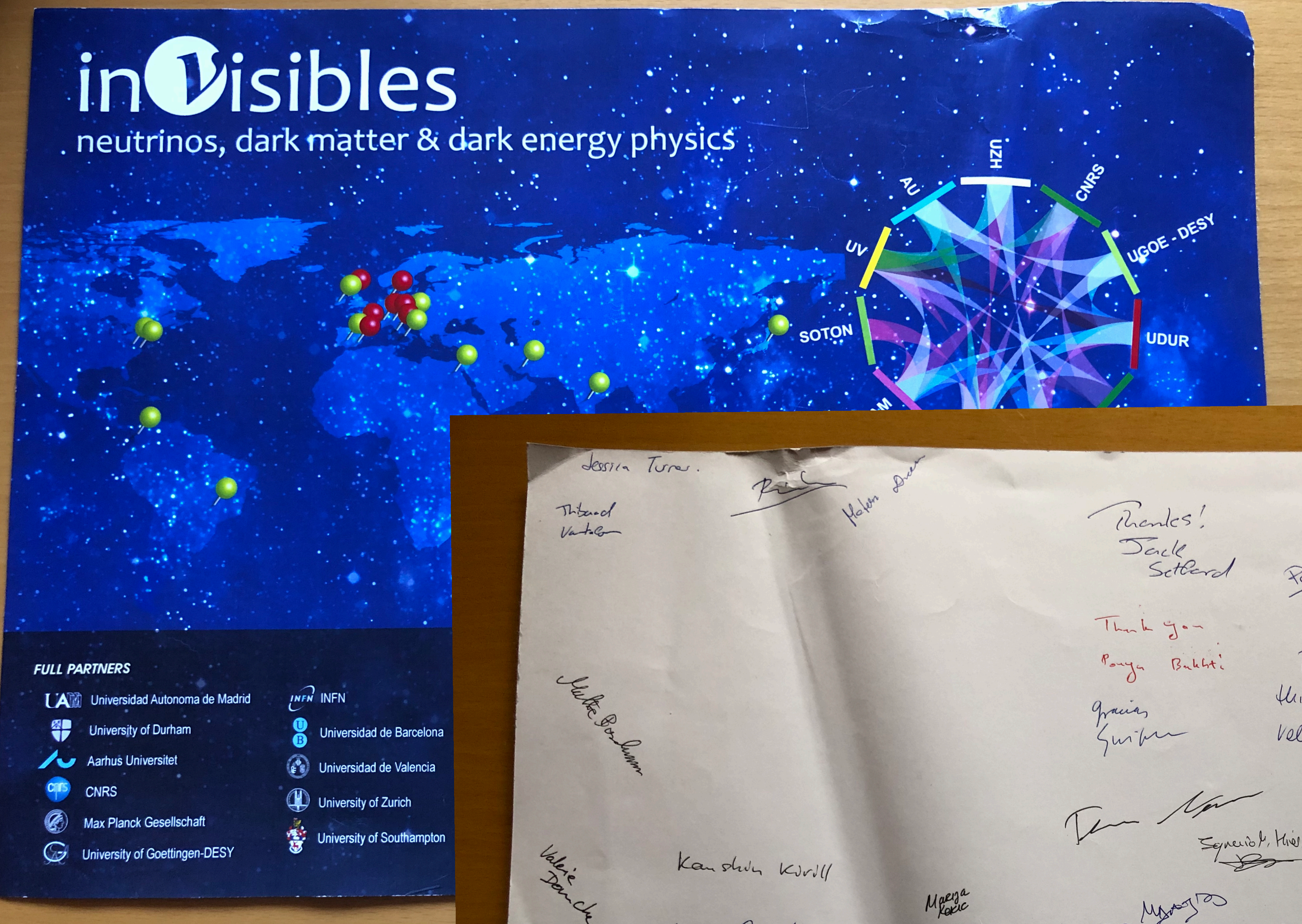
barely making the invisible visible… but pushing ahead


Muchas
GRACIAS


Belen,
Thank you! We are so grateful to you for helping us in the start of our careers and for creating this amazing network. :)
Josu Hernández
Bruno Martin
Nuno Rosa
Álvaro
Rupert Coy
Gonzalo Alonso
Elena Perdomo
Simon King
Chloe Ransom
Sarif Khan.


invisibles
neutrinos, dark matter & dark energy physics
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CNRS
UGOE - DESY
UDUR
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University of Goettingen-DESY
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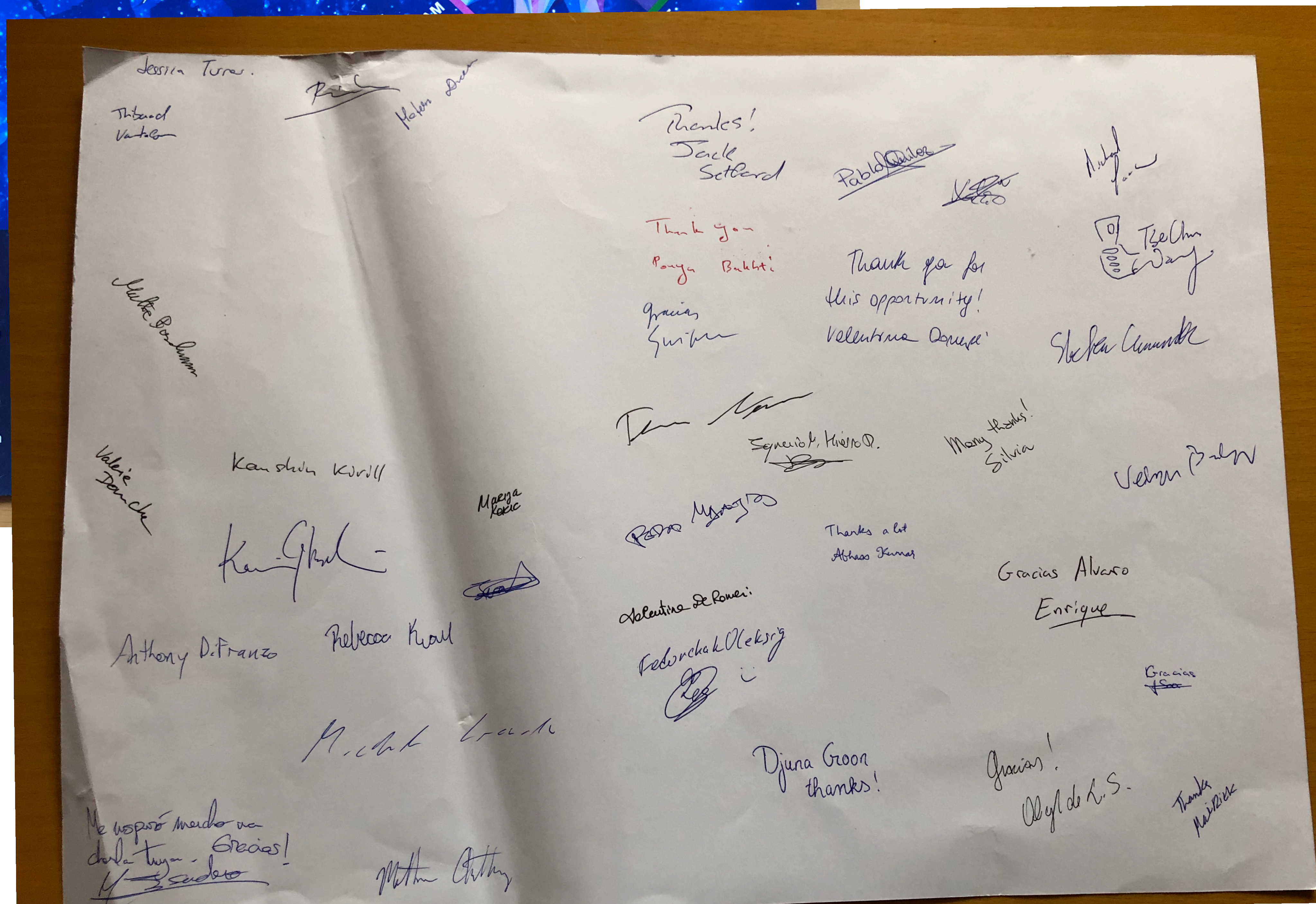
Thanks!
Thank you
Thank you for
this opportunity!
Many thanks!
Silvia
Thanks a lot
Gracias Alvaro
Enrique
Anthony DiFranzo
Djuna Groon
thanks!
Gracias!

