

Math Alliance News

March 2013

Volume 1, Issue 2

Mentor Spotlight Carlos Castillo-Chavez

Arizona State University

Upcoming Events:

USTARS Meeting—
Purdue University
April 19-21, 2013

**SAMSI Undergraduate
Modeling Workshop—**
North Carolina State
University
May 13-17, 2013

**Field of Dreams
Conference—**
Phoenix, Arizona
November 1-3, 2013

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-This article by Phil Kutzko will appear in a forthcoming volume of the journal, *Mathematical Biosciences and Engineering*, in honor of the sixtieth birthday of Carlos Castillo-Chavez.



It is hard, now, to imagine a time when our math department's graduate program had no minority students. The diversity of our program has become so familiar to us that when, this spring and summer, seven of our minority students earned their doctoral degree it was hardly

commented on. Indeed it was only when we began to miss these students – students who were like family to us – that the reality of this singular achievement manifested itself to us. Yet there was indeed a time when there were no minority graduate students in mathematics at the University of Iowa. In fact, only two minority students earned their doctoral degrees from our department from 1974, when I joined the department, to 1998. And it is no exaggeration to state that, without the trust and support of Carlos Castillo-Chavez, it is unlikely that the transformation of our graduate program that took place over the past fifteen years would have occurred.

To understand this, it will be helpful to understand a bit about our culture and our demographics. The State of Iowa has always been, by American standards, progressive in the area of race and ethnicity. Indeed, the two doctoral granting Iowa Regents universities had developed a reputation in the post-World War II era as one of a handful of places where minority students, especially African Americans, could earn a Ph.D. For one reason or another, though, this had largely ceased to be the case by the late 1980's. Given that Iowa, like its neighboring states, is overwhelmingly Northern European in its ethnicity, such reputations are as easily lost as they are created and by 1995, when several of us set out to transform our graduate program, we were virtually unknown to the small minority community in our profession. Because of this, our first steps were difficult ones.

I remember returning home from Europe in the spring of 1995 to find that several of my colleagues had applied for and received funding for eight fellowships from the Graduate Assistance in Areas of National Need (GAANN) program. Although these fellowships could be awarded to anyone coming from a group that was underrepresented in mathematics, my colleagues were determined to keep the commitment they had made to use

this support for minority students and they worked hard to attract such students. The problem was that we (for I had joined with them by then) had no contacts in the minority community nor knew anyone in that community who would vouch for the seriousness of our commitment. Luckily, Herb Hethcote, who was one the first of our faculty to join our effort, knew Carlos well. In fact, Carlos viewed him as something of a mentor. So Herb turned to Carlos and Carlos, in an act of faith, trusted us with several of his MTBI alumni. As we quickly learned, MTBI not only prepared its students mathematically, but it also prepared them for the experience of attending graduate school in a department like ours – a department comprised of faculty and students who were open to change and committed to broadening participation but who were also undeniably provincial. As Carlos's students began to arrive at Iowa, they played a critical role in transforming us. And arrive they did! Starting in the late 1990s, at least twelve MTBI alumni entered our program and, so far, we have awarded doctorates to ten of them. They came from New York City, California, New Jersey, and Puerto Rico, among other places. Two MTBI alumni – both of them of European background – even came from the Midwest and played a critical leadership role while at Iowa

Our program grew and, by any measure, it has succeeded. Much of this success is due to the encouragement that Carlos has given us over the years as well as an important lesson we have learned from him: that a successful minority program depends both on passion and on organization and that its success is measured at least as much by its successful institutionalization as by its number of successful students.

All of this was put in motion when Carlos took the risk of trusting a group of mathematicians at a majority institution in a largely white state in the Midwest that, as far as I know, he had never even visited – trusting that they would keep their word to mentor and nurture his students, that they would commit themselves to give these students a home, and that they would work to provide a safe and supportive environment so that these students would continue to thrive. Without that trust and the mentoring and encouragement he has provided over the years, I doubt that our program would have thrived.

Our department thanks you for trusting us, Carlos, and we hope we have not betrayed that trust. We will look to you in the future, as we have in the past, as a friend, an ally and a collaborator in building a new American mathematics. Happy Birthday, Carlos, and God Bless!

National Alliance for Doctoral Studies in the Mathematical Sciences

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conference announcements,
important program deadlines
and REU registration
information!

