Thoughts from the Executive Director...

David Goldberg
Executive Director of the Math Alliance

It's the end of June, and the days are already starting to get shorter again. That's a good reminder of how much we need to do before the Field of Dreams Conference this fall. But it's also a good time to report on some other important meetings. The Institute for Mathematics and its Applications and the Math Alliance held a joint workshop June 5-8 in Minneapolis, MN, focusing on the many possible academic and career paths outside of pure mathematics for students with strong quantitative training, like our Math Alliance Scholars. The audience was F-GAP Scholars and their mentors, and we think it was a great success. There is a separate story in this issue describing the activities of that workshop in more detail. We are very much hoping to run another such workshop next year, and we'll hope to see a lot of you there!

I am just getting back from this year's Council for African American Researchers in the Mathematical Sciences (CAARMS) conference (CAARMS25) and it was, as always, an uplifting event. William (Bill) Massey, Princeton, has to be given a tremendous amount of credit for creating CAARMS and for keeping the conference going and growing for the last 25 years! It was a lucky accident that I was at the first CAARMS meeting at MSRI in 1995. To see the extent to which CAARMS has grown, sustained, and succeeded in its mission is truly inspiring, and it is largely due to Bill's dedication and devotion to CAARMS. He is a role model for many of us in the Math Alliance, and we have a lot we can learn from Bill and CAARMS. It was also great to see many Math Alliance Mentors and Math Alliance Scholars who were participating in CAARMS25, and we also met some amazing new friends that we hope will become part of our community. CAARMS is a great asset to the mathematical sciences community and to our nation.

We are looking forward to the Joint Statistical Meetings (JSM) at the end of July in Denver, and our session on forming GPGs. We hope many of our mentors at the JSM will be attending, and that statistics and biostatistics departments will send representatives to learn more about becoming GPGs. In the fall, besides Field of Dreams, there will be the NYC Math Sciences Alliance meeting on September 14, and the Pacific Math Alliance meeting on October 12. Also, see the item in this issue announcing our featured speakers for this year's Field of Dreams Conference!!! We're looking forward to seeing everyone there!

IMA- Alliance Summer Workshop

The Institute for Mathematics and its Applications (IMA) and the Math Alliance organized a workshop, "Career Paths in the Mathematical Sciences" at IMA in Minneapolis, MN, which took place June 5-8. The purpose of the workshop was to expose our F-GAP students, and their mentors, to the wide variety of disciplines and careers for which an undergraduate degree in the mathematical sciences is viewed as good preparation. There were 87 workshop participants including 33 F-GAP students and 29 Math Alliance mentors. The workshop featured four plenary talks. Rebecca Nugent, of Carnegie Mellon: "Data Science: What is it? Why is everyone talking about it? Should you be doing it? (You probably are already); Juan Meza, of the National Science Foundation: "The Quite Reasonable Effectiveness of Mathematical Sciences"; Javier Rojo, of Oregon State: "On some examples of statistical applications", and David Hummels, of Purdue University: "Make great money, change the world (for the better): PhD options in Management and Economics". (The links will take you to videos of these presentations). There were also several panels on career opportunities featuring math scientists working in non-academic settings including software development, health care, the business side of a major league franchise, the Federal Reserve, the financial sector, and pharmaceuticals. There were communications modules with improvisational actors, and a machine learning tutorial. There was a presentation for mentors on "Mentor Activity: Bringing Industrial Applications to the Mathematics Classroom", and discussions for mentors about attracting and mentoring underrepresented students. There were several other activities; the full schedule is available on the workshop website (above). Several sessions, in addition to the plenary talks, were video recorded and those videos are available at the conference website. The workshop was supported by the University of Minnesota Office of Equity and Diversity, Cargill, United Health Group, and Target, in addition to IMA. We want to thank IMA and all of these sponsors for helping to make this event a great success. We want to thank Daniel Sprin (IMA Director), Benjamin Brubaker (Deputy Director), and Katherine Dowd (Assistant Director), and all the IMA staff for all the great organizational work, and for providing the videos, which we think will be a great resource to our community. We definitely hope to organize another workshop along similar lines (with new topics) next year, and look forward to working more closely with IMA on this and other projects.