We are veeery proud of our network youngsters !!

Thank you very much

Invisibles European ITN project (FP7-PEOPLE-2011-ITN, PITN-GA-2011-289442-INVISIBLES (April 2012-March 2016)

in**v**isibles
neutrinos, dark matter & dark energy physics

FULL PARTNERS	
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Valerie Domcke _ ESR Trieste-INFN Padua node.

During my time as Invisibles ESR, I worked on early universe cosmology, including inflation, dark matter, baryogenesis and gravitational waves.

After my first postdoc as an Invisibles ESR in Trieste, Italy, I moved for a postdoc to Paris (APC), before starting a junior faculty position at DESY, Hamburg. Since 2020 I am a faculty member at in the CERN Theory Department.

I am still fascinated by early universe cosmology. The topics I work on today include CP violating processes in the early Universe and gravitational waves across all frequencies.

Maria Archidiacono _ ESR Aarhus University node.

I was hired as an ESR at the Aarhus University node, under the supervision of Prof. Steen Hannestad. I worked on constraining neutrino physics with cosmological data, and I started getting involved in the Euclid Consortium.

Since then, I was hired as a postdoc in the group of Prof. Julien Lesgourgues (RWTH Aachen University). Later, I moved back to Italy, where I am currently a researcher (RTD-A) at University of Milan.

I am currently leading the Euclid work package focused on particle cosmology (neutrinos and dark matter). My work involves overseeing the forecast of the mission's sensitivity to neutrino properties and exploring its potential for detecting the neutrino mass.

Nassim Bozorgnia _ ESR Max Planck Institute.

During my time as Invisibles ESR, I worked on the phenomenology of WIMP dark matter, focusing on halo-independent methods for dark matter direct detection.

I obtained my PhD from UCLA and have held postdoctoral positions at the Max Planck Institute in Heidelberg, the GRAPPA Center of Excellence at the University of Amsterdam, and the Institute for Particle Physics Phenomenology at Durham University.

I was an assistant professor at York University from 2020 to 2022. I am currently an assistant professor in the Department of Physics at the University of Alberta and a Tier 2 Canada Research Chair in Astroparticle Physics.

My research focuses on theoretical astroparticle physics and dark matter phenomenology. I am interested to find out what the particle nature of dark matter and its interactions are, and how we can trace its signatures on the Galactic distribution of dark matter. I use the results of cosmological simulations of galaxy formation to study the dark matter distribution in galaxies like our own, and explore their implications for dark matter direct and indirect searches.

Mark Ross-Lonergan _ ESR Durham.

I was hired to study under Silvia Pascoli for my PhD in neutrino theory and phenomenology, investigating how new and exciting physics could explain long standing anomalies in the field.

After my PhD I made the transition from theory to experiment, working as a PostDoc at Columbia University NYC in the MicroBooNE short-baseline neutrino experiment at Fermilab. Here I led the team that published the first search for anomalous single-photons, a possible explanation of the MiniBooNE anomaly, and something I had also explored from the theoretical side during my PhD. Since then I have led the oscillations working group to further explore what MicroBooNE can tell us about sterile neutrinos, anomalies and more.

I am currently an Oppenheimer Fellow at Los Alamos National Laboratory in New Mexico, where my research remains primarily focused on short-baseline neutrino experiments such as MicroBooNE, SBND and ICARUS. Significant research is focused on maximizing what these Liquid argon detectors can achieve when it comes to rare and exotic "Beyond the Standard Model" searches. I will shortly be joining Columbia University as a Assistant Professor, where I plan to further push this research to improve our detector technology for future neutrinos experiments such as DUNE.

Kirill Kanshin _ ESR INFN Padua.

I used to work on non-linear effective field theories for Higgs sector and beyond the Standard Model extensions with a heavy scalar particle.

After finishing my PhD, I moved to New York, USA, and have worked as a Data Scientist and Machine Learning Engineer ever since. I worked on an algorithmic trading platform for cryptocurrencies at a startup I co-founded, used large language models to measure the sentiment of financial corporate filings at a major US financial asset management company, and created a Computer Vision algorithm for garage sorting at a robotics startup. For the last two years, I have been working as a Machine Learning Engineer at Meta.

Currently, I am the Tech Lead of the AR Motion ML team at Meta. My team is responsible for developing, deploying, and maintaining Machine Learning algorithms for current and future augmented reality devices such as smart glasses and wrist devices. We work with a wide range of sensor data to build algorithms that understand users' physical activity in real-time, which helps to improve user experience and provide contextual suggestions.

