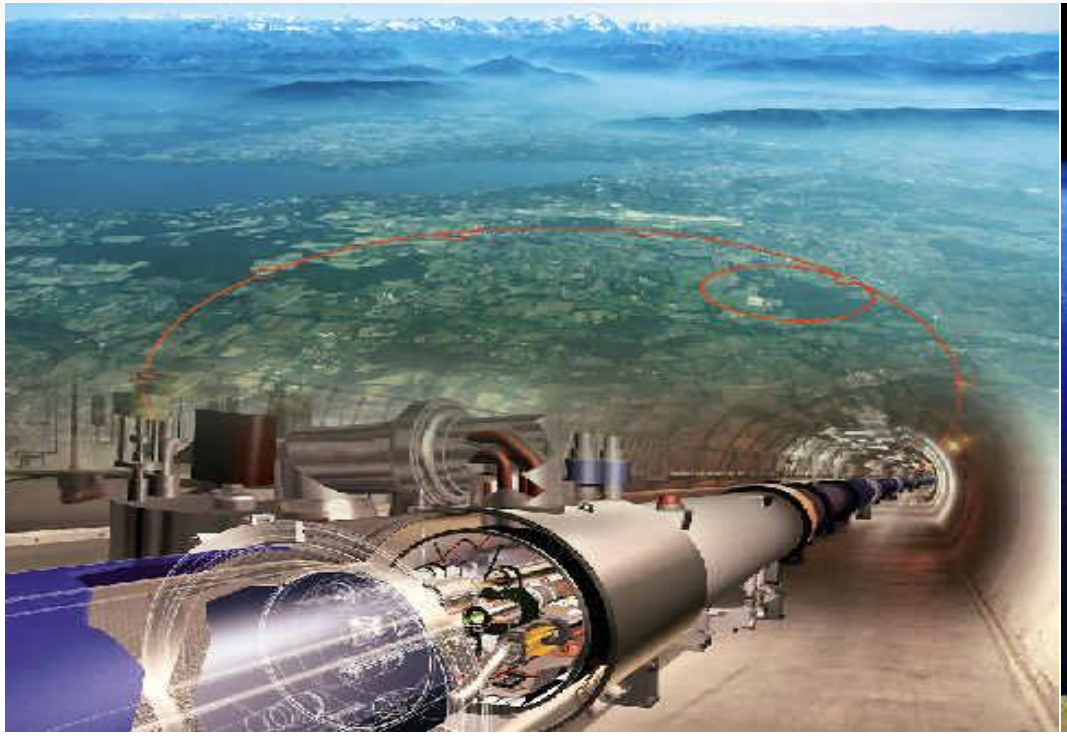
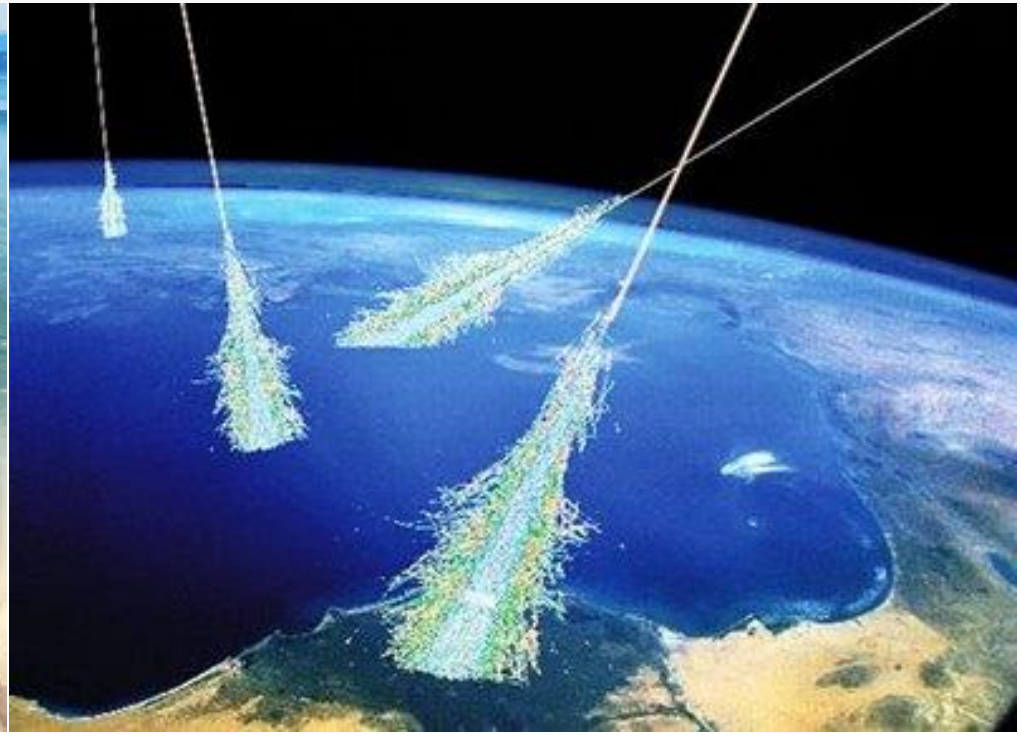
Rede Nacional de Física de Altas Energias