The 2019-2020 F-GAP
Program still accepting applications!

The Facilitated Graduate Applications Process (F-GAP) is an Alliance program that provides undergraduate juniors, seniors, and Master's students with the advice and assistance needed to begin the application process as they apply to graduate programs.

F-GAP will help students choose departments that are most appropriate to their goals and aspirations. The Alliance Community will work with the student as they prepare their applications to graduate programs and will assist in tracking the progress of their applications through the admissions process. The Alliance Community will assist in maximizing the chances that Alliance Scholars will be admitted, with support, to a department or program where they will thrive. We will pair each eligible student with one of our Doctoral Alliance Mentors who will work with the students local mentor to create a mentoring team that will aid in the application process.

If you know of an undergraduate or Master's student who will be graduating in the Spring of 2020 and will be applying to graduate programs for Fall 2020, **submit student nominations here**: https://mathalliance.org/2019-fgap-nomination-form/.

As part of this submission, you will be asked to check a box stating that you have read the document, "Selecting students for the F-GAP program: FAQs.")

Things to note in the AMS Notices

AMS AMERICAN MATHEMATICAL SOCIETY
Advancing research. Creating connections.

Interested in Applying to a Liberal Arts Institution?: Perspectives from Reva Kasman, Julie Rana*, and Chad Topaz

The Origins of Spectra, an Organization for LGBT Mathematicians Robert Bryant, Ron Buckmire*, Lily Khadjavi, and Douglas Lind

Mathematics Societies and AAAS: Natural Partners?, Sophia D. Merow

Activities of the Office of Government Relations, Karen Saxe*

*designates Math Alliance Mentors

2019 Field of Dreams Conference
Featured Speakers Announced

We are pleased to announce the three featured speakers for the 2019 Field of Dreams Conference, **November 15-17 in St. Louis, MO**

Banquet Keynote Address: Roselynn Williams, Associate Professor of Mathematics, Florida A&M University

Mathematical Sciences Lecture: David Hummels, Dr. Samuel R. Allen Dean of the Krannert School of Management and Distinguished Professor of Economics, Purdue University

Connections Lecture: Sylvester James Gates, Jr., Director of the Theoretical Physics Center, Ford Foundation Professor of Physics, Affiliate Mathematics Professor, and Watson Institute for International Studies & Public Affairs Faculty Fellow, Brown University

Alliance Panel Session at JSM

DENVER, COLORADO JSM2019 JULY 27–AUGUST 1

The National Alliance for the Doctoral Studies in Math Sciences will have a session during the 2019 Joint Statistical Meetings in Denver, Colorado for graduate programs interested in becoming Alliance Graduate Program Groups (GPGs). The session, number 218957, entitled "Math Alliance Workshop on Becoming a Graduate Program Group" will be held on **Wednesday, July 31, 2019, from 2:00 PM- 3:30 PM,** in the Colorado Convention Center H-Centennial Ballroom B, and is organized by Leslie McClure (Drexel, Alliance Associate Director for Statistics) with panelists David Goldberg (Purdue, Alliance Executive Director), and Donald Martin (North Carolina State University).

Everyone is welcome, and we especially encourage faculty interested in learning more about the Alliance and GPGs. If you have any questions, please feel free to contact us.

Recent Awards and Achievements

Alliance Mentor, Sara Maloni of the University of Virginia, has been awarded an NSF CAREER Grant for her work at the intersection of geometry and low-dimensional topology. She studies deformation spaces of geometric structures on low-dimensional manifolds through their geometric, topological and dynamical properties. Congratulations Sara!

Math Alliance Mentors named Simons Fellows
Math Alliance Mentors Federico Ardila, Vyjayanthi Chari, and Gheorghe Craciun were named Simons Fellows in Mathematics. Read the article here

Math Alliance Scholars awarded 2019 NSF GRF Awards

- **Sofia Martinez Alberga** will be attending Purdue University this fall.
- **Tristan Reynoso** will be attending this Louisiana State University fall.
- **Scott Mahan** is attending the University of California, San Diego.
- **Allen Alvarez-Loya** is attending the University of Colorado, Boulder.
- **Sabrina Enriquez** is attending the University of California, Davis.
- **Rebekah Loving** will be attending California Institute of Technology in the fall.

