

XV LATIN AMERICAN SYMPOSIUM ON HIGH ENERGY PHYSICS

LATIN-AMERICANS @ CERN

BRAZIL @ CERN IN THE '90S

LEANDRO DE PAULA
LEANDRO.DE.PAULA@CERN.CH

4/11/24



UFRJ

FOREWORD

BEFORE '90S

- A Glimpse into Brazil@CERN Prehistory
 - There were at least two Brazilian personal initiatives to develop experimental research at CERN
 - CERN helped with the Laboratório Nacional de Luz Síncrotron (LNLS) machine UVX: 1987-1997
 - Brazilian theoretical physicists visited CERN - late 80's and early 90's
 - Without any formal agreement
- A decisive movement
 - In the late '80s Fermilab (Leon Lederman) and CERN (Carlo Rubbia) (more than) invited Brazilian (Latin American) researchers to join HEP collaborations
 - Personal contacts between Brazilian and Portuguese researchers (LIP) opened the doors of CERN 88-89
 - CBPF @ DELPHI - Ronald Shellard, Maria Elena Pol
 - UFRJ @ SPACAL collaboration Zieli Dutra, Luis Caloba, Manoel Seixas, Carmen Lodi
 - 1990 an umbrella agreement is signed

FIRST YEARS @ CERN

HOW DID YOU GOT INVOLVED WITH CERN?

- 92, the UFRJ rector assigned Bernard Maréchal the task of organizing UFRJ's participation in the DELPHI Collaboration.
 - Bernard invited me to help him create a group.
 - Of all first generation of Brazilian at CERN, only Bernard had been trained in HEP environment
 - I had a Nuclear Physics background
- To start activities at DELPHI the presence of a member of UFRJ at CERN was necessary - first conferencing software (VRVS) only after 97
- Carlo Rubbia, as DG, made my stay at CERN possible for one year, 93-94

FIRST YEARS @ DELPHI

HOW DID YOUR GROUP INITIATE PARTICIPATION IN CERN ACTIVITIES?

- Strategy defined by Bernard Maréchal
 - The group should be active in the three main areas of HEP: Data analysis - L.P; Instrumentation - Bernard Maréchal; Computing - One IT professional for the DELPHI online system
- In Brasil
 - Organization of scientific events, with CERN participation, attracted young researchers and students: schools, meetings (with and without CERN collaborators)
 - Creation of a minimum UFRJ infrastructure (small instrumentation lab and computing resources)
 - Human Resources: Attraction of 3 Faculty staff; new staff and visiting positions; students
 - Fight for funding - hard task
- At CERN
 - Be present - researchers and **students**
 - Assume responsibility of analysis, detector and computing tasks

Le Brésil n'est pas que le pays du foot et de la samba !

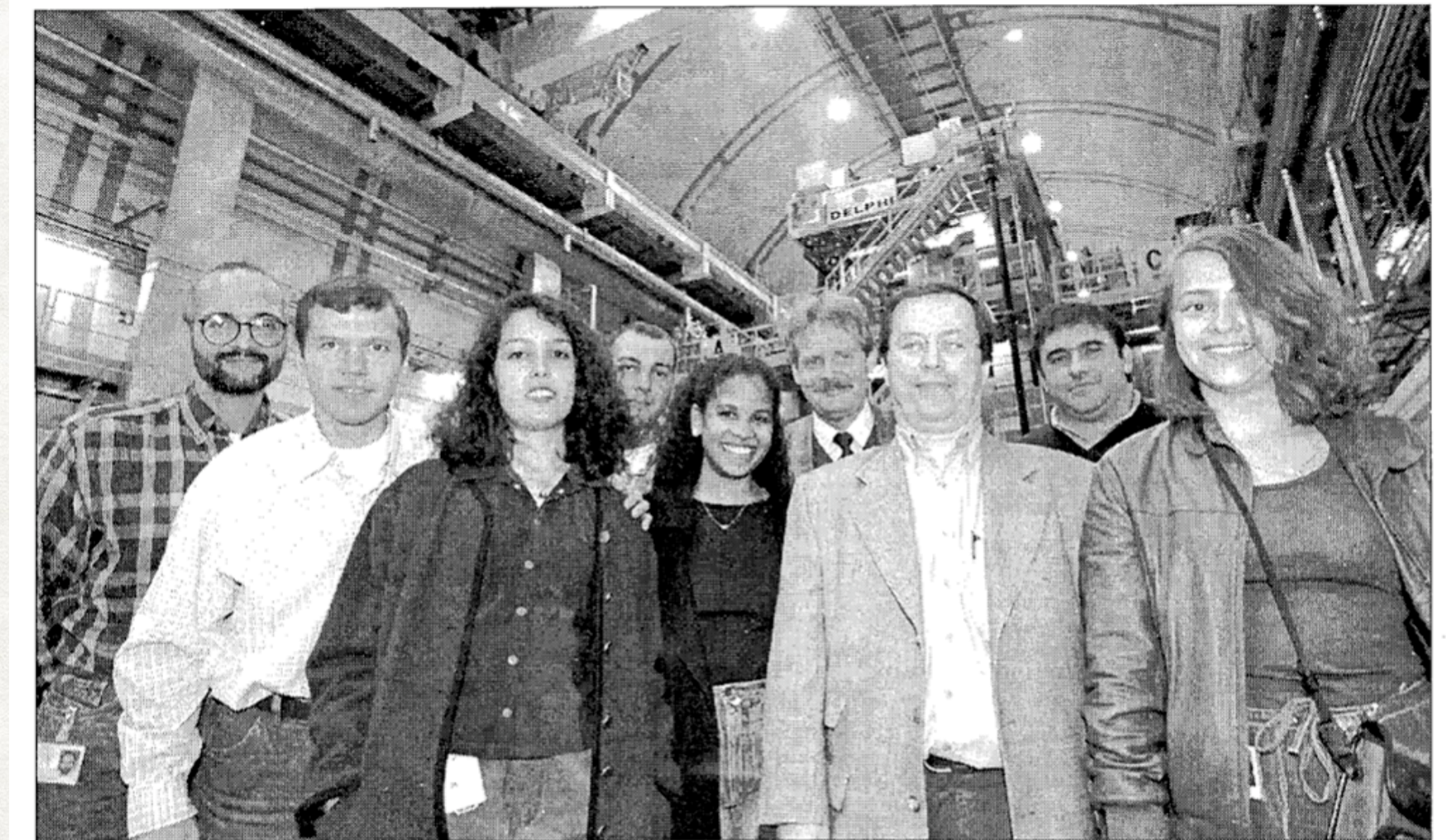
Bien que le Brésil ne soit pas un Etat membre du CERN, un groupe de l'Institut de physique de l'Université fédérale de Rio de Janeiro (UFRJ) participe activement aux activités scientifiques du CERN depuis de nombreuses années. Le groupe de Rio s'est joint à la collaboration Delphi au début des années 90 et a commencé plus récemment à contribuer à la préparation des expériences LHC. Des physiciens et des ingénieurs de Rio étaient présents au CERN pour la semaine LHCb (du 14 au 18 septembre), au cours de laquelle le Comité d'examen des ressources du CERN a approuvé l'expérience.

