October 18, 2005

06pims011: Summer School on the Frontiers of Mathematical Physica: Gravity, Strings and Cosmology

Organizers:

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Location:

University of British Columbia

PIMS Sites:

University of British Columbia
University of Washington

Objectives:

During the past ten years, the Pacific Institute for Mathematical Sciences (PIMS), the Asia Pacific Center for Theoretical Physics (APCTP) and, more recently and the Perimeter Institute have cooperated in creating a yearly Research Workshop and more recently a series of Summer Schools entitled ``Frontiers of Mathematical Physics''. With the exception of 2005, when we moved to the Perimeter Institute for a year, these events have been located in Vancouver. They have concentrated on the most recent developments in string theory and closely related subjects. Since their inception, the workshops have enjoyed a good international reputation, regularly attracting leading researchers from the international community as participants. The Summer Schools, which have occured in the years 2003, 2004 and 2005 have built on this reputation. They serve a pedagogical role for the community of students and young researchers from North America, Europe and Asia. There

are very few intensive summer schools on mathematical physics in North America. In the field of string theory, this particular school has no serious competitors on the North American continent.

The present proposal is to continue this tradition in the year 2006 by hosting a Summer School at the University of British Columbia. The 2006 version would be the eleventh in this highly successful series of events. As before, the aim of the school is to provide a quality pedagigical experience, primarily aimed at young researchers, graduate students and Postdoctoral Fellows. In total there will be about 70 participants.

The focus of this school will be on recent developments in string theory. String theory is presently the preferred candidate for a physical model of nature at its most fundamental level. It has the potential of unifying all of the known forces, including gravity, into a single dynamical framework. In particular, this would explain the nature of the elementary particles and their interactions and it would give an understanding of the origin of space and time and the universe in which we live. In addition, it has exposed a wealth of new mathematical structures which provide new directions for research in both physics and mathematics. Its great promise as a physical theory of everything and a source of new ideas has captured the attention of a large fraction of the world's best and brightest mathematical physicists. It is vigorously researched and is developing rapidly, obviating the need for pedagogical activities such as the proposed School.

Comments:

This will be the 11th year in which we have organized an event of this kind. During the previous three years the event was a summer school, before that a research workshop.

As a Summer School in string theory, it has no competitors on the North American continent in the Summer of 2006.

Audience:

Graduate students who are studying string theory in Physics and Mathematics Departments, Postdoctoral Fellows and junior faculty.

Participants:

We have not started inviting speakers yet. That will be done soon, in November and December of 2005. Being the only large Summer School in North America and being located in Vancouver, we tend to attract as students some of the the very best. The possibility of lecturing to these students has also always been a drawing card for high profile speakers, whom we have been eager to accept our invitations in the past.

In order to keep the budget for the school at a reasonable level, we will use a mixture of high profile speakers drawn from the international community and those in the local community.

Amount Requested:

10000.00

Expenditures:

students*	22,000
speakers**	18,000
banquet	3,000
overhead***	2,000
Total:	45,000

*we want to provide local expenses for 33 students, dorm rooms@25/nt +per diem@30/da = 55/da for 12da ~ 660/student times 35 students
** six speakers from out of town -- three in each week,
stay supported for one week, airfare average 1,800
accomodation for 1 week 350 per diem * 840 room
***xeroxing, computer access, paper, etc

Income:

PIMS	10,000
PITP	10,000
Perimeter Institute	10,000
APCTP	12,000
Others*	5,000
Total:	42,000

*Others are Physics Dept, Faculty of Science, Triumf.

Selected Dates:

Mon, July 31, 2006
Fri, August 11, 2006