Congratulations to all of these scholars! This is quite an achievement.

Three Math Alliance Scholars that were MSRI-UP students in Summer 2018 received honors on their research posters at JMM in January.

- **Cameron Hooper** from California State University, Fullerton
- **Nathalie Huerta** from California State University, Channel Islands
- **Skylyn Irby** from The University of Mississippi

Congratulations to all three of these scholars on your research and a job well done.

David Hummels named Distinguished Professor of Economics

David Hummels, Dean of the Krannert School of Management at Purdue University, has been named a Distinguished Professor of Economics. Dean Hummels has been an avid supporter of the Math Alliance and guest columnist of this newsletter. To read the announcement visit: https://www.krannert.purdue.edu/news/features/home.php?story=5590. Congratulations to David Hummels on this well deserved honor!

David will also be joining us at this year's Field of Dreams Conference as the Mathematical Sciences Speaker.

Penn State becomes an Alliance Partner!!!

The Math Alliance, and the Center for the National Math Sciences Alliance, is pleased to announce that Pennsylvania State University is the latest university to become a Partner in the Center. The agreement was announced at the April 12 Executive Council and Partners meeting at Purdue University. Penn State joins Purdue, University of Iowa, University of Minnesota, and Washington University in St Louis as partners in the Center. Partnerships represent an institutional level commitment to supporting the work of the Alliance and for bringing the principles and best practices of the Alliance to other STEM disciplines on their campuses. Through the support of these five Partners, and our Member Departments we have been able to continue and grow the work of the Alliance in helping provide opportunities for traditionally underrepresented students to pursue doctoral studies in mathematical sciences. Partner organizations also provide us with advice regarding all aspects of the Alliance and its activities. The Center is expecting to have more partnership announcements in the near future.

If you think your campus or organization is a good candidate for a partnership, contact Phil Kutzko or David Goldberg for more information. Thanks Penn State!!! We are very excited to have you as a Partner in the Center for the National Math Sciences Alliance.

Gateway Regional Alliance Holds First Conference

On Saturday, April 6 the Gateway Regional Math Alliance held their first ever student and faculty conference at Harris-Stowe State University. The event brought together people from the Saint Louis region to hear inspiring talks on mathematics as well as provided opportunity for students, faculty, and industry to network. Our goal was to show that in St. Louis there is a strong community of mentors who are excited to help students navigate their mathematical career at each step of their journey.

After welcoming remarks from Harris-Stowe Provost Dwayne Smith and Alliance Executive Director David Goldberg, the keynote address from Bill Velez, Professor Emeritus at the University of Arizona, discussed how the mathematics brings precision to all sorts of problems in life and how it has worked for his career and how he sees a bright future for students who develop mathematical thinking patterns. Kyle Sykes from 1904labs discussed his journey from elementary mathematics in community college to a Ph.D. in mathematics. He pressed the point that being the best at something is not as important as being dedicated and motivated.

Professor Kelly Ballard from Saint Louis Community College discussed the supportive people (both family and mentors) who inspired her to pursue her fulfilling career. Newly minted Assistant Professor of Chemistry Michael Hankins from Southern Illinois University Edwardsville shared how he uses partial differential equations and mathematical modeling to guide his physical experiments in electrochemistry. Visiting Assistant Professor Charles Burnette of Saint Louis University shared his journey from English major to Combinatorialist and thereby inspire students that with time and effort, the impossible becomes understandable.

After lunch, breakout sessions on the Graduate Math Experience and REUs were offered to students. Faculty discussed recruiting students to mathematics as well as the next steps for the Gateway Regional Alliance. The day closed with a talk on Mathematics in Art and Architecture by Associate Professor Anneke Bart of St. Louis University with plenty of pictures.