Ilaria Brivio _ ESR UAM.

I was a PhD student at the UAM node, under Belen's supervision. I started in fall 2012 and my thesis was about identifying phenomenological signatures of a non-linear realization of electroweak symmetry breaking using Effective field Theories, namely comparing LHC signals expected in SMEFT and HEFT.

After the PhD in Invisibles, I was a postdoc in Copenhagen (2016-19) and in Heidelberg (2019-22). In summer 2022 I moved to the university of Zurich with an SNF grant and at the end of 2022 I started a tenure track position at the University of Bologna.

I am broadly interested in phenomenological applications of EFTs for new physics searches at LHC. After gaining some experience computing predictions and performing global analyses in SMEFT, I am now back to addressing questions about the HEFT / SMEFT interplay, tackling it with new tools that involve geometry, on-shell methods and modern UV-EFT matching techniques. I am also interested in Axion-Like-Particles and in exploring their potential signatures at colliders.

Michele Lucente _ ESR CNRS.

I did my PhD working on testable low-scale seesaw mechanisms to account for the observational problems of the Standard Model: neutrino masses and flavour mixing, dark matter and baryogenesis.

After my PhD within the Invisibles network, I worked as postdoc at UCLouvain (Belgium) with a Marie Curie fellowship and at RWTH Aachen (Germany) with an Humboldt fellowship. I am currently researcher at the University of Bologna, on leave for two years at Fermilab (USA) with a Global Marie Curie Fellowship.

I am currently working on low-scale dark sector models and their connections with neutrino physics and stochastic gravitational waves, on global analysis of neutrino data and on the search for dark sectors at beam dump experiments.

Valentina De Romeri _ ESR CNRS (LPC of Clermont-Ferrand)

During my two-year appointment as a senior ESR at the LPC of Clermont-Ferrand (France) I focused on the impact of sterile neutrinos on a vast array of lepton flavour-violating and lepton number-violating observables.

- Undergrads from the University of Torino (Italy)
- 2010-2013: PhD from the University of Valencia (Spain) in co-tutorship with the University of Torino (Italy)
- 2013-2015: senior ESR within INVISIBLES at LPC Clermont-Ferrand (France)
- 2015-2016: postdoc at IFT UAM/CSIC Madrid (Spain).
- since 2017 at IFIC CSIC/UV Valencia (Spain) with different positions:
    - 2018-2020: Juan de la Cierva-Incorporación
    - 2020-2022: PI of a SEJIGENT grant funded by Generalitat Valenciana
    - 2021-2022: "Attracció de Talent-2019" program of the Universitat de València
    - since 2023: PI of a CIDEGENT grant funded by Generalitat Valenciana
    - since 2024: PI of a Consolidación grant funded by AEI

I am working on a multidisciplinary research line in the field of astroparticle physics, at the intersection between neutrino and dark matter phenomenology. I am particularly interested in the interplay between dark matter and neutrino experiments as tools to search for physics beyond the Standard Model.

A few recent research axes I have been focusing on are:

- coherent elastic neutrino-nucleus scattering

- neutrino signals at dark matter direct detection experiments

- evaporation signatures of primordial black holes

Daniel Mayani _ ESR UZH.

I worked in the search for Dark Matter within the XENON collaboration under the supervision of Prof. Dr. Laura Baudis at the University of Zurich. My main fields of research were the analysis of the electromagnetic background of the XENON100 experiment and the development of the photomultiplier tube arrays for the XENON1T detector.

After the PhD, I started to work at DECTRIS Ltd, a Swiss company that develops and manufactures advanced Hybrid Pixel Detectors for scientific and industrial applications. My first role at the company was Field System Engineer, providing global service and commissioning in laboratories and synchrotrons around the World. After that I continued to work as Product Engineer for the company's flagship system, the EIGER2 detector. And I currently work as Technical Product Manager, still at the company DECTRIS.

As Technical Product Manager for the company DECTRIS, I'm in charge of managing the product lifecycle of the Hybrid Pixel Detector portfolio for X-ray applications. I make sure that the quality of our products is maintained and that the needs and requirements of our customers continue to be met.

Aaron Vincent _ ESR UVEG.

I was a postdoc ESR at IFIC in Valencia in 2012-2014, where I worked mainly on neutrinos, dark matter and cosmology, as well as some work on cosmic rays and 21 cm cosmology. Special shout out to Olga Mena, who was just amazing to work with.

I was briefly a postdoc at IPPP (Durham), then a Junior Research Fellow at Imperial. Was hired as faculty at Queen's University in Canada in 2018, where I work between the astrophysics and particle astro groups. As of July 1st I was promoted to Associate Professor with tenure!

I'm currently working on a lot of different aspects of astroparticle physics, mainly to do with the impact of various dark matter models on stars, but also high energy neutrino physics & astronomy, cosmic rays, other dark matter detection methods, and some cosmology.

Giorgio Arcadi _ ESR UGOE.

I have worked with the PI of the node, prof. Laura Covi, and her PhD student (outside the network) on a framework with decaying Dark Matter produced by freeze-in from the decay of a Beyond the Standard Model Mediator detectable at LHC via displaced signatures or a detector stable particle. Always with prof. Covi I have worked on a model for baryogenesis from decay of WIMP-like metastable particle. In the last part of my ESR period I have started collaborations with Asmaa Abada and Yann Mambrini, from LPT Orsay (a node of the Network as well), which I have joined afterwards.

After the ESR I have done a 2-year postdoc at LPT Orsay and then a 2.5-year postdoc at Max Planck Institute for Nuclear Physics (MPIK) Heidelberg (Germany). After this I have been until August 2021 Assistant Professor non-tenure Track at the University of Rome III (Italy). Since September 2021 I am assistant professor tenure-track at the University of Messina (Italy). I am expected to move, at the same university, to the role of Associate Professor in September 2024.

I am doing research activity on Dark Matter Phenomenology and, on a broader perspective, Physics of the Early Universe. Furthermore, I teach course at the level of both bachelor's and master's degree level.

Pedro A. Machado _ ESR UAM.

In Madrid, I worked on composite Higgs scenarios and EFTs, as well as neutrino phenomenology.

After the postdoc in Madrid, I came to Fermilab for my second postdoc. A year later they hired me as faculty (2017) in the theory group. I was lucky to get some good funding (DOE early career award). I got my tenure in 2021.

