

ROUND TABLE: COLLABORATIONS IN PHYSICS IN LATIN AMERICA

1. Introduction

During the Fifth Latin American Symposium on High Energy Physics, from July 12–17, 2004, representatives of the different American countries, participating in the Symposium, gave their opinion about the situation of High Energy Physics in their countries and the collaborations in this field among the different countries. All agreed on the benefits of collaborations with physicists from other countries of the region. A wish for funds that would allow more visits by Latin American physicists to work with colleagues in other Latin American countries was universally stated.

At the start of the round table, Alberto Santoro of the State University of Rio de Janeiro put forth a proposal for a joint effort on a computer GRID linking all Latin American countries. While a number of the Latin American physicists in attendance were extremely enthusiastic about the idea, a plan for implementation would need to be worked out.

2. A. Melfo, U. de los Andes, Venezuela

There are a number of problems in trying to establish a program in high energy physics in Venezuela. The most pressing is the need for a stable source of support for both professors and students, especially funds for travel. Because the field is just getting started in Venezuela, travel to forefront facilities in other countries for collaborative work and to conferences is particularly important. While they have sent students abroad, they can't wait for them to come back before building up the program. They need help now. And, they need to be plugged in!!

3. J. Swain, Northeastern U., USA/Costa Rica

There is the problem of critical mass, as pointed out by Dr. Melfo. This is certainly the case in Costa Rica. There is the possibility of cooperative agreements with physicists from the U. S. or from countries in Europe. He has found that the funds available for this are quite limited both in the amount available and in the ways the money can be spent. E. g., he was not able to get funds from the U. S. funding agencies that could be put into the hands of his colleagues in Latin America. He believes a lack of initiative for this from the Latin American side is part of the problem.

4. M. Sheaff, University of Wisconsin, USA

There are funds available from the National Science Foundation for collaboration with physicists in Latin America. I have two such grants myself, one with colleagues in Mexico, the other with colleagues in Brazil. The cooperative work has had very positive results. NSF is most willing to support U. S. physicists to travel to Latin America with the understanding that the Latin American counterpart agency will provide travel support to the U. S. for its own nationals. There is an emphasis at NSF on sending younger physicists, who might otherwise not have support for foreign travel, to give them experience working in the international arena early in their careers. The young physicists from U. S. institutions that are participating in this symposium are supported by an award I received from NSF because of this policy.

5. J. dos Anjos, CBPF, Rio de Janeiro, Brazil

Experimental particle physics has come a long way from the early days in Brazil. What began in the early eighties as a two-year visit to Fermilab by three theorists to work on a very successful photoproduction of charm experiment has progressed along a path starting from work at Fermilab on hardware and software for that and follow-on experiments to formation of an analysis group and computer cluster at CBPF to allow students and professors to work at their home institution on analysis of experimental data and, finally, to building apparatus for two Fermilab experiments in Brazil. Because of this, the Brazilian groups now have credibility in the international community.

6. Jorge Alfaro, PUC, Chile

Postdocs A natural development of HEP is the implementation of a system of postdoctoral positions within our area. In this way, it will be easy to increase the number and quality of scientific collaborations.

Relation with the Press

Learning from other areas of Science, it would be useful to have a closer relationship with the media. In particular, to intensify our participation in programs to update the scientific knowledge of journalists, through specialized seminars, workshops and joint projects.

Joint projects with astronomers

In the particular case of Chile, there has been a great development in Astronomy. HEP has many contact points with Astrophysics. So I can see many joint projects appearing in the near future.

7. Esteban Roulet, C. Bariloche, Argentina

One point raised by Esteban Roulet was the importance of attracting the good students so that they remain in their Latin-American countries for their graduate studies, at least in those countries which already invest a lot of effort in forming good undergraduate students (in particular, Argentina, Brasil and Mexico) and have already reached sufficient critical mass to perform advanced research in High Energy Physics. Graduate students are a key ingredient in the research groups and are hence vital for a healthy development of science in Latin-America. However, there is now for instance a difficulty to get the best students into frontier experimental projects like Auger. There is a widespread tendency for the good potential candidates to be attracted to the idea of doing their PhD's in the universities or in the large experimental facilities of the northern hemisphere. Although this is understandable for different reasons, it is something that Latin-American institutions, and in particular the SILAFEA, should try not to promote, and an effort should be made instead to attract the best students towards the local projects, promoting also the possibilities of exchanges between local groups. This change of attitude will just be consistent with the maturity now reached by the field in Latin-America.

