National Association of Mathematicians, Inc.

Undergraduate MATHFest XXX

October 9—10, 2020

Virtual Meeting

https://www.nam-math.org/mathfest.html#XXX

NAM Undergraduate MATHFest XXX

The National Association of Mathematicians (NAM) is a non-profit professional organization in the mathematical sciences with membership open to all persons interested in the mission and purpose of NAM which are (1) promoting excellence in the mathematical sciences and (2) promoting the mathematical development of all underrepresented minorities. NAM was founded in 1969.

NAM's Undergraduate MATHFest is typically a three-day meeting, Friday through Sunday in the Fall, which rotates around the country based on NAM's regional structure. It is held annually to encourage students to pursue advanced degrees in mathematics and mathematics education. The conference is geared for undergraduates from Historically Black Colleges and Universities (HBCUs), although all are welcome to attend. The conference consists of five components:

Student Talks
There will be 8 talks given by 15 undergraduate students. Each talk should be 20 minutes long, including for 5 minutes for questions and answers. There will be a friendly competition for the most outstanding oral presentation.

Poster Presentations
Students have the opportunity to present virtual posters outlining their research. The Poster Session Q&A will take place Saturday afternoon from 2:15 PM—3:00 PM EDT. There will be 7 virtual posters and 10 poster presenters. There will be a friendly competition for the most outstanding poster presentation.

Graduate Fair
Graduate programs, REUs and employers will have an opportunity to showcase their programs and interact with undergraduate students in a one-hour fair. The Graduate Fair will take place Saturday afternoon from 12:00 PM - 1:00 PM EDT.

Problem Time with Dr. Cooper
Throughout the conference, students will be presented challenge problems. Students with correct solutions will be presented prizes.

The J. Ernest Wilkins Lecture
This is an hour-long talk, given by an established researcher, to motivate our undergraduates to continue to pursue research in the mathematical sciences. This year's Wilkins Lecturer is Omayra Ortega (Sonoma State University); her talk will be Friday from 4:00 PM—5:00 PM EDT.

Due to the 2020 global pandemic, NAM MATHFest XXX is being held as a virtual conference.

Visit www.nam-math.org to learn about the other annual programs and meetings that NAM sponsors.

Which MathFest Came First?

NAM's Undergraduate MATHFest began in 1991, and it inspired other similar undergraduate-focused conferences over the years.

- The Mathematical Association of America (MAA) MathFest began in 1997, with a meeting in Atlanta, Georgia. According to Zitarelli:

  > A historic change for MAA national meetings took place in 1996 when the AMS voted to disband its summer gatherings. The MAA decided to continue alone, adopting the name "MathFest" starting in 1997, and has sponsored this meeting every summer since then.

- The American Statistical Association (ASA) StatFest began in 2001, with a meeting on November 1, 2001 at Spelman College.
- The National Math Festival, a biennial conference which began in 2015, was originally slated to be called "MathFest."

Welcome Message from the President of NAM

It gives me great pleasure to bring you warm greetings on behalf of the Board of the National Association of Mathematicians (NAM), Inc. We welcome you to the 30th annual Undergraduate MATHFest that is being held virtually all across this nation! It is important for us to recognize that even in the midst of uncertain, challenging times during a global pandemic and periods of national unrest, that we have an opportunity and a duty each and every day to celebrate each other, to lift each other up, and to keep on going, reaching for the stars!

Students, NAM is literally bringing MATHFest XXX to your doorsteps, to give you the opportunity to learn, to grow, to connect, to engage, and to thrive in the mathematics community. Seize the moment, this is your time to shine!

MATHFest is one of NAM's signature programs that is held annually to encourage minority undergraduate students to pursue advanced degrees in mathematics and mathematics education, and to give students an opportunity to present their research at a professional conference on a national stage. While the conference is geared for undergraduates from Historically Black Colleges and Universities (HBCUs), it is open to all students and we are happy to say that we host students from HBCUs, HSIs, TCUs, and PWIs from liberal arts colleges to universities large and small.

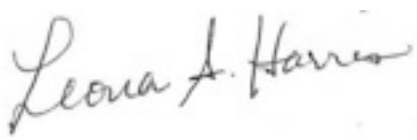
I gave my first oral presentation at a national conference during the 3rd annual NAM MATHFest in 1993, so I know first-hand how important this opportunity is for undergraduate students to present at a professional conference. So, I want to congratulate the students who will be giving oral and poster presentations during the conference, in advance, for making it this far. I am excited to hear about your research and I know that you will do a wonderful job! Because of you, NAM's Undergraduate MATHFest XXX will be one for the record books.