RENAFAE

Particle Accelerators

Ultra High-Energy Cosmic Rays





CLAF Symposium

Opportunities for Latin-American Cooperation in High-Energy Physics with CERN

Ignacio Bediaga- CBPF

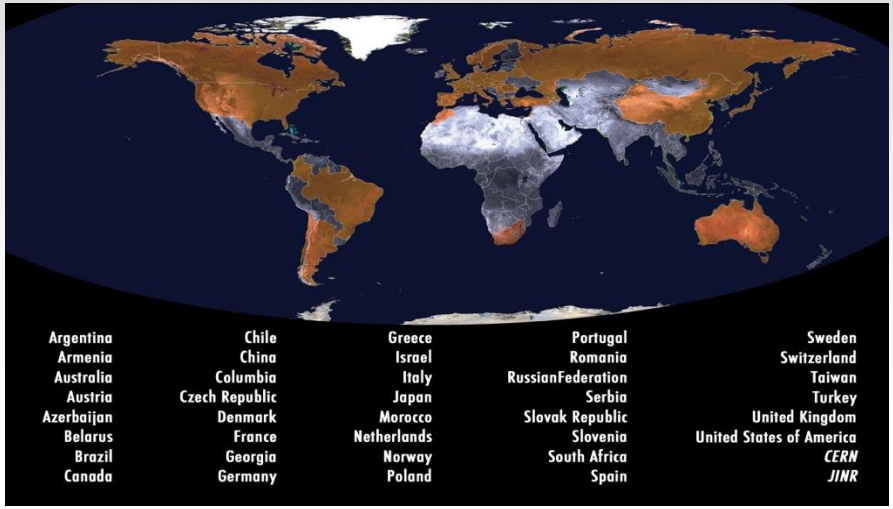
Centro Latino-Americano de Física

Institutions RENAFAE – 2025

1. CBPF – Centro Brasileiro de Pesquisas Físicas
2. CEFET - Centro Federal de Educação Tecnológica Celso Suckow da Fonseca
3. CTI - Centro de Tecnologia da Informação Renato Archer
4. IFBA - Instituto Federal da Bahia
5. IFF - Instituto Federal Fluminense
6. IFSC - Instituto Federal de Edução, Ciência e tecnologia de Santa Catarina
7. INPE - Instituto Nacional de Pesquisas Espaciais
8. ITA - Instituto Tecnológico de Aeronáutica
9. LNA - Laboratório Nacional de Astrofísica
10. PUC-RIO - Pontifica Univ. Católica
11. UDESC – Univ. do Estado de Santa Catarina
12. UEFS - Univ. Estadual de Feria de Santana
13. UEL - Univ. Estadual de Londrina
14. UERJ - Univ. do Estado do Rio de Janeiro
15. UFABC - Univ. Federal do ABC
16. UFBA - Univ. Federal da Bahia
17. UFCG - Univ. Federal de Campina Grande
18. UFES - Univ. Federal do Espírito Santo
19. UFG - Univ. Federal de Goiás
20. UFJF - Univ. Federal de Juiz de Fora
21. UFPR - Univ. Federal do Paraná
22. UFRGS - Univ. Federal do Rio Grande do Sul
23. UFRJ - Univ. Federa do Rio de Janeiro
24. UFRN - Univ. Federal do Rio Grande do Norte
25. UFSCAR - Univ. Federal de São Carlos
26. UNESP - Univ. Estadual de São Paulo
27. UNICAMP - Univ. Estadual de Campinas
28. UNIFAL - Univ. Federal de Alfenas
29. UNIFESP - Univ. Federal de São Paulo
30. UNILA - Univ. Federal da Integração Latino-Americana
31. UNIV. PISA - Univ. de Pisa
32. USP - Univ. de São Paulo
33. UTFPR - Univ. Tecnológica Federal do Paraná

International Collaborations

ATLAS: 38 países, 198 institutos, total de 3000 cientistas, engenheiros e estudantes



CMS: 47 países, 202 institutos, total de 3500 cientistas, engenheiros e estudantes

LHCb: 22 países, 100 institutos, total de 1700 cientistas, engenheiros e estudantes

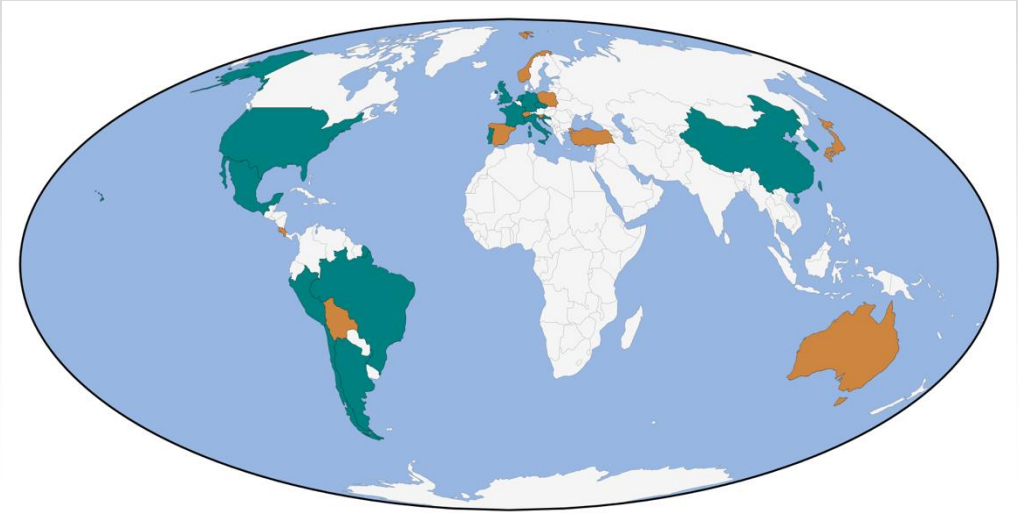
ALICE: 39 países, 174 institutos, total de 1900 cientistas, engenheiros e estudantes