Here I am focusing mostly on neutrino physics and on what neutrino experiments can do for BSM physics at large, from atmospheric neutrinos to fuzzy dark matter and dark photon searches. I am working very close to experiments (I joined SBND and even did shifts!).

Ignacio Miguel Hierro _ ESR INFN.

During my time as a member of Invisibles I did my PhD at the University of Padova, working with Stefano Rigolin doing research on non-linear lagrangians for composite Higgs models, as well as models of BSM physics with an extended scalar sector.

In 2017 I came back to Spain and I didn't pursue an academic career, but I started working as a backend developer in Sopra Steria, working off-shore for French clients.

Since then I've taken up the role of scrum master for our team where our current client is a French insurance company, having also some management responsibilities.

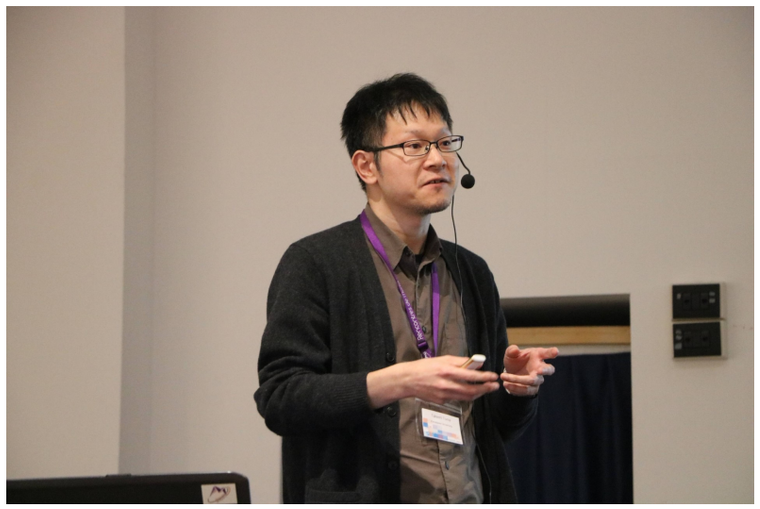
Marija Kekic _ ESR UVEG.

During the PhD I was mostly focused on the phenomenology of the minimal extensions of the SM that can explain neutrino masses and are potentially testable in the next generation experiments (low-scale Seesaw Models).

After the PhD I spent ~4 years within the NEXT experiment, where I was mostly doing analysis and software development, and leading deep learning effort for event classification. Afterwards I transitioned to industry, first in a computer vision startup and now in a pharmaceutical company.

Currently I am in AstraZeneca where I work on applying different machine learning algorithms to improve existing drug development pipelines or to discover new features in the data, for example. image segmentation, time series forecasting, feature selection etc.

Takashi Toma _ ESR Durham.



Research position at Durham University (2012-2014).

After continuing several postdocs at LPT Orsay (it is named IJCLab now), TUM, Kyoto U. and McGill U., I got a position at Kanazawa U. in Japan.I was initially hired as Assistant Professor, and I promoted to Associate Professor very recently.

I'm still working on phenomenology of dark matter and neutrinos. In particular, I'm exploring exotic dark matter models and its phenomenological implications.

In addition, I'm teaching all the undergraduate students at the University very fundamental physics.

Ninetta Saviano _ ESR Durham.

During my ESR in Durham I worked on "Phenomenology of standard and non-standard neutrino physics in cosmological and astrophysical environments”

I got my Phd in Hamburg, the first post doc in Durham (IPPP) , Invisible network, second post doc in Mainz (THEP), third post doc in INFN Naples, one year in the center of advanced studies "Scuola Superiore Merdionale" and finally permanent position as researcher in INFN of Naples and I am also lecturer in the Scuola Superiore Meridionale.

I am working on different aspects of theoretical astroparticle physics and phenomenology : neutrinos in cosmology and from Supernova, High Energy neutrinos from HE astrophysical environments, in connection also on Dark Matter, Primordial Black Holes and Gravitational Waves.

Johannes Bergström _ ESR UB.

In the network I was working on statistical analyses, especially Baysian, in neutrino physics.

After that I went to the UK to work for a software company, developing a deep learning toolbox (mostly computer vision)

Then moved to finance to do machine learning. In the beginning mostly time-series models, forecasting and that kind of stuff. Now of course I'm also doing LLMs, applying them to various financial documents and integrating into our platform.

Peter Barrow _ ESR UZH.

In the network I was working in the University of Zurich for the Xenon100 and Xenon1T experiments in direct dark matter detection, notably on the search for bosonic super-WIMPs.

My work trajectory since then has been:

- **Data scientist at Credit suisse in Financial Crime Compliance**
- **Lead data scientist at Swiss Re in Customer epxerience analytics**
- **Product Owner/Team Lead at Swiss Re in IT**

I am currently working as a team lead within IT. My work consists of collaborating with data scientists and engineers to solve data problems within the IT space. The main project in this space is the prediction of application failurers through the analysis of log messages.

Elusives European ITN project (H2020-MSCA-ITN-2015//674896-ELUSIVES, April 2016-March 2020)

elusives
neutrinos, dark matter & dark energy physics

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medialab	Sissa Medialab MEDIALAB *Enrico Balli* http://medialab.sissa.it/...
phpdocx	phpdocx https://www.phpdocx.com
EL PAÍS	El País *Patricia Fernández de Lis* http://www.elpais.com

Arsenii Titov _ ESR DURHAM.

I was a PhD student in theoretical particle physics at SISSA in Trieste, working on discrete flavour symmetries and neutrino mixing sum rules.

I joined the Durham node of the ITN Elusives at the IPPP, Durham University, in 2017.

After two years in the UK, I had one-year postdoctoral stay at the University of Padua.

In 2020, I joined the IFIC and the University of Valencia as a senior postdoctoral researcher.

Since November 2022, I hold a postdoctoral position at the University of Pisa.

My current research focuses on:

(i) the role of modular invariance in particle physics and cosmology;

(ii) phenomenology of effective field theories;

(iii) tests of quantum entanglement and Bell inequalities violation at colliders.

Olcyr Sumensari_ ESR INFN.

I was hired as an ESR in the INFN Sezione di Padua where I spent 2.5 years working with Stefano Rigolin, Ferruccio Feruglio and Paride Paradisi (from 2017 to early 2022). During this period, my main research line was the phenomenology of scenarios beyond the SM in the flavor sector using effective field theories (SMEFT and ALP EFT).