We are thankful to the membership of the National Association of Mathematicians, Inc. and the American Mathematical Society whose generous support makes this year's virtual conference possible.

We are especially grateful to the other members of NAM's Program Committee: Dr. Naiomi Cameron, Vice President and Program Committee Chair (Spelman College), Dr. Shea Burns, Secretary (North Carolina A&T University), and Dr. Brittany Mosby, Region C Member (Tennessee Higher Education Commission), for their leadership in planning, organizing, and executing this virtual conference. Be sure to thank them, when you see them, for a job well done!

Enjoy MATHFest!

Best Wishes,



Leona A. Harris, Ph.D.

J. Ernest Wilkins Lecture

Dr. Omayra Ortega
Sonoma State University

Exceptional Statistics: From J. Ernest Wilkins to Coronavirus Epidemiology

Dr. Omayra Y. Ortega is an assistant professor of mathematics & statistics at Sonoma State University in Sonoma County, California. She earned her Ph.D. (2008) and an M.S. (2005) in applied mathematics and computational sciences from the University of Iowa, where she also was awarded her Masters of Public Health. She earned a B.A. in music and in pure mathematics from Pomona College in 2001.

Dr. Ortega has directed the Mathematical Epidemiology Research Group (MERG), an undergraduate research group, since 2007. Her scholarly interests reflect her expertise in mathematics: mathematical and computational biology, mathematical epidemiology in developing countries, infectious disease epidemiology, and the participation of women and minorities in sciences. Regarding the latter, she has organized an annual Sonia Kovalesky High School Mathematics Day at several institutions including the University of Iowa, ASU's West campus, Pomona College, and Sonoma State University in recognition of the day's namesake, Sonia Kovalevsky, who was one of the first woman to receive a Ph.D. in mathematics.

Jesse Ernest Wilkins, Jr.

The J. Ernest Wilkins Lecture series was inaugurated in 1994 during NAM's Undergraduate MATHFest IV at North Carolina A&T. It is named in honor of Jesse Ernest Wilkins, Jr. (November 27, 1923 – May 12, 2011), an internationally recognized nuclear scientist, mechanical engineer and mathematician.

J. Ernest Wilkins was known in the press as the "Negro Genius." Wilkins received his B.S. degree as a Phi Beta Kappa graduate at the age of 16, his M.S. degree at age 17, and his Ph.D. degree at the age of 19. Although he has been highly praised as a superb practitioner of his crafts, Wilkins is also widely recognized and acclaimed as a highly productive scholar, having published more than 80 journal articles and having produced an additional 22 unpublished reports for the Atomic Energy Commission. Wilkins is the only African American mathematician-engineer elected as a Fellow to the National Academy of Engineering (NAE). The inaugural lecture was given by Wilkins himself. The Lecture is to be given annually at the Undergraduate MATHFest, a conference for which Wilkins was a frequent attendee.

Conference Schedule

(All times are Eastern Daylight Time. Activities are held on Zoom.)

Friday, October 9	
1:00 PM—1:30 PM	**Welcome, Introductions and Conference Orientation** Dr. Leona Harris, President, National Association of Mathematicians Dr. Naiomi Cameron, Vice President, National Association of Mathematicians Dr. Shea Burns, Secretary, National Association of Mathematicians Dr. Brittany Mosby, Region C Member, National Association of Mathematicians
1:30 PM—2:00 PM	**Problem Time with Dr. Cooper (Round 1 of 3)** Dr. Duane Cooper, Associate Professor of Mathematics, Morehouse College
2:00 PM—2:30 PM	**Student Talk 1** Shalini Ramachandra (American University), Imani Maliti (Clark Atlanta University), Aquilah Daughtery (Xavier University), & Benjamin Shapiro (American University) *The Social Determinants of Health Matter in a Pandemic: Predictors of COVID-19 Case and Death Rates in New York City* Moderator: Dr. Kimberly Sellers, Professor of Statistics, Georgetown University
2:30 PM—3:00 PM	**Student Talk 2** Jazmin Jones (Clark Atlanta University) *R Simulations of A Unified Mixed- Effects Model* Moderator: Dr. Kimberly Sellers, Professor of Statistics, Georgetown University
3:00 PM—3:30 PM	**Student Talk 3** Imhotep Hogan (Florida A&M University), Kobe Lawson-Chavanu (Morehouse College), Don Edwards (Morehouse College) *Counting Spiders on Trees* Moderator: Dr. Kimberly Sellers, Professor of Statistics, Georgetown University
3:30 PM—4:00 PM	**Problem Time with Dr. Cooper (Round 2 of 3)** Dr. Duane Cooper, Associate Professor of Mathematics, Morehouse College **Faculty Chat**