ALPHA

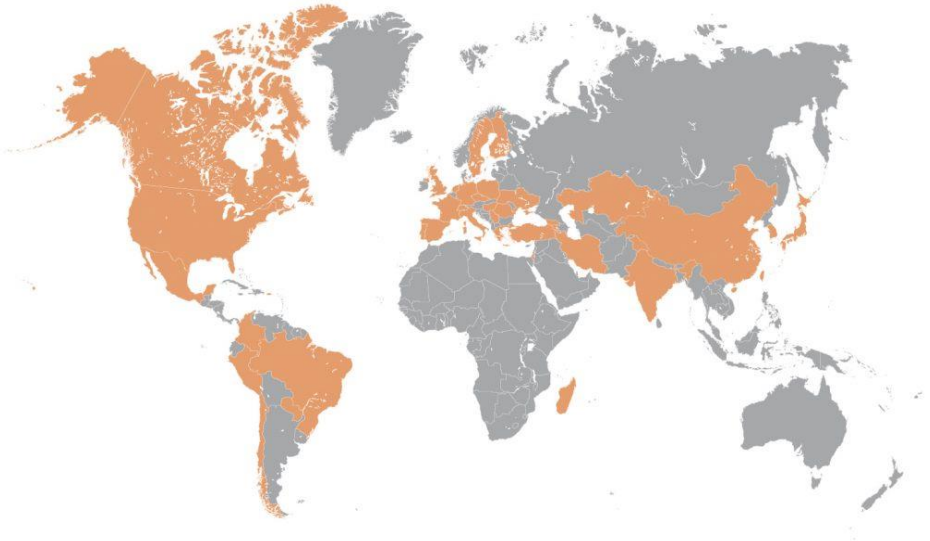
International Collaborations

Pierre Auger: 17 países, 90 institutos, total de 500 cientistas, engenheiros e estudantes

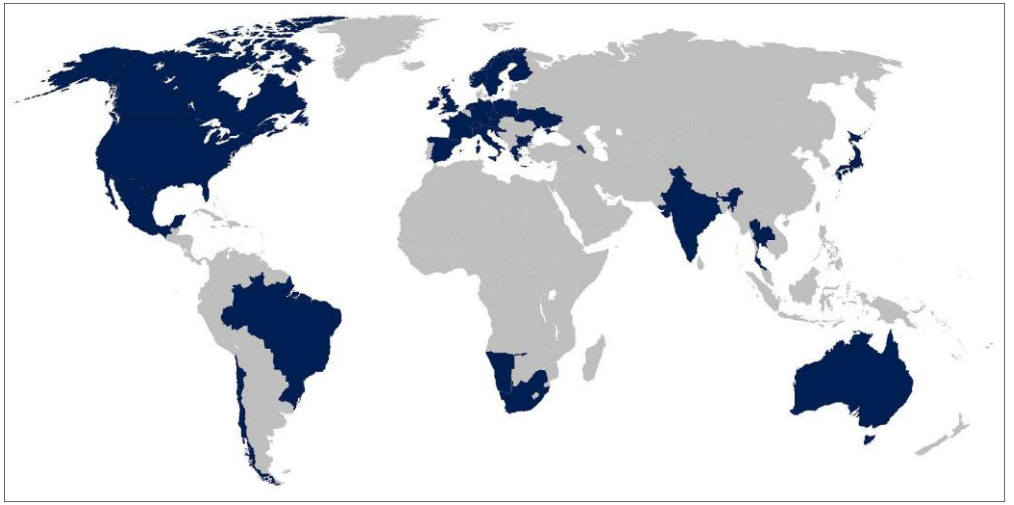
SWGO: 16 países, 90 institutos, total de cientistas, engenheiros e estudantes



DUNE: 35 países, 200 institutos, total de 1400 cientistas, engenheiros e estudantes



CTA: **25 países, 150 institutos, total de 1500 cientistas, engenheiros e estudantes**



Brazilian groups -2025

Experimento	Instituições nacionais	Docentes, Posdocs	Alunos M+D	Técnicos	Total
ALICE	4	11	13		24
ALPHA	1	3	5		8
ATLAS	5	15	23	4	42
AUGER	13	17	25		42
CMS	7	30	34	13	77
CTA	17	45	21	4	70
LHCb	3	20	17	4	41
DUNE	11	29	14		43
SWGO	4	16	4		20
Total		**186**	**156**	**25**	**367**

RENAFAE

PORTARIA N^0, DOU 29 de abril de 2025 – MISSÃO:

GOVERNO DO BRASIL
DO LADO DO POVO BRASILEIRO

Ministério da Ciência, Tecnologia e Inovação

GABINETE DA MINISTRA

I - **To promote interaction between Brazilian groups and institutions that work in international collaborations on the experimental investigation of particle properties** and their fundamental interactions, seeking to establish consensus in terms of objectives, goals, and priorities in the field in Brazil;

II - **To coordinate activities that seek effective integration and convergence in the work of the high-energy physics community**, in order to expand and optimize resources;

III - **To mediate the general demands of the high-energy physics community in Brazil with government agencies and funding agencies**, seeking more effective and rapid communication; and

IV - **To seek the mobilization of companies established in Brazil** to work on the development of instrumentation and software for international collaborations in the field.