8. L. Villaseñor (President of the Mexican Division of Particles and Fields), BUAP, México

Mexican participation in experimental high energy and cosmic ray physics

In the mid 1980s a group of theoretical physicists from Cinvestav started a joint program with Fermilab to send graduate students and young post-docs to spend a summer working closely with experimentalists on some of the experiments taking place at Fermilab. This project of sending students to HEP laboratories for a summer was undertaken by the Mexican Division of Particles and Fields (DPyC) in the 1990s, and it was extended to include CERN, DESY, and other laboratories around the world. At present, an ad-hoc committee from DPC, formed mainly by experimental physicists, performs the selection of senior and first-year graduate students by means of interviews and exams in different host Universities each December. This program has been very successful in motivating young students to pursue graduate studies in experimental high energy or cosmic ray physics as members of some of the most important experiments in these fields.

The present involvement of Mexico in experimental high energy and cosmic ray physics consists of around 25 experimental physicists with a Ph.D. degree working in a dozen universities in Mexico. They participate on some of the most important projects including the Pierre Auger Observatory, ALICE-LHC, CMS-LHC, AMS, D0, CKM, FOCUS, and H1, among others. Most of them have benefited in the past from the above-mentioned program. The universities with PhD professors working in experimental high energy and/or cosmic ray physics include BUAP in Puebla, Cinvestav-DF, Cinvestav-Merida, Instituto Politecnico Nacional in Mexico City, UASLP in San Luis Potosi, Universidad de Guanajuato in Leon, Universidad Michoacana de San Nicolas de Hidalgo in Morelia and UNAM in Mexico City, among others.

In the late 1980s and early 1990s, the participation of Mexican groups in experiments on HEP and in cosmic ray physics was mainly in activities related to data analysis and/or construction of sub-detectors in association with other groups from other countries. However, in the late 1990s and early 2000s their participation has changed to gradually include full responsibilities in the construction of sub-detectors.

9. N. Martinic, U. Mayor de San Andrés, Bolivia

Bolivia has for more than four decades the Chacaltaya Observatory in La Paz with international collaborations, specially with Brasil and Japan.

The big problem we have is the lack of scholarships for postgraduate (basically Master's) students. Without this it will be very difficult to develop the High Energy Physics in our country.

10. C. Javier Solano S., UNI, Perú

Peru has a fast growing High Energy Physics community with participation of Peruvian physicists in many HEP laboratories (AUGER, FERMILAB, CERN, SUPER-KAMIOKANDE) and, for the theoretical part, working in many institutions from Brazil (IFT, CBPF, USP, UFMT), Chile (PUC), USA (U. Houston, Texas), etc

Our great problem is that most of this Peruvian community is not working in Peru, but our great advantage is that most of them are trying to help Peru in establishing collaborations, especially with UNI and PUC of Lima, and UNT of Trujillo.

Peru has similar problems to Bolivia in the lack of scholarships for Master's and PhD students, and similar problems to Argentina in the repatriation of our best students. Nevertheless, we have very hard working physicists in Peru, and we expect to reinforce our collaborations with the American HEP community. This Symposium will be, for sure, a very good help.

11. W. Ponce, U. de Antioquía, Colombia

SILAF AE was created ten years ago, and the first meeting was held in Merida, Mexico in 1996. Meetings have been held every two years since then, in Puerto Rico, Colombia, and Brazil. SILAF AE VI will take place in the Fall of 2006 in Puerta Vallarta, Mexico. This meeting will be following by symposia in Argentina and Chile in the coming years.

One way to help promote collaboration in the field would be for people to cooperate and agree to work together. There are instances where some Latin American physicists do not even cite other groups working in Latin America. A more congenial approach would help the field to develop in all our countries.

SILAF AE Organization