In all, over 50 people gathered together just a few miles from the Gateway Arch, including about 2 dozen students. We were inspired to keep building the Alliance and are looking forward reporting on our next conference in 2020. To be informed on future gatherings of the Gateway Alliance, please email Jim Gill at jim.gill@slu.edu or Ann Podleski at podleska@hssu.edu.

Data Science and Image Analysis Conference of the Pacific Northwest

The Department of Mathematics and Statistics at Washington State University, in cooperation with the Association for Women in Mathematics (AWM), will host the Data Science and Image Analysis Conference of the Pacific Northwest in Pullman, Washington, February 29th and March 1st, 2020.

Please visit the Student Proposals page of the website for information on applying for a travel award for students, postdocs, and early career researchers, as provided for in a National Science Foundation (NSF) conference grant.

For more info, please visit datascienceandimageanalysis.com.

2019 MBI Undergraduate
Capstone Conference

August 5-8, 2019, MBI, Ohio State University, Columbus, OH

NOW ACCEPTING APPLICATIONS! Applicants may apply for travel funding.

The MBI Capstone Conference offers undergraduate student researchers in the mathematical biosciences and related areas an opportunity to present their work on the national stage. This student-centered conference features:

- Keynotes from prominent researchers
- Talks and posters by student researchers
- Panels on careers and fields of research
- A graduate studies recruitment event

Applications submitted by July 22, 2019 will receive full consideration. There is no registration fee. Limited funding will be available for some participants.

To apply: visit: http://go.osu.edu/Capstone

GROW 2019 Conference

The GROW 2019 conference is aimed at female-identified undergraduate students at U.S. institutions who may be interested in pursuing a graduate degree in mathematics. If you are not sure whether graduate school is for you, the conference will help you decide. If you are already planning on graduate school, the conference will equip you with inspiration, practical advice and networking opportunities.

Travel funding - yes! Accepted undergraduate participants will be offered travel funding. The conference features: engaging lectures by prominent researchers, panel discussions about graduate research in mathematics, networking opportunities, advice on preparing graduate school applications, and feedback on application materials.

Plenary speakers: Marisa Eisenberg (University of Michigan), Eli Grigsby (Boston College), Chelsea Walton (University of Illinois), Alex Yong (University of Illinois)

Time and Place: October 4-6, 2019, at the University of Illinois, Urbana-Champaign, USA.

For full consideration, **apply by July 15, 2019.** You will need your informal transcript, and the name of a faculty recommender.

Applying takes only a few minutes, so please **apply today at:** https://math.illinois.edu/grow2019

YOUNG MATHEMATICIANS CONFERENCE

August 09 – August 11, 2019 at Ohio State University, Columbus, OH

https://ymc.osu.edu

The Young Mathematicians Conference (YMC) is a premier annual conference for undergraduate research in mathematics. Accepted students (typically around 65) are invited with support to the conference during a weekend at the Department of Mathematics of the Ohio State University.

Plenary Speakers

- **Moon Duchin (Tufts University)**
- **Sam Payne (University of Texas at Austin)**
- **Tatiana Toro (University of Washington)**

MATHEMATICAL SCIENCES SEMESTERS
IN GUANAJUATO, MEXICO

Centro de Investigación en Matemáticas, A.C.

CIMAT

An innovative undergraduate program in data science, modeling, and more, combining mathematics, statistics and computer science at the Guanajuato Mathematics Research Centre (CIMAT).

The Mathematical Sciences Program in Guanajuato gives students from across the United States, Canada, and other countries the opportunity to spend up to two semesters in Guanajuato, Mexico, studying mathematical sciences, while exploring the rich culture of Mexico and learning Spanish as they go.

The program offers:

- **Fall Semester in Mathematical Tools for Modeling**
- **Spring Semester in Mathematical Tools for Data Science**
- **Summer Program in Partial Differential Equations**
- **Optional courses in Spanish and Mexican Culture**

All three programs are taught entirely in English. Students will learn the fundamental theoretical bases of pure mathematics, quantitative methods, statistical models, and computer science, equipping them with the ability to choose relevant and efficient algorithmic solutions for solving problems in data science and mathematical modeling. The summer program combines theory, numerical methods, and applications to mathematical finance.