Analise de Dados

09:00 **Search for Higgs boson pair-production in the $\mathbf{b\bar{b}\tau^+\tau^-}$ decay channel with the ATLAS detector** — *Marisilvia Donadelli*

b- and c-Jet Energy Corrections in the Higgs Decay — *Yara Do Amaral Coutinho*
Auditório Novo 1, Instituto de Física da Universidade de São Paulo 09:15 - 09:30

VBF Higgs Boson Production at CMS — *Andre Sznajder*
Auditório Novo 1, Instituto de Física da Universidade de São Paulo 09:30 - 09:45

Standard Model precision measurements in the ATLAS experiment — *Marco Lisboa Leite*
Auditório Novo 1, Instituto de Física da Universidade de São Paulo 09:45 - 10:00

10:00 **Physics with jets at LHCb** — *Murilo Santana Rangel*
Auditório Novo 1, Instituto de Física da Universidade de São Paulo 10:00 - 10:15

Central exclusive production at LHCb — *Murilo Santana Rangel*
Auditório Novo 1, Instituto de Física da Universidade de São Paulo 10:15 - 10:30

11:00 **Investigations of the photo-production of low- and high-mass systems with the CMS detector** — *Gustavo Gil Da Silveira*
Auditório Novo 1, Instituto de Física da Universidade de São Paulo 11:00 - 11:15

Research activities of the SPRACE heavy ions group — *Sandra Padula*
Auditório Novo 1, Instituto de Física da Universidade de São Paulo 11:15 - 11:30

Estudo do novo código de evolução hidrodinâmica aplicado em colisões de ions pesados — *Dr Tiago Jose Nunes da Silva*

Color reconnection effects on resonance production — *David Dobrigkeit Chinellato*
Auditório Novo 1, Instituto de Física da Universidade de São Paulo 11:45 - 12:00

12:00 **Medições de quarks pesados do HEPIC@IFUSP no experimento ALICE** — *Camila De Conti*
Auditório Novo 1, Instituto de Física da Universidade de São Paulo 12:00 - 12:15

Measuring multi-strange hadron in heavy-ion collisions at the LHC with ALICE — *Danilo Silva De Albuquerque*
Auditório Novo 1, Instituto de Física da Universidade de São Paulo 12:15 - 12:30

09:00 **The CMS-TOTEM Precision Proton Spectrometer and first physics results** — *Antonio Vilela Pereira*
Auditório Novo 1, Instituto de Física da Universidade de São Paulo 09:00 - 09:15

Studies of central diffractive production of open charm with CMS and TOTEM experiments. — *Eduardo Alves Coelho*
Auditório Novo 1, Instituto de Física da Universidade de São Paulo 09:15 - 09:30

Prospects on semileptonic WW CEP in aQGC scenarios at CMS — *Mauricio Thiel*
Auditório Novo 1, Instituto de Física da Universidade de São Paulo 09:30 - 09:45

Search for Long-Lived Gluinos in Compressed SUSY Scenarios — *Gilson Correia Silva*
Auditório Novo 1, Instituto de Física da Universidade de São Paulo 09:45 - 10:00

10:00 **Search for Diboson Resonances with the CMS experiment** — *Sudha Ahuja*
Auditório Novo 1, Instituto de Física da Universidade de São Paulo 10:00 - 10:15

Search for Dark Matter with the CMS experiment — *Pedro Galli Mercadante*
Auditório Novo 1, Instituto de Física da Universidade de São Paulo 10:15 - 10:30

11:00 **Física do charm no LHCb** — *Alberto Correa Dos Reis*
Auditório Novo 1, Instituto de Física da Universidade de São Paulo 11:00 - 11:15

Charge-Parity assimmetry in B mesons decays to three- body charmless final states at LHCb experiment — *Fernando Luiz Ferreira Rodrigues*

A multivariate selection of charmless B+ decays to three mesons in LHCb detector — *José Helder Lopes*
Auditório Novo 1, Instituto de Física da Universidade de São Paulo 11:30 - 11:45

NIPWA usando GooFit — *Juan Baptista Leite*
Auditório Novo 1, Instituto de Física da Universidade de São Paulo 11:45 - 12:00

12:00 **Status of The Coherent Neutrino Nucleus Interaction Experiment (CONNIE)** — *Irina Nasteva*
Auditório Novo 1, Instituto de Física da Universidade de São Paulo 12:00 - 12:15

Instrumentação Científica

09:00 **Status do experimento Modulation no CBPF** — *Mr Raphael Perci*
Auditório Novo 2, Instituto de Física da Universidade de São Paulo 09:00 - 09:15

On the spectrum of antihydrogen: characterization of the 1S-2S transition — *Rodrigo Lage Sacramento*
Auditório Novo 2, Instituto de Física da Universidade de São Paulo 09:15 - 09:30