ICERM: Call for Proposals

The Institute for Computational
and Experimental Research in
Mathematics (ICERM) invites
proposals for programs that sup-
port its mission to foster and
broaden the relationship between
mathematics and computation.

Submit pre-proposal to
director@icerm.brown.edu
no later than September 1st.

The AfterMath Conference Preparing for Careers in the Mathematical Sciences



On February 9, 2013 Harvey Mudd College hosted the first annual **AfterMath Conference: Preparing for Careers in the Mathematical Sciences**. This conference was co-organized by Alissa Crans, Dagan Karp, Talithia Williams and Robin Wilson. The Goals of the conference were (1) working to broaden participation in mathematics by engaging a diverse cohort of students from Southern California, (2) encouraging applications to graduate school from local undergraduate students and (3) providing information and resources surrounding mathematically oriented careers outside of academics.

With a modest budget (generously provided by the National Alliance with local support from the HMC Department of Mathematics), we were able to attract over 100 students from greater Los Angeles, for this Saturday conference. Students came from as far north as UC Santa Cruz, as far south as Biola University, as far west as Loyola Marymount University and as far east as Cal State San Bernardino.

The keynote address was given by Phil Kutzko, who spoke about the cultural history of mathematics and how it has shaped the discipline and its practitioners. In addition to the keynote talk, two panels were held. The first panel centered on graduate school, and panelists included America Chambers, Alberto Soto and Karen Wood of UC Irvine, Jackie Lang of UCLA and Dr. Syvillia Averett of Central State University. The panelists ranged from recent graduates to earlier graduate students, and were able to answer audience questions ranging from qualifying exam tips, to choosing an advisor, to finding a peer group. The second panel focused on Industrial Mathematics, with panelists Gary Green of Aerospace Corporation, Enrique Schultz of Mercer and Susan Martonosi in Operations Research at Harvey Mudd College. Discussions ranged from networking advice, to specific sub-disciplines worthy of focus for industrial applications, to general career advice, to degree requirements in various industries.

Participants were also active in two separate workshops. First, students brainstormed their graduate school Statements of Purpose and wrote rough drafts and outlines. The collective results of this brainstorming session are collected [here](#). Next, students engaged in a workshop on choosing the right PhD program, complete with an application timeline and checklist.

The day ended with a graduate school fair, with schools (and representatives) including USC (Francis Bonahon), University of Arizona (Tom Kennedy), UC Riverside (Julie Bergner) and University of Iowa (Colleen Mitchell, Gideon Zamba). We were pleased to see a thirst for career advice in mathematics, both in and out of academics. This was made clear time and again throughout the conference and in evaluations.

Summer REU's

Illinois Institute of Technology
[Computational Mathematics at Illinois Institute of Technology](#)

Kansas State University
[Summer Undergraduate Mathematics Research \(SUMaR\)](#)

Texas State University
[New Paradigms of Information Retrieval from Diverse Data](#)

University of Iowa Departments of Biostatistics and Statistics
[Iowa Summer Institute in Biostatistics \(ISIB\)](#)

University of Louisiana Lafayette
[Smooth Transition for Advancements to Graduate Education \(STAGE\)](#)

University of Minnesota
[Summer Institute in Biostatistics \(SIBS\)](#)

University of Washington
[RTG Inverse Problems and Partial Differential Equations](#)

Post-baccalaureate Programs

Smith College Department of Mathematics
[Center for Women in Mathematics Post-Baccalaureate Program](#)

Math Sciences Institutes Opportunities

American Institute of Mathematics
[SQuaREs\(Structured Quartet Research Ensembles\)](#)

Institute for Computational and Experimental Research in Mathematics (ICERM)
[IdeaLab 2013](#)

Institute for Computational and Experimental Research in Mathematics (ICERM)
[Research Experiences for Undergraduate Faculty](#)

Statistical and Applied Mathematical Sciences Institute (SAMSI)
[Summer 2013 Program: Neuroimaging Data Analysis](#)

Internships

National Security Agency
[Computer Science Intern Program \(CSIP\)](#)

[The HACU National Internship Program \(HNIP\)](#)
August 22-December 9 2013

**Save the Date for the 2013
Field of Dreams Conference**
Phoenix, Arizona
November 1-3, 2013

We want to hear from you! What was your favorite experience from the 2012 Field of Dreams Conference? What would you like to see at this year's Field of Dreams Conference? Tweet your thoughts to us @Math_Alliance or e-mail them to mathalliance@uiowa.edu.