Les physiciens de Rio participent surtout à l'expérience Delphi, à laquelle ils se sont joints dans le but de créer un

There's an awful lot of physics in Brazil!

Brazil may not be a Member State of CERN, but a group from the Physics Institute of the Federal University of Rio de Janeiro (UFRJ) has been an active participant in CERN science for many years. The Rio group joined the Delphi collaboration in the early 90s and more recently, has started to get involved with preparations for experiments at the LHC. From 14 September physicists and engineers from Rio were at CERN for the LHCb week during which CERN's Resource Review Board approved the experiment.

The Rio group's main involvement is in the Delphi experiment which it joined with the aim building a coherent particle physics research group. The goal was to contribute actively to outstanding physics studies and applied projects



UFRJ@CERN: 4 graduate students, 1 pos-doc,
1 IT professional, 2 researchers and the
Director of the UFRJ Physics Institute

LOOKING BACK

WHAT CHALLENGES AND OPPORTUNITIES HAVE SHAPED YOUR EFFORTS TO SUSTAIN AND GROW YOUR INVOLVEMENT AT CERN?

- Challenges
 - Understand the dynamic of a HEP collaboration
 - We have learn quickly, thanks to B. Maréchal
 - Educate people
 - Our community
 - Directors and employees of funding agencies
 - *When I asked for money to participate in data taking, I was asked if it would not be possible to do it in another accelerator with more convenient dates*
 - Educate the Brazilian Science Funding System
 - There is no medium or long term funding options
- **We were successful.** The group has been invited to join the 4 LHC collaborations
- Other Brazilian groups joined CERN, Brazil became an Associated Member State of CERN



LOOKING BACK

WHAT CHALLENGES AND OPPORTUNITIES HAVE SHAPED YOUR EFFORTS TO SUSTAIN AND GROW YOUR INVOLVEMENT AT CERN?

- Opportunities
 - Integration in DELPHI collaboration
 - We have been welcomed well
 - Interesting tasks from DELPHI management
 - Support (including financial) from CERN management
 - European projects (in partnership)
 - B. Maréchal was the key person, he knew HEP environment and had contacts
 - Attracting motivated and capable students - CERN sparked great interest
 - Being part of the birth of a dynamic research group is a fantastic experience



LOOKING FORWARD

WHAT KEY LESSONS HAVE YOU LEARNED FROM THESE CHALLENGES, AND HOW MIGHT THINGS HAVE GONE DIFFERENTLY?

- The most important is to assemble a competent group that works in:
 - Data analysis - brings scientific recognition. In Brazil it is wrongly understood by the physics community as being the only area of scientific research in HEP. We have evolved a lot
 - Instrumentation - In addition to the aspect of scientific research, it is through this that a financial return due to the involvement of companies can justify an investment abroad. We need to do more in this field.
 - Computing - In this field it was less difficult to educate people and institutions
- To build a national unity of the HEP groups (RENAFAE) and to educate the Physics community is essential
- Some agreements between Brazilian funding agencies and CERN Collaborations exists, but not covering (yet) all our needs.
- We gained visibility, which allowed the Brazilian association to CERN be approved, but at least for the moment there is no understanding by many of what this means
- We manage to get some (minimal) funding, but it is a daily battle

MUCHAS GRACIAS