Filtragem Offline de Elétrons Baseada em um Ensemble de Redes Neurais Especialistas — *Carlos Eduardo Covas Costa*
Auditório Novo 2, Instituto de Física da Universidade de São Paulo 09:30 - 09:45

Use of small photomultiplier tube to extend dynamic range of Pierre Auger Observatory surface detector — *Anderson Campos Fauth*

10:00 **RPC Tower for the Upgrade of the Pierre Auger Observatory** — *Ugo Giaccari*
Auditório Novo 2, Instituto de Física da Universidade de São Paulo 10:00 - 10:15

The Giant Radio Array for Neutrino Detection (GRAND) — *Rafael Alves Batista*
Auditório Novo 2, Instituto de Física da Universidade de São Paulo 10:15 - 10:30

11:00 **Status of the JUNO observatory and Brazilian contribution** — *Pietro Chimenti*
Auditório Novo 2, Instituto de Física da Universidade de São Paulo 11:00 - 11:15

Brazilian participation in the Middle and Large Size Telescopes of the Cherenkov Telescope Array — *vitor de souza*
Auditório Novo 2, Instituto de Física da Universidade de São Paulo 11:15 - 11:30

Status of the Neutrinos Angra Experiment — *Herman Pessoa Lima Junior*
Auditório Novo 2, Instituto de Física da Universidade de São Paulo 11:30 - 11:45

Desenvolvimentos, construção, instalação e operação de RPC para a próxima geração de experimentos de astropartículas — *Carola Dobrigkeit Chinellato*

12:00 **Implementation of an IPMC and Linux box over Xilinx Zynq MPSoC for ATCA blades of the Backend Hardware Platform Prototype** — *Lucas Arruda Ramalho*

The Deep Underground Netrino Experiment: Photon Detection System and ARAPUCA — *Ettore Segreto*
Auditório Novo 2, Instituto de Física da Universidade de São Paulo 12:15 - 12:30

09:00 **Status do experimento de raios cósmicos CREAT na Antartica** — *Dr André Massafferi Rodrigues*
Auditório Novo 2, Instituto de Física da Universidade de São Paulo 09:00 - 09:15

Brazilian Participation on the Resistive Plate Chambers (RPC) upgrade project of the CMS muon system — *Sandro Fonseca De Souza*

Uma Leitura com Fotomultiplicadoras Multi-Anodos para se Atingir uma Granularidade Mais Fina com o Principal Calorimetro Hadrônico do ATLAS — *Philipp Gaspar*

Contribuição brasileira ao Muon Forward Tracker do ALICE/CERN — *Dr Rafael Pezzi*
Auditório Novo 2, Instituto de Física da Universidade de São Paulo 09:45 - 10:00

10:00 **Status of the contribution of CBPF to the new Tracker of LHCb experiment** — *Mr Diogo Ayres Rocha*
Auditório Novo 2, Instituto de Física da Universidade de São Paulo 10:00 - 10:15

ATLAS Liquid Argon Electromagnetic Calorimeter Upgrade Activities — *Marco Lisboa Leite*
Auditório Novo 2, Instituto de Física da Universidade de São Paulo 10:15 - 10:30

11:00 **ESTIMAÇÃO DA ENERGIA DO CALORÍMETRO DE TELHAS DO ATLAS EM CONDIÇÕES SEVERAS DE EMPILHAMENTO DE SINAIS** — *Bernardo Sotto-Maior Peralva*

O laboratório de instrumentação do High Energy Physics and Instrumentation Center na USP — *Hugo Natal Da Luz*
Auditório Novo 2, Instituto de Física da Universidade de São Paulo 11:15 - 11:30

Trigger de Muons Assistido pelo TileCal — *Augusto Cerqueira*
Auditório Novo 2, Instituto de Física da Universidade de São Paulo 11:30 - 11:45

Electronics development for the upgrade of the CMS tracker — *Luigi Calligaris*
Auditório Novo 2, Instituto de Física da Universidade de São Paulo 11:45 - 12:00

12:00 **Intervenções Baseadas em Calorimetria Para o Sistema de Filtragem Online de Elétrons e Múons do ATLAS Durante o Run 2** — *Micael Verissimo de Araujo*

Computação de Alto Desempenho

11:00 **Apresentação do Cluster SAMPA** — *Mr Ricardo Romao da Silva*
Sala 202, Instituto de Física da Universidade de São Paulo 11:00 - 11:18

BR-SP-SPRACE WLCG Tier-2 Cluster — *Mr Jadir Silva*
Sala 202, Instituto de Física da Universidade de São Paulo 11:18 - 11:36

O uso de HPCs pelo LHCb/CERN — *Renato Santana*
Sala 202, Instituto de Física da Universidade de São Paulo 11:36 - 11:54

12:00 **PPS offline software in CMS** — *Dilson De Jesus Damiao*
Sala 202, Instituto de Física da Universidade de São Paulo 12:00 - 12:18

09:00 **The PPS Offline Conditions Database in CMS** — *Helena Brandao Malbouisson et al.*
Sala 202, Instituto de Física da Universidade de São Paulo 09:00 - 09:20

HEP and Machine Learning Synergy - an overview of ML initiatives in the HEP field — *Raphael Mendes de Oliveira Cóbe*
Sala 202, Instituto de Física da Universidade de São Paulo 09:20 - 09:40