After Padua, I move to the University of Zurich to continue as a PostDoc in flavor physics in the group of Gino Isidori (from 2020 to 2021). After one year, I was hired as a permanent researcher at CNRS in the "Laboratoire de Physique des 2 infinis Irène Joliot-Curie" (IJCLab, Orsay). In particular, I had the pleasure of being one of the local organizers of the Invisibles School and Workshop '22 in Orsay after being part of the network as an ESR.

My main interests are the indirect searches of New Physics (NP) in the precision frontier, as they have the potential to probe energy scale well beyond the reach of direct searches at colliders. I rely on my knowledge of EFTs to provide theoretical support to the experimental searches, proposing observables that are experimentally accessible and sensitive to NP effects, while being only mildly affected by hadronic uncertainties. Recently, I have also worked on the high-energy tails of LHC processes that are efficient indirect probes of EFTs.

Samuel Witte _ ESR UVEG.

I joined the network in the summer of 2017 as a postdoc in Valencia, and I was working on the astrophysical and cosmological implications of dark matter.

I moved in 2020 to the GRAPPA Institute at the University of Amsterdam, where I was a postdoc until January 2023. I had a short stint as a Ramon y Cajal fellow at the ICCUB in the beginning of 2023, before receiving a Royal Society University Research Fellowship with the University of Oxford – I have been working there since October 2023.

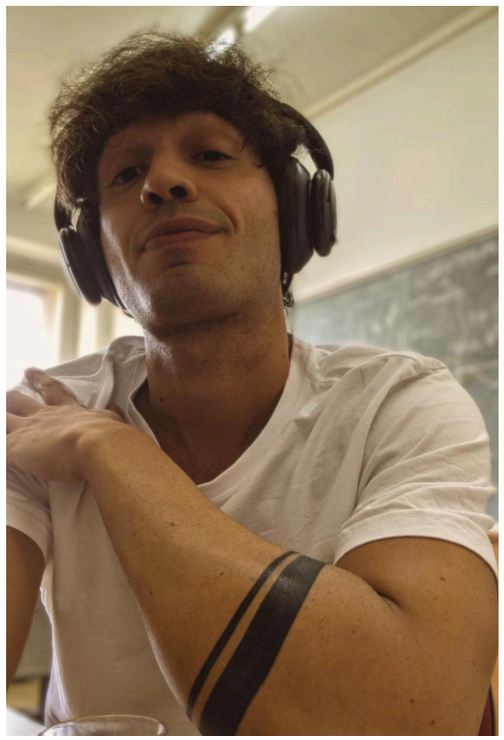
I am still working largely on the astrophysical implications of new fundamental physics, with a particular focus on the behavior of axions in extreme astrophysical environments (near neutron stars and black holes).

Edoardo Vitagliano _ ESR MPG.

During my PhD at the Max Planck Institute for Physics (Munich) I have worked with my supervisor Georg Raffelt and other collaborators on theoretical astroparticle physics, with a focus on neutrino and multimessenger astronomy, as well as light dark matter (e.g. axion) direct and indirect detection.

I moved to the Theory of Elementary Particles, Astroparticle Physics, and Phenomenology group of the University of California, Los Angeles, where I spent three years (2019-2022) as a Research Scholar. Meanwhile, I have spent visiting periods at the Niels Bohr Institute (Copenhagen) and the NYU. Finally, I have been a postdoc for one year (2022-2023) at the Hebrew University of Jerusalem, before being hired as assistant professor at the University of Padua.

I am currently working on feebly interacting particles (FIPs), such as sterile neutrinos, axions, millicharged particles, and dark photons. These particles can often solve open problems in cosmology and particle physics simultaneously. I am looking for new ideas to detect FIPs through indirect and direct signals, and with novel detection schemes. Other topics include primordial black holes, astrophysical transients, neutrino astronomy, and gravitational waves.



Andrea Caputo _ ESR UVEG.

After my PhD in Valencia, I proceeded a joint postdoc at Tel Aviv University and Weizmann, where I was also awarded and Individual Marie Curie Fellowship. After two years in Israel, I moved to CERN Theory Division in Geneva as a Senior Fellow. Last year I got awarded an ERC Starting Grant, and I will start a new position as Associate Professor (with tenure) in Rome, at Sapienza University, next November.

I started my PhD working on collider phenomenology of heavy neutral leptons and later on – also thanks to amazing Elusives Secondments – I was able to start working on dark matter direct and indirect detection, which is my current main focus.

Xabier Marcano_ ESR CNRS.

I worked within the group of Asmaa Abada on massive neutrino phenomenology and model building.

I obtained my PhD at UAM and IFT under the supervision of María José Herrero in 2017. Then I was hired by Elusives as ESR to join the group of Asmaa Abada in Orsay, before being awarded in 2019 with a von Humboldt Postdoctoral Fellowship to join Alejandro Ibarra's group at TUM. Now I am back at the UAM and IFT as MSCA Individual Fellow in the group of Enrique Fernández-Martínez and Luca Merlo.

My research is focused on BSM phenomenology, mostly on sterile neutrinos/HNLs, covering their different mass regimes. This involves several experiments from low-energy precision experiments to high-energy colliders. More recently, I am expanding my expertise towards EFTs, dark matter scenarios and cosmology. I am also very involved in teaching, mentoring and outreach activities.

Elena Perdomo _ ESR SOTON.

I worked on: "Flavour from the grand unification scale to the electroweak scale"

After the PhD, I did a Yoga Teacher Training and started teaching Yoga during covid. Since then, I have created my own Yoga business with classes, workshops and retreats online and in person around the world.

As the owner of my own business, right now I am working on understanding better marketing, sales, leading my Instagram account, how to improve my webpage for the members, etc. Apart from that I keep both teaching and learning about flexibility, strength and balance.

Julia Gehrlein _ ESR UAM.

I was hired as a junior early career researcher at UAM to work on neutrino physics phenomenology.

After getting my PhD at UAM I was a postdoc in the High Energy Theory group at Brookhaven National Laboratory. Then I accepted a tenure track faculty position at Colorado State University which I delayed for one year to work as a postdoc in the theory department at CERN. Currently I'm an assistant professor at Colorado State University.

I continue to work on several aspects of neutrino physics theory, ranging from neutrino oscillations to neutrino scattering phenomenology, neutrino mass and mixing model building and the connections of neutrinos to other open problems of the Standard Model. Furthermore, I supervise and mentor several students in my research group.