GUANAJUATO, MEXICO

Capital of the state, the city is one of the architectural jewels of central Mexico and is listed by UNESCO as a World Heritage Site. Guanajuato is also the state's most important student city, home to the state's largest educational institution, the University of Guanajuato. Thousands of visitors from all over the world flock to the city each year, making this one of the liveliest and most cosmopolitan cities in all Mexico, famed for its cuisine, its nightlife, and its friendliness to visitors.

PARTICIPANT PROFILE

- Intended major in mathematics, statistics or computer science, or any major with a strong grounding in mathematics.
- At least one Linear Algebra course and Differential, Integral and Multivariate Calculus courses .
- Interested in exploring mathematics to a deeper, more sophisticated level.
- Eager to experience life in a different culture.
- The specific requirements for each semester and the summer program can be found at:

mathsciencesgto.cimat.mx

▶ ABOUT CIMAT

The program has been developed based on the strengths of CIMAT, one of Mexico's leading research centers in the fields of mathematics, statistics, and computer science, focusing particularly on enhancing the relationship between these disciplines. With four decades of experience, CIMAT is recognized both at home and abroad for its tradition of educational excellence and its contribution to the development of students from both Mexico and around the world. CIMAT is also well-known for its applied research projects, its technological and consulting services, and its training programs and initiatives for the dissemination of mathematical knowledge.

www.cimat.mx

2019-2020 MEMBERSHIP

THE SCHOOL OF
MATHEMATICS

THE IAS SCHOOL OF MATHEMATICS

welcomes applications from mathematicians and theoretical computer scientists at all career levels, and strongly encourages applications from women, minorities, and mid-career scientists (5-15 years from Ph.D.). Competitive salaries, on-campus housing, and other resources are available for periods of 4-11 months for researchers in all mathematical subject areas. The School supports approximately 40 post-docs per year.

In 2020-2021, there will be a special-year program, **GEOMETRIC AND MODULAR REPRESENTATION THEORY**, led by Geordie Williamson of the University of Sydney; however, Membership will not be limited to mathematicians in this field.

PROGRAMS

EMERGING TOPICS
math.ias.edu/emergingtopics

WOMEN & MATHEMATICS
math.ias.edu/wam/2020

SUMMER COLLABORATORS
math.ias.edu/summercollaborators

MID-CAREER

Are you 5-15 years from your Ph.D.?
Ask us about funding!

To apply, submit your application at mathjobs.org
For more info, please visit: math.ias.edu

DEADLINE: DECEMBER 1, 2019 · MATHJOBS.ORG

Two Tenure-track Assistant/Associate Professor positions at Morgan State University

The Department of Mathematics at Morgan State University invite applications to fill two tenure-track Assistant/Associate Professor positions starting August, 2019 with an emphasis on Industrial and/or Computational Mathematics. Candidates in any of the following areas of study will be considered: Actuarial Science, Financial Mathematics, Mathematical Statistics, Risk Theory and Statistics, Computational Mathematics, or Applied Mathematics. A high level of scholarship and research accomplishments and/or evidence of outstanding research potential, and evidence of strong teaching should be demonstrated. Candidates will be expected to contribute to the expanding graduate programs within the department and the interdisciplinary research projects within the School of Computer, Mathematical and Natural Sciences (SCMNS). The applicant must also demonstrate a commitment to working with a culturally diverse student population. Duties of the position includes advising students, teaching department undergraduate and graduate courses, providing service to the department and SCMNS, developing a strong research profile, and securing external funding to support research and department programs.

A Ph.D. in the Mathematical Sciences from an accredited university, preferably with a focus in Industrial and/or Computational Mathematics, or Applied Mathematics; candidates should have a strong commitment to teaching and an established record of multidisciplinary and extramurally-funded research experience; experience with data science/analytics, machine learning, and algorithmic analysis and programming; experience in college teaching and evidence of ongoing scholarly activity in the field. Applicants with expected completion of the doctoral degree before May, 2019 will be considered.