A próxima geração das redes da RNP — *Michael Stanton*
Sala 202, Instituto de Física da Universidade de São Paulo 09:40 - 10:05

10:00 **Serviços para suporte à eCiência** — *Leandro Ciuffo*
Sala 202, Instituto de Física da Universidade de São Paulo 10:05 - 10:30

Divulgação Científica

09:00 **Atividades Gaúchas de divulgação da Ciência** — *Prof. Gustavo Gil Da Silveira*
Sala 202, Instituto de Física da Universidade de São Paulo 09:00 - 09:15

Atividades de Outreach desenvolvidas pelo SPRACE — *Nelson Barrelo Jr.*
Sala 202, Instituto de Física da Universidade de São Paulo 09:15 - 09:30

Decobrindo a Física de Partículas — *Murilo Santana Rangel*
Sala 202, Instituto de Física da Universidade de São Paulo 09:30 - 09:45

Particle Physics Outreach Activities at IFUSP: dialogues with the schools — *Graciella Watanabe*
Sala 202, Instituto de Física da Universidade de São Paulo 09:45 - 10:00

10:00 **ATLAS Open Data e Master Class: Contribuindo para a Formação Acadêmica e a Divulgação Científica** — *Marisilvia Donadelli*

11:00 **Promoting Diversity at CERN and within CMS - the work of the Diversity Office** — *Clemencia Mora Herrera*
Sala 202, Instituto de Física da Universidade de São Paulo 11:00 - 11:15

Escola de Física CERN — *Nelson Barrelo Jr.*
Sala 202, Instituto de Física da Universidade de São Paulo 11:15 - 11:30

programa Beam-Line-4-Schools no Brasil — *Dr André Massafferi Rodrigues*
Sala 202, Instituto de Física da Universidade de São Paulo 11:30 - 11:45

Detecting cosmic rays in high schools: an experimental approach for particle physics outreach activities in Sao Paulo — *Marco Lisboa Leite*

12:00 **Divulgação científica para o grande público: concepção, planejamento e conteúdo do projeto Uniso Ciência** — *Mr Guilherme Profeta*

O IPPOG Masterclasses, e a Divulgação Científica, promovidos pela UERJ, COPPE-UFRJ, UFLA, UFRN, IFRN e IFCE — *Marcia Begalli*

National Institute of Science and Technology

INCT-CERN-Brazil

Brazilian researcher working at CERN

What is a National Institute of Science and Technology

- The National Institutes of Science, Technology and Innovation Program - INCTs, is characterized by large long-term research projects in national and/or international scientific cooperation networks.

- Each of the INCT currently being implemented works on a theme from different areas of knowledge, be it Human, Biological, Exact and Agricultural Sciences.

- A headquarters institution coordinates each INCT with the capacity to receive resources from other sources.

Instituto Nacional de Ciência e Tecnologia CERN-Brasil

- The main objective of the CERN-Brazil High Energy Physics INCT is to support the activities of Brazilian groups in the 4 large experiments of the Large Hadron Collider (LHC), **ALICE, ATLAS, CMS and LHCb and in the ALPHA experiment**, all located in the international laboratory CERN.

- The 4 pillars that guide the activities of this organizationare: **basic research, technological development, collaboration and education.**

- The objective of this project is to encourage the participation of Brazilian groups in technological development in a coordinated way, **seeking to enhance synergies between experiments around common scientific and technological issues.**

- Finally, targeting future generations of researchers, this project will **promote training activities as well as activities to disseminate this knowledge to the school and lay public**

Brazil becomes Associate Member State of CERN

Brazil has become the first Associate Member State of CERN in the Americas

22 MARCH, 2024

Opportunities for Brazilian Industry

Áreas tecnológicas de compras

Civil engineering
- Construction
- Renovation of buildings
- Metallic structures
- Earthworks
- Roads

Electrical engineering and magnets
- Transformers
- Switchboards and switchgear
- Cables
- Automation
- Power supplies
- Magnets

Information Technology
- Computing systems
- Servers
- Software
- Network equipment
- Personal computer equipment

Mechanical engineering and raw materials
- Machining
- Sheet metal work and arc welding
- Special fabrication techniques
- Raw materials, finished and semi-finished products (plates, pipes, etc.)
- Offsite engineering and testing

Electronics and radiofrequency
- Electronic components
- PCBs and assembled boards
- LV and HV power supplies
- Radiofrequency plants
- Amplifiers

As well as
- Cryogenic and vacuum equipment
- Optics and photonics
- Particle and photon detectors
- Health and safety equipment,
- Transport and handling equipment
- Office supply, furniture
- Industrial services on the CERN site

CERN – CNPEM agreement

- accelerators thecnology
- magnets design, and
- superconducting materials

CERN Accelerating science

CNPEM Brazilian Center for Research in Energy and Materials

CERN intensifies collaboration with Brazil through scientific agreement with leading research centre

An agreement between CERN and the Brazilian Center for Research in Energy and Materials (CNPEM) was signed on 4 December 2020

Brazil further strengthened its ties with CERN through the signature, on 4 December 2020, of a wide-ranging scientific and technological collaboration agreement between the Brazilian Center for Research in Energy and Materials (CNPEM) and the Organization. This agreement is particularly timely as the process for Brazil to become an Associate Member State of CERN progresses.