Julia Stadler _ ESR UDUR.

I investigated DM interactions with standard-model radiation from its impact on cosmological observables, in particular the CMB and linear matter perturbations.

After my PhD in Durham with the Elusives network, I did a postoc at the Max Planck Institute for Extraterrestrial Physics working in the Group of Reinhard Genzel. Currently I am a postoc at the Max Planck Institute for Astrophysics in the group of Eiichiro Komatsu.

My research focuses on optimally extracting cosmological information from galaxy survey by forward-modeling the cosmic matter and galaxy density at the field-level. This technique can potentially deliver significantly tighter constraints on cosmological parameters. I applied an similar analysis approach to reconstruct images from near-IR interferometric observations of the Galactic Center to discover a new star orbiting the Galactic Center black hole.

Rupert Coy _ ESR CNRS

During my Elusives PhD, I worked on a range of topics, including axions, neutrino mass models and lepton flavour physics.

I went to ULB, Brussels for a 3-year postdoc, where I worked mainly on neutrino and dark matter physics, then returned to Sydney, where I joined Boston Consulting Group.

I work as a management consultant at Boston Consulting Group, which involves helping large companies and government with strategic problems. Cases I've been on include supporting one of the world's biggest mining companies to prioritise strategies for the future (e.g., automation, electrification) and helping a national Indigenous organisation develop policy proposals for the Federal government.

Álvaro Hernández _ ESR KIT.

During my time at the Network I worked on the search of new physics through neutrino oscillation experiments.

After my PhD (September 2016 - December 2019), I started a career as a data scientist. During 2020 I took some courses and bootcamps in the field. In March 2021 I joined a neuroscience laboratory where I contributed to studies in the field of cognitive neuroscience with applications in security assessment and emotion evaluation. In March 2022 I moved to a start-up in the field of remote sensing, in which I am currently working.

In my current position I am leading the development and maintenance of the company's data pipeline. Additionally, I am conducting scientific-technical tasks during the postprocessing phase of DInSAR data, with a primary focus on temporal series analysis and visualization.

Nuno Rosa _ ESR UB.

I was working with Physics Beyond Standard Model, focused on the flavour puzzle of quarks and neutrinos, where I tried to use the existence of certain flavour symmetries to explain the size of quark masses and the current values of CP Violation.

During the PhD program I have worked in the space of Effective Field Theories, trying to use the current data from LHC to constrain the Lagrangian operators that describe interactions that may unveil high energy effects of New Physics. Since then I moved to an industry position of Data Scientist, working in several projects: cybersecurity, energy demand forecasting and financial fraud detection in one of the major payment processors in Europe.

I am leading a team of data scientists that creates Machine Learning models to prevent fraud in real time financial transactions, where the biggest challenge is to keep a very low rate of fraud with the quality standards of user experience. Simultaneously, I am also an invited professor at the University Nova Lisbon Information Management School, where I am responsible for the course of Machine Learning Operations.

Rachel Houtz _ ESR UAM.

I worked on heavy axion model building, flavor constraints on axion models, and axion gravitational wave phenomenology.

I worked at the IFT in Madrid as an ESR with Elusives.I then did a three-year postdoc at the Institute for Particle Physics Phenomenology (IPPP) at Durham University.

Next, I moved to my current tenure-track faculty position at the University of Florida.

My research program broadly pursues Beyond the Standard Model (BSM) model building and phenomenology.

I am currently working on axion and dark matter phenomenology, baryogenesis model building, and gravitational wave phenomenology. I am also working on developing numerical probes for strongly interacting quantum field theories.

Josu Hernández-García _ ESR INFN Trieste node.

My work involved researching on Physics beyond the Standard Model, and disseminating our results in conferences, seminars and outreach.

After completing my PhD at the IFT of Madrid (Spain) in 2017, I was hired by the Elusives ITN to conduct research at the INFN node of Trieste (Italy) for two years. Subsequently, I began a 4-year postdoc position at the ELTE University of Budapest (Hungary). Currently, I am a postdoctoral fellow at the IFIC of Valencia (Spain)

I am currently working as a researcher; addressing several of the open problems of the Standard Model. In particular, I am interested in developing and exploring the phenomenology of extensions of the Standard Model that could explain the origin of neutrino masses and mixings.

Gonzalo Alonso _ ESR UHEI.

I did my PhD in Heidelberg on the phenomenology of axions and other light dark matter candidates.

I moved on to do a postdoc at McGill and I am now at the University of Toronto.

I spend most of my time playing with a 2 year old and occasionally think about the cosmology and astrophysics of non minimal dark matter models.

Bruno Martin _ ESR UAM.

At Elusives, I carried out communication of the network's research while I trained with professional science communicators and journalists at physics centres with large press offices like Fermilab and CERN.

After Elusives, I worked as a freelance journalist and science communicator for a few years, covering science stories for news media like El País and TV3 while also creating science content for private organisations and non-profits like OpenMind, Barça Innovation Hub or WWF.

I currently work full-time at Scienseed, a marketing and communication agency which specialises in the dissemination of scientific and expert knowledge. I am in charge of strategy, media relations and content creation for a range of clients including research centres, charitable foundations and private companies. I also teach courses on science writing and science outreach for PhD students and postdocs. The experience I gained at Elusives was invaluable for me to become a rounded science communicator with a grasp for researchers' real-life

Fiona Kirk _ ESR UGOE.

PhD in flavour physics at the Paul Scherrer Institute (PSI) / University of Zurich, now postdoc at Physikalisch-Technische Bundesanstalt (PTB) (the German National Metrology Insitute) in Braunschweig & Leibniz University Hannover, spent a few months at CERN.

I am searching for new ways to use: effective field theories to connect high energy theory to the experimental scale(s), (approximate) symmetries (e.g. charged lepton flavour or Lorentz symmetry) to suppress SM backgrounds and quantum technologies (low energy precision experiments, quantum sensing, in particular atomic spectroscopy, quantum simulation) to find new physics (be it beyond or within the SM).

HIDDeN ITN project (H2020-MSCA-ITN-2019/860881
(October 2020 – September 2024)

HIDDeN
Hunting Invisibles: Dark sectors, Dark matter and Neutrinos

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nature	Nature Int. Journal of Science NATURE *Federico Levi* https://www.nature.com/
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Jaime Hoefken ESR _ UNIBO.

I was working on neutrino physics and cosmic rays in the Pontificia Universidad Católica del Perú with Prof. Alberto Gago.

