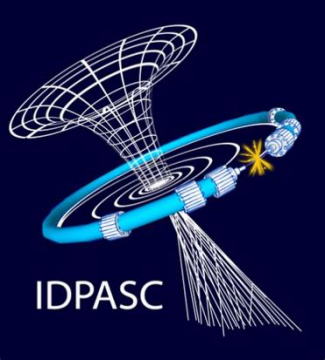




IDPASC

International Doctorate Network in Particle Physics, Astrophysics & Cosmology

Bertrand Laforge (coordinator), Nuno Castro (co-chair),
and Mario Pimenta (creator of the network)

Training the next generation of physicists across Europe and Latin America

An interdisciplinary network dedicated to educating high-level experts in fundamental physics — **its mission, its scientific scope, and the collaboration opportunities it opens for young researchers.**



15th IDPASC Summer School · Natal, Brazil · 20–29 July 2026 · IIP–UFRN, just before ICHEP 2026



What is IDPASC?

IDPASC is an interdisciplinary international network whose purpose is to create new high-level experts in Particle Physics, Astrophysics and Cosmology (PASC).

It federates universities, laboratories and doctoral schools around a shared doctoral programme, joint training activities and researcher mobility — **turning national PhD efforts into one connected European–Latin American community.**

Created by LIP (Lisbon) around 2010, IDPASC gathers its members around a common protocol, shared schools and coordinated actions for PhDs and IDPASC institutions (workshops) since then.



11

Countries

Europe & Latin America



~40

Institutions

Universities, labs & doctoral schools



6

Research domains

The full PASC spectrum



15

Summer Schools

Annual, since 2011 — hosts rotate

Mission & objectives



Interdisciplinary training

Give doctoral candidates a transversal education in fundamental physics, breaking the traditional walls between particle physics, astrophysics and cosmology.



International collaboration

Build synergies between universities and laboratories in Europe and Latin America to pool resources, infrastructures and scientific expertise.



New high-level experts

Equip young researchers with the advanced, cross-disciplinary skills needed to tackle today's hardest questions about matter and the Universe and **offer them to grow their international network (very important for academic careers).**



Mobility & shared resources

Organise researcher and student mobility, joint schools and coordinated PhD calls so that know-how flows freely across the network.



Scientific scope: the PASC spectrum

IDPASC spans the complementary domains whose open questions can no longer be answered by any single discipline alone.



Experimental Particle Physics

The building blocks of matter and their interactions — at the LHC (ATLAS, CMS) and other colliders.



Theoretical Particle Physics

Models beyond the Standard Model, symmetries and the origin of mass and CP violation.



Astroparticle Physics

Cosmic messengers — gamma rays, neutrinos, cosmic rays — and direct searches for dark matter.



Astrophysics

Extreme cosmic objects and phenomena, from neutron stars to multi-messenger sources.



Cosmology

The origin, evolution and large-scale structure of the Universe, dark energy and inflation.



General Relativity

Gravitation, gravitational waves and the geometry of spacetime.

A network across two continents

~40 institutions in 11 countries, bridging European and Latin American fundamental-physics communities.



Europe · 8 countries

- Portugal — LIP, IST, U. Lisboa, Coimbra, Porto, Algarve, Évora, MAP-Fis
- France — Sorbonne Université, Paris Cité, Paris-Saclay, Savoie Mont Blanc
- Italy — INFN/GSSI, Padova, Palermo, Bari, Genova, Siena, Trento, Udine, Salento
- Spain — IFCA, IPARCOS, Granada, Oviedo, Santiago, València
- Switzerland — CERN · Czech Republic — Inst. of Physics CAS
- Slovenia — U. Nova Gorica · Croatia — U. Rijeka



Latin America · 3 countries

- Brazil — CBPF, SPRACE (UNESP/UFABC), UFBA, UFRN
- Colombia — Universidad Industrial de Santander
- Chile — SAPHIR Millennium Institute
- Host of the 15th IDPASC School — Natal (UFRN), July 2026
- A growing axis reinforced by the EU–Latin America projects

How the network is run

A light, community-driven governance keeps the network scientific, balanced and sustainable.



Coordination

Bertrand Laforge — Sorbonne Université (since 2022)

Nuno Castro – Universidad de Minho (co-chair since 2025, will become chair this week)



Executive Board

9 members representing the countries and lead institutions. Steers the network, its calls and its activities.

*IFCA · GSSI · Rijeka · Nova Gorica · Inst. Physics CAS ·
SPRACE · Sorbonne · LIP*



Academic Council

One or two delegates per participating institution. Reviews academic matters and secondment / activity plans.

~40 institutions represented



Scientific Advisory Committee

Senior international scientists providing scientific oversight and long-term guidance.