Frédérick Bordry, Director for Accelerators at CERN, met CNPEM Director-General José Roque da Silva virtually to sign the agreement, which establishes a framework for collaboration in research and development in areas of mutual interest. These include particle accelerator technology, magnet design and the study of superconducting materials. "I am delighted to sign this collaboration agreement. For 30 years, Brazil has been a strong partner in CERN's scientific activities. The signing of this new agreement will enhance our collaboration in scientific research, training, innovation and knowledge-sharing in the field of accelerator technology," explained Frédérick Bordry, adding that "CNPEM and Brazil have many proven skills and talent in this area which will bring mutual benefits and motivate industrial partners."

December 4th, 2020

CNPEM AND CERN SIGN COLLABORATION AGREEMENT

BACK

New understanding establishes parameters for a broad partnership in research of mutual interest, such as superconducting materials.

The European Organization for Nuclear Research (CERN), one of the world's leading laboratories in particle physics and the Brazilian Center for Research in Energy and Materials (CNPEM), an organization supervised by the Brazilian Ministry of Science, Technology for Innovations (MCTI), have signed today, December 4th, a wide scientific and technological collaboration agreement.

The agreement establishes legal conditions for collaboration in research and resource sharing in any area of mutual interest, especially in technologies applied to the physics of particle accelerators, magnets, and superconducting materials. Such knowledge is of enormous value for the development of new technologies, both in science and in the industry.

"CNPEM's partnership with CERN will allow the development of joint projects in several areas, especially superconductivity. Like any high-tech project, there will be a great involvement of the Brazilian industry, which will benefit from the project in the development and construction of cryostats, development and manufacture of superconducting wires and materials to operate in extreme conditions, manufacture of coils, development of fast power and diagnostics electronics, among other areas", comments James Citadini, Manager of Engineering and Technology at CNPEM.

Change substantialy the scientific relationship Brazil - CERN

Opportunity to physicist, engineers, and another professionail to work at CERN

SBF
SOCIEDADE BRASILEIRA DE FÍSICA

A SBF · COMISSÕES · SÓCIOS · EVENTOS · PUBLICAÇÕES · PREMIAÇÕES · ENSINO · NOTÍCIAS · DOE · CONTATO

CERN recruta físicos, engenheiros e profissionais de várias áreas

Categorias

- # Todas
- # Destaque em Física
- # Acontece na SBF
- # Opinião
- # Física ao Vivo
- # Destaques do BJP
- # Destaques do RBEF
- # Antessala do Ensino
- # Seção 137

Posts recentes

Live – Planos de Saúde no Brasil

Física ao Vivo – Ignacio Bediaga – O que é o CERN e qual a pesquisa desenvolvida neste laboratório?

Cientistas no Centro de Controle do CERN em 2009 comemoram recorde mundial com dois feixes acelerados para 1,18 TeV simultaneamente - Crédito CERN

março 26, 2024 · 10:51 am · Acontece na SBF

Brazilian scientific community
Several family photo album

Costs associated with participating in these experimental collaborations.

Construction or remodeling of the experimental apparatus

Development of detectors and their electronics
Construction of the various detector components
Common fund

- Memorandum of Understanding (MoU)

Maintenance and operation of the experiment (M&O)

Payment of support staff Infrastructure
Gases for the detectors
Electricity
Computers
Electronics, etc.

- Maintenance and Operation (M&O) divided equally among all participants

Annual Budget Law 20UM PO 002 from 2008 to 2016

Average payments between 800K and 1000K reais per year

Unscheduled release of resources from MCTIC 2017 – 2025

- ✓ 2016 - 2,200K December 2016
- ✓ 2017 – 2,000K December 2017
- ✓ 2018 – 2,260K. July 2018
- ✓ 2019 - 0.00K
- ✓ 2020 – 1,400K December 2020
- ✓ 2021 - 4,400K December 2021
- ✓ 2022 - 3.885K December 2022
- ✓ 2023 – 3.452K January 2023
- ✓ **2024 - 0.000K**
- ✓ **2025 - 0.000K**

FINANCIAL ISSUES RELATED TO MAINTENANCE AND OPERATION (M&O) FEES OF BRAZILIAN GROUPS WITH CERN EXPERIMENTS

PENDÊNCIAS FINANCEIRAS EM RELAÇÃO ÀS TAXAS DE MANUTENTION AND OPERATION (M&O'S) DOS GRUPOS BRASILEIROS COM OS EXPERIMENTOS DO CERN

Experimento	2024	2025*	2026**
LHCb	59.044,00 CHF	101.800,00 CHF	102.215,00 CHF
ALICE	36.600,00 CHF	17.353,00 CHF	17.353,00 CHF
ATLAS	48.000,00 CHF	117.308,00 CHF	120.000,00 CHF
CMS	133.000,00 CHF	226.780,00 CHF	230.000,00 CHF
ALPHA	- CHF	- CHF	12.000,00 CHF

