Submittee: Kristine Bauer
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Title: Summer School on Surgery and the Classification of Manifolds
Event Type: Summer-School

Location:
University of Calgary

Dates:
07/18/2016- 07/22/2016

Topic:
Topology, specifically surgery theory.

Methodology:
The summer school took place over the course of 5 days. Each day of the summer school, there were 4 one-hour instructional lectures delivered by experts on topics introducing surgery theory and research topics in the field (the last day had only 3 lectures to accommodate participants' travel). For the first four days of the summer school, there were also two half-hour mini-lectures each day, which were prepared by the summer school students in advance in teams of two. Each of the first four days closed with an exercise session, in which students were given thought-provoking and challenging problems. These sessions were staffed by the main summer school instructors (Crowley, Davis, Khan and Stanley) and the students had the opportunity at that time to ask one-on-one questions and have a hands-on learning experience.

Objectives Achieved:
The main objectives of the workshop were to provide an introduction to the field of surgery theory for future practitioners in North America, and to introduce students to current areas of active research.

 The students learning objectives can be measured by the short notes they prepared for mini-lectures, and the progress they made during problem sessions.

 Exposure to current areas of research was accomplished in two ways. First, the last two days of lectures of the summer school (by Crowley, Davis, Hambleton, Stanley and Yu) were a transition to topics in which surgery theory is used as a research method. The capstone lectures by Yu, in particular, were focused on recent progress related to the Novikov conjecture and index theory.

 The summer school was followed by a 2-day workshop at BIRS. Students who were more advanced in their research careers were invited to participate in the BIRS workshop, which was a more traditional conference in which participants could disseminate research and exchange ideas.

Scientific Highlights:

The summer school was the first of its kind in North America, although there have been several other summer schools in Europe on Asia introducing surgery theory. This event has provided the necessary background in the field to emerging researchers, and we hope that this will increase the level of activity in the field in North America.

 Several participants, most notably M. Bustamente, R. Kasilingam, G. Sorcar, Z. Su, B. Tshishiku and Z. Zie, mentioned how important the summer school was in placing their current research in context, which will certainly influence their future work.

Organizers:
Bauer, Kristine, Department of Mathematics and Statistics, University of Calgary
 Crowley, Diarmuid, Department of Mathematics, University of Aberdeen
 Davis, Jim, Department of Mathematics, Indiana University
 Khan, Qayum, Department of Mathematics, Saint Louis University
 Stanley, Donald, Department of Mathematics, University of Regina

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Speakers:
Please see the attached PDF file.

Links:
http://www.pims.math.ca/scientific-event/160718-ssscm

File Uploads:
Additional Upload 1: http://www.pims.math.ca/files/final_report/Lectures.pdf

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