

Preface

The annual University of North Carolina Greensboro Regional Mathematics and Statistics Conference (UNCG RMSC) has provided a venue for student researchers to share their work since 2005. The conference is a 1-day event promoting student research in mathematics, statistics, and their applications in various fields. The 2013 conference was held on Saturday, November 2, 2013.

In 2013, the conference was attended by a diverse group of 157 participants from a total of 35 different schools and colleges. Majority of the participants came from UNCG (39), Winthrop University (20), Elon University (13), Bennett College (10), Clemson University (9), Kennesaw State University (7), Clayton State University (6), and NC State University (6). There were a total of 115 student participants which included 3 high-school students, 68 undergraduate students, and 44 graduate students. Many of the participants came from groups underrepresented in STEM disciplines (61 students and 17 faculty were women, 21 participants were African American, 3 were American/Alaskan Native, and 2 were Hispanic).

The students delivered a total of 57 presentations with 29 presentations by undergraduate students, 26 by graduate students, and as a special highlight of the conference, *2 presentations were delivered by high-school students*.

The talks were on various topics of mathematical biology, differential equations, statistics, biostatistics, number theory, algebra, combinatorics, applied mathematics, probability, and computational mathematics. The North Carolina Chapter of the American Statistical Association sponsored the best presentation competition. All presentations were evaluated by a group of faculty volunteers. The following nine students won the *outstanding student presentation award*:

- Graduate student category
 - Tim Antonelli, NC State University
 - Heather Hardeman, Wake Forest University
 - Amanda Traud, NC State University

- Undergraduate student category
 - Ke'Yona Barton and Corbin Smith, Bennett College
 - Eric Kernsfeld, Tufts University
 - Caitlin Ross, UNCG
- High-school student category
 - Manu-Sankara Gargeya, The Early College of Guilford
 - Saumya Goel, Grimsley High School

In addition to the 57 presentations by students, the conference featured two plenary presentations by:

- Simon Tavener, Colorado State University: Evolution of resistance to white pine blister rust in high elevation pines
- Jerry Reiter, Duke University: Protecting data confidentiality in an era without privacy

The conference would not have been possible without the generous support from our sponsors. Funding and support for this conference were provided by the National Science Foundation (grant DMS-1332369), the Department of Mathematics and Statistics, UNCG, and the UNCG College of Arts and Sciences.

All presenters were invited to submit a manuscript to be reviewed for publication in this proceeding. Submitted papers subsequently went through a rigorous refereeing process. The topics covered in this proceeding reflect the topics presented at the conference and the reader will find papers on differential equations, number theory, algebra, combinatorics, probability, statistics, mathematical biology, and computational mathematics.

All papers have a substantial student co-authorship. It is not difficult to look beyond the papers to see the hard work and dedication of many faculty mentors that go well beyond their duties to attract students to research projects in mathematics and statistics. On the other hand, the endless efforts of these excellent students on their research projects are now rewarded by a publication which will encourage them to explore further and deeper. Congratulations to all for this achievement.

We would like to especially highlight the work of two high-school students, Manu-Sankara Gargeya and Saumya Goel. Their manuscripts may not be at the level of other research contributions in this proceeding, but both students and their mentors deserve a warm applause for the work they have done.

We certainly hope the readers will enjoy the manuscripts and will attend the UNCG RMSC conference in the coming years.

Greensboro, NC, USA

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