CIMPA - School: Applied Mathematics and Engineering

Solis, Uruguay, 14 to 20 march 2010.

Final report by Ernesto Mordecki (Coordinator of the organizing committee)

Introduction:

In these lines we review what was, in our view, the school CIMPA, "Applied Mathematics and Engineering". As the specific information about courses and conferences is available on the website of the event with their respective abstracts, we refer primarily to financial matters, and secondly to a subjective evaluation of the event. The event website is: https://sites.google.com/site/ingemat2010/Home

Financing:

The school received the support of CIMPA with an initial amount of up to 10 000. It is very important to know that the presence of a sponsor of this characterisitics, for these types of events, allowed us to open other doors of financing, such as the Unesco Regional Office in Uruguay (5000 dollars), the International Center for Theoretical Physics (UNESCO) ICTP, Trieste (3000 euros), the International Mathematical Union (IMU, 2000 dollars), the Project for Development of Basic Sciences (PEDECIBA) of Uruguay (5000 dollars), the French Embassy in Uruguay (2 air tickets France-Uruguay-France), French Regional Cooperation in South America (based in Santiago de Chile, 3 regional air tickets), Project INGEMAT ANII (a passage-Stockholm Stockholm-Montevideo), the Central Commission for Scientific Research of the University of the Republic (CSIC a passage Italy-Uruguay-Italy), King Abdullah University of Science and Technology (KAUST, two tickets and a stay) in Saudi Arabia. The total budget managed by the organizers of the school was 35,000 dollars, approximately.

Some final conclussions:

The scientific level of the event was very good. The event was organized on the basis of expertise in engineering mathematics master programme in Uruguay, recently created (you can view the details of the master's work at: https://sites.google.com/site/ingenieriamatematica/), so invited scientists were related or could be related to our local activity. We also attempted to cover all areas of interest in Uruguay, seeking both a certain thematic unity. Attempts were then devoted the first three days of the event to two engineering applications, such as telecommunications and signal and image processing, and the last three days to numerical methods, stochastic calculus and its applications in finance.

We tested the possibility that students receive exercises during courses, and these generate credits for the master program, or a certificate of approval for other students. The intention with this test is also to make the teachers in charge of the courses to modulate the contents according to the level of the students, who, in most cases did not knew the keywords of the course.

Below are three levels of interactions that are worth comment:

- The event allowed the researchers in engineering mathematics in Uruguay to know each other. This is significant since it is generating a new community in applied mathematics with various institutional aspects, including departaments of the Faculty of Engineering: the Institute of Mathematics, Computing, Electrical Engineering, Center of Mathematics in the Faculty of Science, and others.

- For students in Uruguay, the event gave interesting information levels. However, the participation of young Uruguayans was perhaps one of the weakest parts of the event. Outside funding sources did not allow mostly to include payment for Uruguayans , the Uruguayan institutions where they work failed to free them to attend the event, and organizers had no awareness of the need to more strongly promote the participation of young Uruguayans. In this regard it is noted that this is a community in formation, not yet consolidated. A total of 18 students from Uruguay, from careers in: MS in engineering mathematics (8), master's degree in electrical engineering (3), BA in mathematics (1), doctorate in mathematics (2), PhD in computer science (2), Professors of Mathematics (2).

- For foreign students, I was unable to assess the outcome of their participation, beyond the case of a Venezuelan student, a student from Peru, and two students from Paraguay, which I think did an interesting use of the school.

We now describes the major drawbacks found for the organization:

* Firstly, although we had a reasonable amount of resources, organizations that financed the event have significant restrictions in financing events, plus the fact the funds of national origin were relatively low (about 30%) we could not make optimal use of funds raised. In this regard it is noteworthy that the CIMPA supported some local participants, making an exception to its central purpose that was the funding of student tickets and stays in the region.
* Second, with the funds raised it became extremely risky to organize an event of ten days to two weeks. That program resulted in a somewhat demanding seven-hour workday, except on Wednesday, when we held a trip to Punta del Este.

Here are the positive aspects of the event:

* This is the first event conducted in applied mathematics in the history of the country. The courses were first class and international conferences were by top international and regional levels, so a precedent is important in future events.
* Was a key step in building a community in applied mathematics in the country, besides managing the engineering expertise in mathematics must develop national-level interactions among its members, with the aim of consolidating an important scientific and technological pole.
* Finally, the hotel facilities, quality of food, DISPOSITION shown by the two secretaries of the event and the hotel staff made it beyond the academic aspects, we had a human framework and distension relationship that is critical to the success of the event.

In short, the first experience in organizing an event in the country in a new area of work (applied mathematics) was achieved on an international level, achieving reasonable assistance to the national level, and the event constituted a milestone which will strengthen scientific relations, which would consolidate a new level in this discipline in the country.

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