Report on PIMS
11th Graduate Industrial Mathematics Training Camp
and
12th Industrial Problem Solving Workshop
University of Regina
June 9—20, 2008

The Pacific Institute for Mathematical Sciences (PIMS) has sponsored an annual Industrial Problem Solving Workshop (IPSW) since 1997. The aim of the IPSW is to create a mutually beneficial link between researchers in industry and academic mathematical scientists. Faculty and students from the academic community study problems brought by industrial participants during the weeklong workshop. Their results are presented at the end of the week. The benefits of an IPSW are numerous.

There were about 55 participants from all over the globe, including: five from Australia; 34 from Canada; one from Greece; 4 from Mexico; and 11 from USA. Included in this list are the mentors that play a vital role in the GIMMC by providing training on how to approach typical industrial problems. The mentors for our event were: Laura Cowen (University of Victoria), Ed Doolittle (University of Regina), Neville Fowkes (University of Western Australia), Don Kreher (Michigan Tech), and Roge Mamon (University of Western Ontario)

Two example groups during the GIMMC week: **Laura Cowen**, **Mentor**: *Mark Recapture with batch marks but no remarking.* Ha Dang, Yuhui Huang, Rachel Robertson, Elizabeth Diaz, David de la Rosa, Flavio Vigueras, Ryan Tifenbach, and Harish Kashyap; and **Neville Fowkes**, **Mentor**: *Piped Water Cooling of a Concrete Slab.* Shannon Collinson, Janice Cotcher, Asef Nazari Ganjehlou Zanin Kavazovic, Heidi Muller, George Price, and Hugo Rodriguez.

During the next week the main focus of the event took place, namely the Industrial Problem Solving Workshop. We managed to secure five industrial partners, four from Saskatchewan and one from Alberta. During the week, many of the groups made substantial progress and developed some significant advances. Over the week the five companies that participated were: MOSAIC Potash, Evraz, Accutrak, Saskatchewan Gaming, and the Cross Cancer Insitute. One of the major success stories in my opinion (which also received some press both on CBC Radio and The Leader-Post) was the work accomplished on the problem presented by Evraz. Evraz Regina Steel manufactures approximately 100 kms. of pipe and 3,000 tons of steel on a daily basis. To keep this monster operation flowing, its Supply Chain/Logistics Team procures over 80,000 tons of scrap metal every month. To avoid both high scrap inventories and the risk of running short on supply, the monthly scrap buy is a balancing act between cost and delivery times. Evraz wanted us to optimize their monthly scrap purchase as a function of the price differential and associated transportation costs. They wanted a spreadsheet-based tool that takes all supply chain variables into account---such as costs and transit---to optimize their monthly scrap buy. This tool, combined with experience and market trends, will be used to efficiently plan the scrap purchasing. By the end of the week, this main goal was accomplished, much to the satisfaction of the representatives of Evraz that were present during the entire week and the final proceedings. A complete detailed report is forthcoming and will be posted on the PIMS industrial webpage.