The George Washington University

Department of Mathematics

SUMMER PROGRAM FOR WOMEN IN MATHEMATICS
13TH REUNION THURSDAY, JAN 5, 2012
1:00- 4:00 PM

BACK BAY BALLROOM D, 2ND FLOOR SHERATON, BOSTON

PROGRAM

1:00 p.m. - 2:00 p.m. Introductions, Shared Experiences, Follow up
2:00 p.m. - 2:30 p.m. Memorial for Joyce Macabea (SPWM 1996)
2:30 p.m. - 3:15 p.m. Participant Presentations

2:30 *Taking the limit of the spectrum of random matrices*
Diane Holcomb, University of Wisconsin, Madison, WI *(SPWM 2007)*
2:50 *A Numerical Method for the Elastic Contact Problem*
Sarah King, North Carolina State University, Raleigh, NC *(SPWM 2006)*

3:15 p.m. - 4:00 p.m. Informal get-together, Networking

ABSTRACTS

Speaker: Diane Holcomb (graduate student, University of Wisconsin at Madison)
Title: Taking the limit of the spectrum of random matrices.

Abstract: A random matrix is simply a matrix with random entries. These entries can be determined in a variety of ways, each entry could be chosen independently according to some distribution, or the matrix could be chosen according to some measure on a chosen set of matrices. I'll introduce a class of matrices for which we have a great deal of information about the eigenvalues. Given this information what type of limiting behavior can we observe? As the size of our matrix grows to infinity, we can look at several different limits of the eigenvalues. We'll take a brief look at two different types of limits we could consider and look at some of the more interesting results that have been found.

Speaker: Sarah King (graduate student, North Carolina State University)
Title: A Numerical Method for the Elastic Contact Problem

Abstract: We present a numerical method for solving the elastic contact problem in two dimensions. The Signorini contact problem is a variational problem that minimizes the elastic deformation energy subject to the contact inequality, i.e., the normal displacement at a given point of the boundary bounded above by an obstacle function. The Coulomb friction problem is a minimization of the deformable energy with a L^1 term at the boundary. We approximate these variational formulations with a multi-moment scheme which involves the use of the function values as well as the gradient values at nodes. We then apply the Primal-Dual active set method on these discretizations to form solutions. Finally we combine the solutions to the Signorini and Coulomb friction problems to solve the full contact problem.

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SUMMER PROGRAM PARTICIPANTS EXPECTED TO ATTEND BOSTON REUNION

1995	Karen Stanish
1998	Anna Varvak
1998	Emily Dryden
1998	Julia Bergner
2003	Abra Gail Brisbin
2004	Jennifer C. Leahy
2004	Kate Kearney
2004	Rachel Thomas
2004	Veronica Bloom
2005	Fatima Mahmood
2006	Ilanit Helfand
2006	Lisa Basile
2006	Liyang Diao
2006	Marina Skyers
2006	Sarah King
2007	Diane Holcomb
2007	Jaclyn Lang
2007	Liat Berdugo
2008	Amy Boyter
2008	Diana Hubbard
2008	Sarah Wolff
2009	Christina Battista
2009	Jennifer Berg
2010	Brittany Baker
2010	Jacqueline Stone
2010	Jane Rieck
2010	Jennifer Garbett
2010	Kathryn A. DeJong
2010	Stephanie Bobo
2011	Amanda Clemm
2011	Amanda Snedegar
2011	Amy Baker
2011	Caitlin Hult
2011	Cynthia Wu
2011	Elizabeth Bolduc
2011	Erin Compaan
2011	Hyesu Kim
2011	Isabel Fulcher
2011	Jennetta George
2011	Kimberly Kesting
2011	Lindsey Scoppetta
2011	Michelle Zajac
2011	Renee Russell
2011	Terika Harris