Women In Numbers

Kristin Lauter

WIN2 *Women In Numbers* was a 5-day workshop held at BIRS (Banff International Research Station) on November 7-11, 2011 to bring together female faculty and graduate students to work on open research problems in number theory. The goals of the workshop were to build a research collaboration network among women at all stages of their research careers in number theory, starting active collaborations by introducing graduate students and junior faculty to the research agendas of senior faculty. The WIN network and conferences aim to highlight the research activities of women in number theory while helping to train female graduate students and increase the participation of women in the field.

WIN2: Women In Numbers, The Banff Center, November 2011

Number theory is a vibrant research area in mathematics, with a rich history and significant applications in areas like cryptography and information security. The WIN Network was formed in 2008 when the first conference, WIN1, was held at BIRS. The WIN2 conference was run with roughly the same model as WIN1: the 42 female researchers were divided into 8 project groups representing different areas of number theory. Each group had two project leaders who designed the project and proposed the research questions to be addressed. Each research group included both graduate students and junior and senior faculty. During the first half of the conference, two introductory lectures were given by the project leaders for each group, and time was allotted for group work. Most groups worked until late in the evenings as well. The last day of the conference was devoted to project presentations by the other group members, summarising the progress made on the problem during the conference. The project groups will continue their research over the next year and contribute research articles based on those collaborations to a volume for the conference. The WIN1 workshop resulted in a volume published by the Fields Institute containing 16 research and survey articles.

WIN2 was organised by Chantal David (Concordia University), Matilde Lalin (Universite de Montreal), and Michelle Manes (University of Hawaii). WIN1 was organised by Kristin Lauter (Microsoft Research), Rachel Pries (Colorado State University), and Renate Scheidler (University of Calgary). The Banff Center provided a perfect environment and additional support was received from PIMS, Number Theory Foundation, and Microsoft Research.

The series of WIN conferences has helped inspire follow-up research conferences for women on other continents and in other areas. Number theory conferences for women in Europe and in Asia (WIN-Europe and WIN-Asia) are being planned. A similar research conference took place for women in Algebraic Combinatorixx this year at BIRS, and a proposal has been submitted by women in Algebraic Topology (WITS).

Kristin Lauter
Microsoft Research, US

Kristin Lauter is a Principal Researcher and the head of the Cryptography Research Group at Microsoft Research. She is an Affiliate Professor of Mathematics at the University of Washington. Her research interests focus on number theory and algebraic geometry and applications to cryptography and coding theory. Applications include privacy of electronic medical records, cloud computing security, elliptic curve cryptography, hash functions, and security protocols. She received a PhD in Mathematics in 1996 from University of Chicago and was an Assistant Professor at the University of Michigan. She was co-winner of the Selfridge Prize in Computational Number Theory in 2008.