I started working on dark sectors and neutrino physics, particularly for explaining the MiniBooNE low energy excess.

After that I started moving towards astroparticle physics, working in white dwarf cooling, capture rate of particles compact objects, cosmological first order phase transitions, etc. I'm still working on that.

Patrick Bolton _ ESR SISSA/INFN Trieste.

After completing my PhD at University College London in 2021, I was hired by the HIDDeN network at SISSA/INFN Trieste. My research at UCL focused on the effects of non-standard neutrino interactions in neutrino oscillations, neutrinoless double beta decay, and long-range forces mediated by neutrinos. Following my tenure with HIDDeN, I am now a postdoctoral researcher at the Jožef Stefan Institute in Ljubljana.

I'm currently working on the signatures of heavy degrees of freedom coupled either to the neutrinos of the Standard Model or right-handed neutrinos at future colliders and beam dump experiments, taking both a model-independent approach in the SM effective field theory and a model-specific approach, for example, lepton number violating collider signatures of the Type-II seesaw mechanism. In parallel to this, I'm also interested in the signatures of new light degrees of freedom in flavour observables such as B decays.

Gioacchino Piazza _ ESR CNRS.

During my PhD at the IJCLab pole of the network, I focused on constructing minimal models for neutrino mass generation, investigating new physics probes using flavor observables, and studying axion dark matter production along with its cosmological implications.

I completed my Ph.D at IJCLab in Orsay and currently I am a postdoc at the University of Zurich.

Currently I’m working on Kaon Physics and flavor probes of axions and axion-like particles.

Francesco Costa _ ESR UGOE.

During my time as HIDDeN ESR I researched new directions for detections of feebly interacting massive particles.

I am in the last year of my Ph.D. and studying the Boltzmann-suppressed production of FIMPs when the reheating temperature is at the GeV scale. In this scenario, FIMPs are already and will be further tested at direct detection and collider experiments. I will graduate in the next months and start my postdoc in October.

Mario Fernández _ ESR SOTON.

During my time hired by the network, I proposed new physics models to explain the origin of the flavour structure of the Standard Model and/or to explain experimental anomalies hinted by flavour observables, and I also studied the general phenomenology of these models.

Before joining the network, I did my BSc in Granada and my MSc in Valencia, where my first steps into research consisted in studying neutrino oscillations through the Earth and through the primordial cosmic plasma. Then I joined the SOTON node of HIDDeN, where I did my PhD on model building to explain the flavour structure of the Standard Model and/or to explain experimental anomalies hinted by flavour observables.

After finishing my PhD in SOTON, I am doing a postdoc in Glasgow where I continue working on flavour model building, and I am also exploring the possible cosmological signals of flavour models.

Now I am mostly working on model building to explain the origin of the flavour structure of the Standard Model, and I am also interested in the phenomenology of such models. I am also working in early Universe cosmology, in particular I am exploring the possible cosmological signals of flavour models, and studying the phenomenon of neutrino oscillations in the early Universe when primordial lepton asymmetries are present.

Xavier Ponce _ ESR INFN.

While being at Hidden I've studied the phenomenology of ALPs and axions in relation to flavour physics and neutrinos, but according to Stefano Rigolin I have just been travelling :)

I am still in Hidden, but during this time I have been multiple times at IFT in Madrid and IPMU Tokyo. Next fall, I will start a postdoc at Basel University with Prof. Admir Greljo.

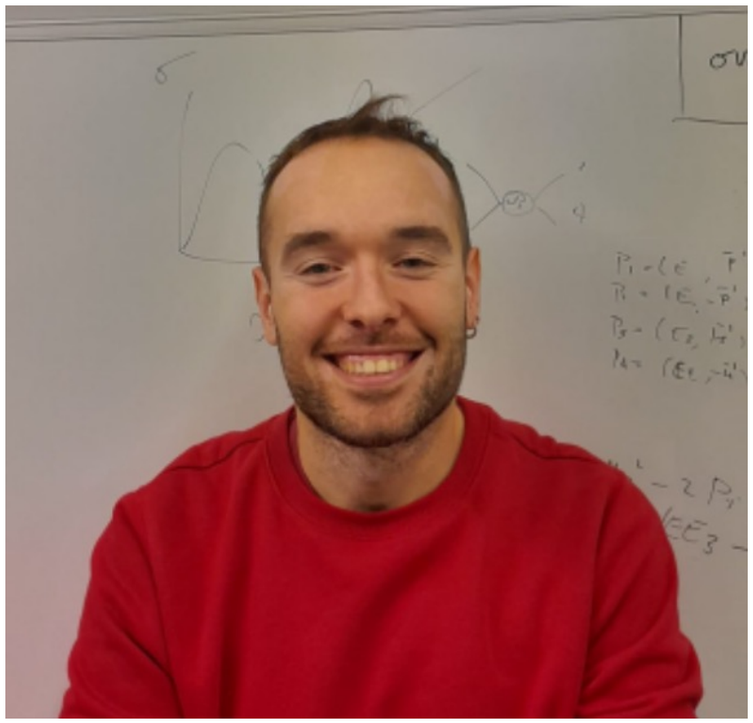
Currently my main work is to finish my PhD thesis on the topics mentioned above. And in the meantime, visiting Tokyo and surroundings (see picture).

María Ramos _ ESR UAM.

When I was hired by HIDDeN, my research was dedicated to the ALP EFT and non-standard QCD axions beyond the canonical band.

I did my PhD in the University of Granada and LIP (Portugal). After my postdoc at the UAM/IFT (Madrid), I will start my fellowship at CERN.

I am currently investigating an analytical treatment for axion dark matter in the presence of mass mixing, and UV constructions with an extra dimensional axion. On another front, I am studying the reach of future colliders to different effective operators in the Higgs sector.



Giacomo Landini _ ESR UVEG.

I did my Ph.D. at the University of Pisa, where I worked on Dark Matter models in strongly interacting sectors as well as axion model-building.

I completed my post-doc at IFIC, Valencia within the Hidden network. I am currently continuing my post-doc at IFIC funded by a Valencian regional grant. I work on Dark Matter and axion model-building with connections with neutrino physics and baryogenesis.

Virgile Dandoy _ ESR KIT.

During the PhD I have mainly worked on the astrophysical and cosmological signatures of axions and PBHs. I have also worked on gravitational waves and the potential signal observed in PTAs

I am now working as a post doc at the University of Brussel (ULB). My main research focus is still the astrophysical signatures of axions and exotic production of gravitational waves.