The application can be found on the webpage at the link: https://morgan.peopleadmin.com/postings/2282

Tenure Track position in Statistics at Macalester College

Applications are invited for a tenure-track Statistics positions, at the assistant professor level, to begin Fall 2020 at Macalester College.

Candidates must have, or be completing, a Ph.D. in Biostatistics or Statistics (or a closely related field). They must have a strong commitment to teaching and research in an undergraduate liberal arts environment. Some areas of potential interest include machine learning, causal inference, and advanced modeling.

See https://www.macalester.edu/academics/mscs/statisticstenure-trackjob.html for details. Evaluation of applications will begin **October 1, 2019** and continue until the position is filled.

Debnath Endowed Professor in COS/SMSS at UTRGV

The School of Mathematical and Statistical Sciences (SMSS) at the University of Texas Rio Grande Valley (UTRGV) invites applications for the Debnath Endowed Professor position. The Debnath Endowed Professorship in the Mathematical Sciences ("Debnath Endowed Professorship") will be an endowment that shall promote and support excellence in research in the mathematical sciences in the College of Sciences at UTRGV, in accordance with the Regents' Rules and Regulations pertaining to endowed academic positions. It is encouraged that the applicant has experience teaching and conducting research and service with women and underrepresented minority groups and in integrating technology into instruction or teaching in various environments including alternative delivery models. In accordance with the UTRGV strategic plan, the applicant is expected to contribute to the dual-language program or to the creation of new doctoral programs in mathematics. Additionally, the applicant is expected to possess personal characteristics to serve as an example to students, faculty, and professional colleagues.

At UTRGV, the applicant will find numerous collaborative research opportunities with outstanding faculty in the SMSS as well as in other departments, including the newly established School of Medicine; the School of Earth, Environmental and Marine Sciences (SEEMS); the South Texas Diabetes and Obesity Institute; the Center for Advanced Radio Astronomy; and the Center for Gravitational Wave Astronomy. The School has an active research program in pure and applied mathematics, probability and statistics, and math education with over 40 tenured or tenure track faculty members. The appointment requires teaching at the undergraduate and graduate levels and also supervising research by undergraduate, graduate and high school students. The School has a BS program in Mathematics (over 300 majors), a newly approved BS program in Statistics (effective fall 2018) and a growing MS program in Mathematics. The BS program in Mathematics has concentrations in Applied Mathematics, Pure Mathematics, Economics, Science and Engineering, Statistics, Middle School and Secondary School, along with a UTeach program. The MS program in Mathematics has concentrations in Applied Mathematics, Pure Mathematics, Mathematics Teaching, and Statistics. The School welcomes excellent faculty to support the many endeavors and new initiatives in research/scholarship, teaching and student support.

Minimum Qualifications: PhD in Mathematical Sciences from an accredited university.

Discipline Specific Required Qualifications:

A successful candidate for the Debnath Endowed Professorship shall satisfy the criteria for the appointment at the rank of full professor with tenure developed by UTRGV and the School of Mathematical and Statistical Sciences (SMSS), which include, but are not limited to:

- Appointment at the rank of full professor with tenure at UTRGV;
- Distinguished record of research scholarship demonstrated through peer-reviewed original research publications in reputed journals in mathematical sciences and successful external grant awards;
- Demonstration of excellence in teaching and successful engagement of students in research and scholarly activities;
- Earned recognition as a result of academic accomplishments.

EEO Statement
UTRGV is an Affirmative Action/Equal Opportunity Employer that strives to hire without regard to race, color, national origin, sex, age, religion, disability, sexual orientation, gender identity or expression, genetic information or veteran status. UTRGV takes affirmative action to hire and advance women, minorities, protected veterans and individuals with disabilities.

Diversity Statement
UTRGV is a Hispanic-serving Institution dedicated to student success and building a diverse faculty committed to working in a multicultural environment. UTRGV has an NSF ADVANCE grant to increase the representation of women in STEM fields and to promote a positive, family friendly workplace for all faculty. We strongly encourage applications from women and minorities.

To Apply: http://careers.utrgv.edu/postings/21541 . Applications are only accepted via the UTRGV website.