Independent expert advice

IDPASC school Advisory Committee

Activities & training across the network

Throughout the year the network runs a rich programme of shared scientific activities — open to students and researchers of every member institution.



Annual Schools

International summer schools, hosted by a different institution each year.



Courses

Advanced doctoral courses shared and recognised across institutions.



Workshops

Focused hands-on and thematic workshops on methods and technologies.



Seminars

Regular research seminars connecting groups across the network.



Public Sessions

Outreach lectures by internationally renowned scientists, open to all.



Institutional Activities

Local events and doctoral training organised by member institutions.

Spotlight: the 15th IDPASC Summer School



Natal, Brazil — Int'l Institute of Physics, UFRN



20 – 29 July 2026 — right before ICHEP 2026



>50 students ! (The largest IDPASC school to date) !

A unique local organizers team :

Ulisses Almeida (CBPF)

Gabriela Hoff (UFRN)

Sergio Novaes (Unesp)

Farinaldo Queiroz (UFRN, ITT)

You are here. This very school is the network in action — a multidisciplinary programme of core lectures, hands-on sessions and student pitch-talks that welcomes the next generation of PASC physicists, with a strong focus on Latin-American students.

On the programme

- Physics Beyond the Standard Model
- Astroparticle Physics & Astrophysics
- Dark Matter — detection & theory
- Statistical tools & methods
- Machine Learning applications in physics
- Experimental techniques

Format: core lectures · hands-on data-analysis workshops · 5–10 min student pitch-talks · group projects & round tables.

An international team of Professors

- ✓ Ana Amélia Machado (Unicamp)
- ✓ Arman Esmaili (PUC, RJ)
- ✓ Carlos Yaguna (UPTC, Tunja)
- ✓ César Bernardes (SPRACE, NCC)
- ✓ Edmar Purcino (UFBA)
- ✓ Juri Smirnov (Liverpool U.)
- ✓ Gabriela Hoff
- ✓ Martin Makler (CBPF)
- ✓ Oscar Éboli (IF, USP)
- ✓ Raul Abramo (IF, USP)
- ✓ Renata Zukanovich Funchal (IF, USP)
- ✓ Riccardo Sturani (IFT, UNESP)
- ✓ Thiago Tomei (SPRACE, NCC)

What the network offers to young researchers



International mobility

EU programs, bilateral agreements to carry out research stays at partner labs across Europe and Latin America.



Schools & advanced training

Annual summer schools, doctoral courses and thematic workshops on cutting-edge methods and tools.



Networking

Direct contact with world experts and prestigious institutions — building the collaborations of a research career.



Grants & scholarships

Access to dedicated fundings such as PT-CERN PhD grants and project-based secondments.



Large collaborations

A natural gateway into major experiments — ATLAS, CMS, CTAO, dark-matter and cosmology projects.



Career development

Transversal skills across theory, experiment, instrumentation and data science / ML — valued well beyond academia.

PhD programme & funding

At its core, IDPASC organizes shared doctoral programme — coordinated calls, jointly supervised theses, dedicated scholarships & secondments.



Coordinated PhD Calls

Doctoral positions opened and advertised network-wide, giving students access to projects across all member institutions.



Student Theses

A shared catalogue of PhD theses — often co-supervised between institutions and countries, embedding students in international teams.



PT-CERN PhD Grants

Dedicated FCT + LIP scholarships in high-energy physics and CERN-related technologies, integrated within the IDPASC doctoral programme.

Plus Erasmus and bilateral mobility agreements (incl. an IST–Brazil programme) that let students spend research periods at partner institutions.

Building new bridges: the SMP project example

“Solving the Mass Problem in the Universe” (SMP) · Marie Skłodowska-Curie Actions — Staff Exchanges · HORIZON-MSCA

A concrete new opportunity the community is building. SMP competes to be a funded staff-exchange programme that organises research secondments between Europe, Brazil and Latin America (with Colombia and India) across the whole PASC landscape — and its governance would be embedded directly in the IDPASC network.



Funded secondments

Person-months of exchange between EU and Latin-American institutions, over 4 years.



For early-career researchers

Hands-on exposure to the full experimental & theoretical chain — the main driver of knowledge transfer.



Four domains, one project

Colliders (ATLAS/CMS), dark-matter & astroparticle, ML-on-hardware and cosmology — unprecedented in the MSCA landscape.



Intersectoral & industry

Exchanges with technology partners — detectors, embedded ML, quantum computing — with impact beyond academia.



Join the IDPASC community

A unique chance for young physicists to launch an international research career at the highest level — across Europe and Latin America.



Explore
idpasc.lip.pt



This school
indico.sprace.org.br/event/1



Contact
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