Salvador Rosauro _ ESR CNRS.

I did neutrino phenomenology and BSM physics and its application to cosmology when hired by the network.

I did my PhD in the IFT in Madrid and then did the postdoc in the HIDDeN network within the CNRS node in Orsay, which was extended by a year outside the network.

I am currently still interested in neutrino phenomenology and its connections to dark matter and the origin of the BAU, but I am also working now on flavor physics in low-energy observables, namely hadron decays.

Federica Pompa ESR _ UVEG.

My research within the network was mainly focused on neutrino phenomenology, with the goal of study the potential of next-generation neutrino observatories in constraining neutrinos properties such as their mass and lifetime, in order to provide a global picture of current and future landscape.

I explored the future sensitivity in constraining neutrino mass with Supernovae, via time-of-flight measurements and looking at the model-independent neutronization peak, and through neutrino-less double-beta decay searches, whose future setups allow to entirely cross the inverted mass ordering region of neutrino masses and, also, to discriminate among different nuclear models describing the transition.

I am currently working in collaboration with experimentalists from the NEXT collaboration, studying the potential of the future NEXT experiment in discriminating among different possible lepton-number-violating mechanisms leading to Majorana neutrino mass via neutrino-less double-beta decay.

Arturo de Giorgi _ ESR UAM.

At the time I had just finished a Master in Physics at the LMU Munich. I was working on phenomenology of Dark Matter and Extra-Dimensions.

I completed my Bachelor's degree at the University of Padua, my Master's at LMU Munich and my Master's thesis at MPP Munich. After some months of studies on ML applications to phase transitions at ETH Zurich, I started the PhD within the HIDDeN network at the UAM/IFT node in Madrid. In October I will start my first PostDoc at Durham IPPP.

My current work explores the possible interplay between axion-like particles (ALPs) and neutrino physics, focusing on Majoron and Heavy-Neutral Lepton (HNL) seesaw models and their phenomenology.

Joao Paulo Pinheiro_ ESR UB.

During my time in the network my research was focused on particle physics, particularly in the areas of solar neutrinos, non-standard interactions (NSIs), and the Borexino experiment.

My work include significant contributions to the detection and study of solar neutrinos and their oscillations using the Borexino detector. Additionally, I investigate NSIs, seeking deviations from Standard Model predictions that could indicate new physics.

I am particularly interested in exploring any aspect of new physics in the leptonic sector.

Valentina Montoya_ ESR UHEI.

I was part of the HiDDeN network while startingmy PhD studies at the University of Heidelberg.

Before joining HiDDeN, I completed my B.Sc. and M.Sc. at the University of Antioquia in Colombia. My main research has always focused on dark matter phenomenology. I started exploring simple extensions of the standard model for WIMPs and FIMPs. In my PhD, I have mainly explored the phenomenology of extremely small local dark matter structures for WIMPs, Axions, and ALPs.

I am currently in the final stretch of my studies, writing my thesis and preparing my dissertation.

Luca Marsili _ ESR UDUR.

I was in the UDUR node of the Hidden network, and I worked on testing GUT models with gravitational waves I learned the basics of how to perform cosmological N-body simulations.

I did my Master's thesis on testing an SO(10) model with gravitational waves from cosmic strings and I got interested in gravitational waves, topological defects, and early universe cosmology. I kept working on these topics in Durham and now I am also starting to work on high-frequency gravitational waves detection and dark matter models.

Currently, I am a Ph.D student at the IFIC in Valencia!

Giuseppe Lucente _ ESR UHEI.

I am an ESR with a one-year contract at the University of Heidelberg. I am a phenomenologist, working on the interconnection between laboratory experiments and astrophysical probes of feebly interacting particles (FIPs).

I got my PhD at the University of Bari in April 2024 and I have been working at the University of Heidelberg since August 2023. In Autumn 2024 I will move to SLAC. I am an expert in astrophysical probes of FIPs and in the last year I have also started thinking about the realization of laboratory experiments to probe FIPs.

Currently I am working on several projects dealing with FIPs, stimulated also by discussions made during my secondments. For instance, I am working on the possible realization of future experiments to determine the amount of axion dark matter after a discovery, as well as constraints on axions and other FIPs produced in astrophysical objects.

Francesco Sergio OUTREACH ESR _ UDUR.

I am currently completing a HIDDeN ESR position as science outreach researcher at the Institute for Particle Physics Phenomenology, Durham University.

My aim is to improve the network between local communities and University through science-based activities and events.

After completing my MSc in Physics, I began searching for positions in science dissemination, which is my true vocation. This incredible job allows me to work alongside marvelous colleagues, preparing and running outreach initiatives both for children and students. Furthermore, this position is giving me the opportunity to visit many HIDDeN Institutes around the world, collecting meaningful relationships.

Diego Jimenez _ OUTREACH ESR UNIBO.

When I was hired, I was working on my thesis for my MSc in astrophysics at the University of Granada (Spain)

Before entering HIDDeN I worked with Dr. Giovanni Mirouh at the University of Granada on the construction of a catalogue of pulsating stars present in binary systems. Currently, as a team member of the inVISIBILI project, I study how gender stereotypes affect the interest of children aged 5-10 from Bologna on science.

The main work of the inVISIBILI project has consisted on the design of outreach events that were performed in different schools from Bologna to children aged 5 to 10, with the intention of motivating them to gain interest in sciencefrom a gender-neutral point of view. Before and after these events, children completed a questionnaire that we use to evaluate their gender perspective on science, and the impact that our events made on them regarding gender stereotypes.

Elina Merkel _ OUTREACH ESR UNIBO.

Before I started my position within HIDDeN, I studied physics at the Karlsruhe Institute of Technology in Germany and wrote my master's thesis in theoretical astroparticle physics on axion cosmology.

After my school graduation in South Siberia, Russia, I moved to Germany, where I completed my bachelor's and master's degrees in physics at the Karlsruhe Institute of Technology. After this, I moved to Bologna, Italy, where I am currently working in the group of Prof. Silvia Pascoli.

Currently, I am working on an outreach project for children aged 5 to 10 called inVISIBILI. The aims of inVISIBILI are to spark curiosity about nature's marvels, particularly focusing on the 'invisible' Universe, like Dark Matter and Neutrinos, and to mitigate the development of gender stereotypes and their impact on the learning mindset of young children by creating an inclusive and gender-neutral learning environment.