*sem contribuição FAPESP

**estimativa

DEMANDA ORÇAMENTÁRIA ANUAL PARA PAGAMENTOS DE M&O'S REFERENTES ÀS COLABORAÇÕES BRASIL-CERN

Experimento	Total Pendências Financeiras Atual 2024/2025	Demanda anual (referência:2026)	Valor Total (incluindo 2026)
LHCb	160.844,00 CHF	102.215,00 CHF	263.059,00 CHF
ALICE	53.953,00 CHF	17.353,00 CHF	71.306,00 CHF
ATLAS	165.308,00 CHF	120.000,00 CHF	285.308,00 CHF
CMS	359.780,00 CHF	230.000,00 CHF	589.780,00 CHF
ALPHA	- CHF	12.000,00 CHF	12.000,00 CHF
TOTAL	**739.885,00 CHF**	**481.568,00 CHF**	**1.221.453,00 CHF**
***	R$ 4.964.628,35	R$ 3.231.321,28	R$ 8.195.949,63

*** Cotação Franco Suiço: 1CHF =6,71BRL

Recursos atualmente fornecidos pelo CNPq: 144 mil CHF (US$ 180mil)

Déficit Orçamentário =~340 mil CHF ou seja R$ 2.300.000,00 anuais

Summary

In addition to supporting fundamental research in physics

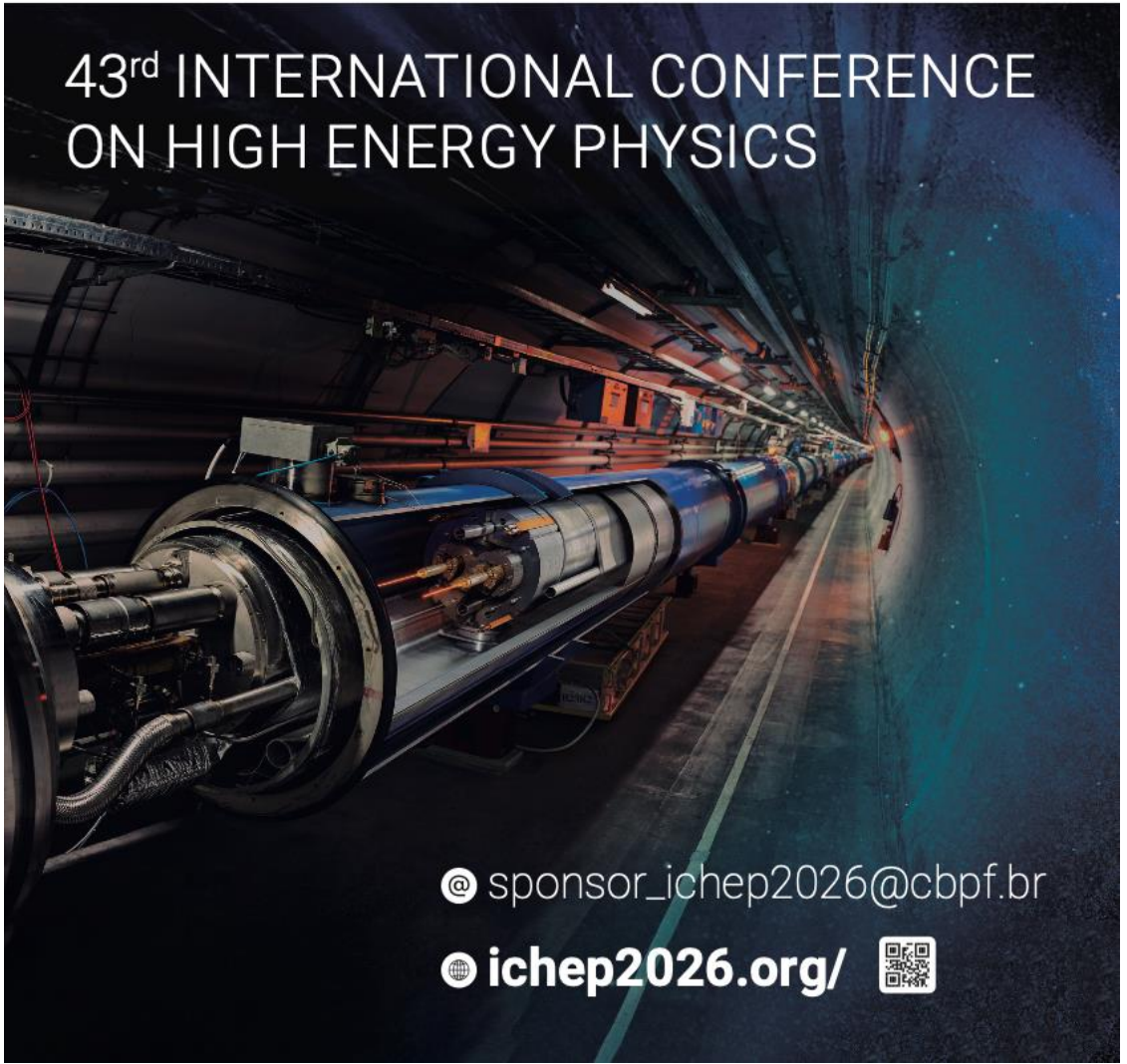
INCT CERN-Brazil aims to prepare the infrastructure for research and development for future upgrades

The costs to effectively participate in these upgrades, involving the construction of the detectors and their electronics, It is necessary to search for new sources of financing

We are open to enlarging the INCT with Latin American colleagues

JULY 30 - AUGUST 5 | 2026 | NATAL, BRAZIL

43rd INTERNATIONAL CONFERENCE ON HIGH ENERGY PHYSICS



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