Submittee: Nils Bruin
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Title: PIMS-MITACS Summer School in Algebraic Graph Theory
Event Type: Summer-School

Location:
Simon Fraser University

Dates:
July 2 - 27, 2012

Topic:
Algebraic Graph Theory

Methodology:
Intensive lecture schedule in the mornings combined with tutorial and problem sessions/computer labs in the afternoons. Evaluation of performance of the students via take-home exam in the last week, combined with evaluation of participation throughout the course.

Objectives Achieved:
Students were taught an introduction into algebraic graph theory at upper level undergraduate / beginning graduate level. // Instructors Matt DeVos and Chris Godsil made scientific progress in gathering experimental and theoretical evidence surrounding Graham's Conjecture on tree reconstruction // Students had an opportunity to see mathematical research in action and participate in it. // Students were introduced to the use of computers and computational experiment in mathematical research using the mathematical software Sage (one of the best tools available in the field at the moment)

Scientific Highlights:
Since the focus of this event was educational, scientific progress was not a main objective. Scientific progress was made nonetheless: Graham's Conjecture has now been verified by computer for trees up to a certain size and for certain special families of graphs.

Organizers:
DeVos, Matt, Mathematics, SFU (Scientific) // Bruin, Nils, Mathematics, SFU (Administrative)

Speakers:
DeVos, Matt, SFU // Godsil, Chris, Waterloo // Krystal Guo, SFU

Links:
http://www.sfu.ca/~mdevos/summerschool2012/Introduction.html // http://www.sagemath.org

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Comments / Miscellaneous:
For the benefit of future workshops, we include some comments on what we view helped make this event so successful. // The combination of a lecture room and adjacent lab with computers in the PIMS-SFU space provided the ideal location for an event like this. // Our competitive application and selection procedure supplied us with a group of extremely motivated students. Their motivations allowed them to overcome holes in their knowledge by working harder. // The synergy of an enthusiastic team -- in addition to the two main lecturers, a team of 4 graduate students helped with grading, tutorials and computer support, helped to make it doable to teach an intensive course, covering the material normally taught in a semester. // The social part of the programme (various excursions, hikes, a welcome dinner and a goodbye reception) provided an inexpensive way to forge a genuine sense of group as well as an opportunity for the students to interact with the lecturers and graduate students. This provided them with an excellent chance to talk informally with mathematicians in various stages of their careers. // As anecdotal evidence that the students really did enjoy the experience: The students spontaneously came up with the idea to produce T-shirts celebrating the event and carried through having them printed.