A Latin American graduate school – The PPGCosmo experience

Júlio C. Fabris

Universidade Federal do Espírito Santo

Open Symposium on Latin American Research Infrastructures in HECAP

In collaboration with Hermano Velten

Júlio C. Fabris

A Latin American graduate school – The PPGCosmo experience

Universidade Federal do Espírito Santo

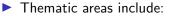
The PPGCosmo PhD Program Motivations

- The Programa de Pós-Graduação em Astrofísica, Cosmologia e Gravitação - PPGCosmo was created in august 2016.
- It was the first Physics PhD program that received from CAPES (Brazil) the initial evaluation 5 at the moment of its creation, in a scale from 0 to 7.
- It is a *thematic* PhD program involving many institutions in Brazil and abroad.

The PPGCosmo PhD Program Motivations

- The main motivations for the creation of this PhD program were the following.
 - 1. Physics and Astronomy are constantly demanding for larger collaborative networks using scientists from different countries.
 - 2. To provide an environment for PhD students where they could both have access and participate on high level theoretical research and large observational/experimental projects.

The PPGCosmo PhD Program Structure



- 1. Astronomy and Astrophysics,
- 2. Astroparticle Physics,
- 3. Cosmology,
- 4. Dark Energy,
- 5. Dark Matter,
- 6. Gravitational Waves,
- 7. High Energy Theory.

The PPGCosmo PhD Program Structure

- ► The PPGCosmo is based at UFES, Espírito Santo, Brazil.
- It counts with the participation of the following Brazilian institutions.
 - 1. Centro Brasileiro de Pesquisas Físicas CBPF/Rio de Janeiro.
 - 2. Universidade Federal de Juiz de Fora UFJF/Minas Gerais.
 - 3. Universidade Federal da Bahia UFBA/Bahia.
 - 4. Universidade Federal de Ouro Preto UFOP/Minas Gerais.
 - 5. Universidade Federal do Rio Grande do Norte UFRN/Rio Grande do Norte.

The PPGCosmo PhD Program UFES



Universidade Federal do Espírito Santo

A Latin American graduate school – The PPGCosmo experience

Júlio C. Fabris

The PPGCosmo PhD Program Vitória - ES



▲口 ▶ ▲御 ▶ ▲臣 ▶ ▲臣 ▶ ― 臣 … のへの

Universidade Federal do Espírito Santo

Júlio C. Fabris

A Latin American graduate school - The PPGCosmo experience

The PPGCosmo PhD Program

Faculty Members in Brazil

- Davi C. Rodrigues (UFES)
- Felipe T. Falciano (CBPF)
- Hermano Velten (UFOP)
- Humberto Belich (UFES)
- Ilya Shapiro (UFJF)
- Júlio C. Fabris (UFES)
- Marc Casals (CBPF)
- Martin Makler (CBPF)
- Nelson Pinto-Neto (CBPF)
- Oliver F. Piattella (UFES)
- Riccardo Sturani (IIP)
- Saulo Carneiro (UFBA)
- Valerio Marra (UFES)
- Wiliam Hipólito-Ricaldi (UFES)

The PPGCosmo PhD Program

Structure

Abroad, we have the following associated researchers

- 1. Alexey Starobinsky (Landay Institute, Russia) Astrophysics, Cosmology, Gravitation.
- 2. David Wands (University of Portsmouth, United Kingdom) Astrophysics, Cosmology.
- 3. Jorge Zanelli (CECS, Chile) Gravitation.
- 4. José A. de Freitas Pacheco (Observatoire de la Côte d'Azur, France) - Astrophysics, Cosmology.
- 5. Luca Amendola (Universität Heidelberg, Germany) Astrophysics, Cosmology.
- 6. Ruth Durrer (Université de Genève, Switzerland) -Astrophysics, Cosmology.
- Scott Dodelson (Mellon University, USA) Astrophysics, Cosmology.
- 8. Yi-Fu Cai (USTC, China) Cosmology, Gravitation.

Júlio C. Fabris

The PPGCosmo PhD Program Structure

- The student is followed by an advisor in Brazil and another abroad.
- The student must pass some time (typically one year) in the institution of the advisor abroad.
- The thesis must be connected with scientific cooperations among the different institutions.
- It is stressed the importance of a close connection between theory and observation/experiment.

The PPGCosmo PhD Program

Observational programs

Iúlio C Eabris

- The PPGCosmo participates, at different levels, in the following observational programs.
 - 1. J-PAS.
 - 2. Euclid.
 - 3. DES.
 - 4. LIGO/Virgo.

PPGCosmo promotes the following international conferences.

- 1. Verão Quântico (Quantum summer),
- 2. José Plínio Baptista School in Cosmology,
- 3. Estate Quantistica (in Italy),
- 4. Inverno Astrofísico (Astrophysical winter).

Universidade Federal do Espírito Santo

A Latin America PhD Network? Considerations

- The activities in observational Astrophysics and Cosmology in Latin America have increased considerably mainly due to the construction of observatories in Chile, but also in Argentina.
- These observatories are among the best scientific facilities in the world at this moment.
- Even if the financial budget for their constructions came mainly from US and Europe, there is also an important effort of the Latin American countries.

A Latin America PhD Network?

Considerations

- However, the participation of many Latin American countries in these projects is below what could be expected.
- In this sense, a graduate program in Astrophysics and Cosmology, in the form of a network, may allow to propagate the formation of Latin American scientists in those domains.
- This graduate program may follow closely the PPGCosmo format, with the participation of universities and scientific institutions of different Latin American countries.
- The students of this program could have e.g. two co-advisors of different countries, increasing the scientific cooperation between the involved institutions.

A Latin America PhD Network? Considerations

The student formation could cover theoretical aspects of Astrophysics and Cosmology, but a preference would be given to observational/experimental formation, with the intensive use of the astronomical facilities installed in the Continent.

A Latin America PhD Network? Considerations

- One important aspect, borrowing the PPGCosmo initiative, is that the formation of the student, even if done mainly at a given institution, must include a internship period in other institution belonging to the network, allowing the integration of the Latin American community working in Astrophysics and Cosmology.
- The use of the astronomical/experimental structures installed in the South of the Continent would be a priority in the PhD network program.

Obrigado!



Universidade Federal do Espírito Santo

A Latin American graduate school - The PPGCosmo experience

Júlio C. Fabris