4:00 PM—5:00 PM	**J. Ernest Wilkins Lecture** Dr. Omayra Ortega, Assistant Professor, Applied Mathematics and Statistics, Sonoma State University *Exceptional Statistics: From J. Ernest Wilkins to Coronavirus Epidemiology* Moderator: Dr. Emille Davie Lawrence, Chair and Term Associate Professor of Mathematics, University of San Francisco
Saturday, October 10	
11:00 AM—11:30 AM	**Welcome Back** Dr. Leona Harris, President, National Association of Mathematicians Dr. Naiomi Cameron, Vice President, National Association of Mathematicians **Problem Time with Dr. Cooper (Round 3 of 3)** Dr. Duane Cooper, Associate Professor of Mathematics, Morehouse College
11:30 AM—12:00 PM	**Student Talk 4** Julian Francis (Howard University), Fatima Fall (Howard University), Trinity Lee (King University) *Production Matrices for Double Riordan Arrays* Moderator: Dr. Brittany Mosby, Director of HBCU Success, Tennessee Higher Education Commission
12:00 PM—1:00 PM	**Graduate Programs and Student Opportunities Fair** **Lunch Cafe**
1:00 PM—1:30 PM	**Student Talk 5** Miyanda Wynn (Clark Atlanta University) *Stay in School: Student Athlete Edition* Moderator: Dr. Carla Cotwright, Senior Data Scientist, Department of Defense

1:30 PM—2:00 PM	**Student Talk 6** Willie Reynolds (Savannah State University) *Developing Algorithms for Computing Derivatives with Determinants and see Applications (Area, Volume)* Moderator: Dr. Carla Cotwright, Senior Data Scientist, Department of Defense
2:00 PM—2:15 PM	**Break**
2:15 PM—3:00 PM	**Poster Session Q&A**
3:00 PM—3:30 PM	**Student Talk 7** Woomy Michel (Clark Atlanta University) *The Block is Hot: An Analysis of Fatal Police Shootings in 2015* Moderator: Dr. Torina Lewis, Chair and Associate Professor of Mathematics, Clark Atlanta University
3:30 PM—4:00 PM	**Student Talk 8** Rebecca Lopez (Marist College) *Computation of Monodromy Groups for Toroidal Belyi Maps* Moderator: Dr. Torina Lewis, Chair and Associate Professor of Mathematics, Clark Atlanta University
4:00 PM	**Group Photo**
4:00 PM—4:45 PM	**Graduate School Panel, Part I** Dr. Dennis Davenport, Associate Chair and Director of Graduate Studies, Department of Mathematics, Howard University Dr. Shree Taylor, Director of Graduate Studies, Department of Mathematics and Statistics, Georgetown University Moderator: Dr. Karen D. Morgan, Senior Vice President for Academic Affairs, Johnson C. Smith University

4:45 PM—5:30 PM	**Graduate School Panel, Part II (Students Only)** Ashley Alfred, University of Texas Arlington Berlinda Batista, University of Texas Arlington Christian McRoberts, Iowa State University **Faculty Chat**
5:30 PM—5:45 PM	**Problem Time with Dr. Cooper Results** Dr. Duane Cooper, Chair and Associate Professor of Mathematics, Morehouse College **Prize Announcements** Dr. Shea Burns, Secretary, National Association of Mathematicians **Closing Remarks** Dr. Leona Harris, President, National Association of Mathematicians Dr. Naiomi Cameron, Vice President, National Association of Mathematicians

Student Oral Presentation Abstracts

1. **Aquilah Daughtery (Xavier University), Imani Maliti (Clark Atlanta University), Shalini Ramachandra (American University), Benjamin Shapiro (American University)**

   The Social Determinants of Health Matter in a Pandemic: Predictors of COVID-19 Case and Death Rates in New York City

   By July, 2020, there were 212,295 confirmed cases and 18,408 deaths related to COVID-19 in New York City. Our research objective was to determine which sociodemographic and environmental factors were predictive of COVID-19 case and death rates in NYC and any differential impacts between and within the boroughs. Data on various demographic, health, and environmental characteristics for NYC zip codes, neighborhoods, and boroughs were analyzed along with NYC government's reported case and death rates by zip code. Significant predictors of overall COVID-19 case and death rates in NYC included proportion of residents aged 65 and older, proportion of residents who are White, and the level of Ozone level. Within models stratified by borough, other significant predictors of the rates were the number of adult Asthma ER visits and proportion of residents who are obese. Social determinants of health should be considered when the NYC government proposes future COVID-19 actions and provides resources to areas to effectively lower the morbidity and mortality related to COVID-19.

2. **Jazmin Jones (Clark Atlanta University)**

   R Simulations of A Unified Mixed- Effects Model

   This research focuses on R simulations based on the article, "A Unified Mixed-Effects Model for Rare-Variant Association in Sequencing Studies" (Sun, Zheng, and Hsu 2013). The Mixed Effect Score Test (MiST) is a test to determine the association between a set of SNPS/genes and continuous or binary outcomes by including variant characteristic information and using (weighted) score statistics. Like other gene or region based tests, MiST evaluates the effects of multiple genetic variants in a gene or region by increasing power when multiple variants in the group are associated with a given disease or trait. This analysis compares many commonly used tests for rare variant associations, the Burden Test and the Sequence Kernel Association Test. We examined whether the MiST is more sensitive to type I error inflation. Our approach provides in-depth insight into the general testing framework of the MiST package. We used simulations under a wide range of scenarios to determine if error distributions will affect type I error. In particular, we consider three different distributions for our simulations; normal distribution, t distribution, and gamma distribution. For each distribution, we compared type I error rates at varying significance levels. Results from the study found that if the error is not normal distributed, then this will result in an inflated type I error.

3. **Don Edwards (Morehouse College), Imhotep Hogan (Florida A&M University), Kobe Lawson-Chavanu (Morehouse College)**

   Counting Spiders on Trees

An ordered tree, also known as a plane tree or planar tree, is defined recursively as having a root and an ordered set of subtrees. One characteristic of ordered trees are spider legs and spiders. A spider leg is a path from the leaf to the root where a spider is a combination of spider legs that only intersects at the root. In this paper, we will count spiders on various types of trees.

4. **Fatima Fall (Howard University), Julian Francis (Howard University), Trinity Lee (King University)**

Production Matrices for Double Riordan Arrays

A double Riordan array is an infinite lower triangular matrix, denoted by (g; f1, f2), where g, f1, and f2 are generating functions. The coefficients of the generating function g gives the first column of the matrix, and the remaining columns are found by multiplying the previous column by alternating f1 and f2. In other words, (g; f1, f2) = (g, gf1, gf1f2, gf12f2, gf21f22, . . .). This is the construction of a double Riordan array. We can determine the elements of a double Riordan array using A– and Z– sequences. In this paper we provide a method of determining the elements of a double Riordan array by defining and using a production matrices of a double Riordan array, and show how it can be used to determine the A– and Z– sequences.

5. **Miyanda Wynn (Clark Atlanta University)**

Stay in School: Student Athlete Edition

Starting in the 2000s, the National Collegiate Athletic Association (NCAA) began to measure college and university sports teams' academic performance. The purpose for collecting this data is to hold collegiate institutions accountable for committing to enhanced student-athlete academic performance by providing incentives. The NCAA implemented academic progress rate (APR) scores as an ambitious academic reform effort in Division I. Team-based metrics help hold institutions accountable for the academic progress of their student-athletes with a goal of facilitating higher graduation rates among athletes. Using data collected by the NCAA, we determine variables that influence the retention of collegiate athletes. Data science techniques were used to create multiple linear regression models to predict collegiate athletes' retention based on institution type, sport gender, APR score, and the number of athletes within a sport. The number of athletes in a sport and APR score were statistically significant variables for predicting retention. In contrast, institution type, sport gender, APR score, and number of athletes contributed to a more accurate model. The r-squared metric for the best fit model is 0.72, which indicates a close fit of the data to the regression line. Based on the root mean squared error (RMSE) of 0.019, the model is determined to be highly accurate in predicting retention. This research can help athletic directors build programs to increase the academic performance, retention, and graduation rates of collegiate student-athletes. Acknowledgments: The research was funded by the Department of Homeland Security (DHS) and the National Science Foundation (NSF) Award Numbers 1700408, 1912256.

6. **Willie Reynolds (Savannah State University)**

Developing Algorithms for Computing Derivatives with Determinants and see Applications (Area, Volume)

Derivatives in calculus and Determinants of square matrices of any size are extensively used in STEM, Financial and Business fields. In this research paper we are going to develop mathematical formula to drill determinates for evaluating derivatives of higher order, we develop an algorithm in calculating determinants, and apply the results in solving applied mathematics and physics related problems.

7. **Woomy Michel (Clark Atlanta University)**

The Block is Hot: An Analysis of Fatal Police Shootings in 2015

Police brutality is an epidemic that disproportionately affects African-American, indigenous, and other communities of color. Legally defined, police brutality is a civil rights violation where officers exercise undue or excessive force against a subject. This force includes bullying, physical or verbal harassment, physical or mental injury, property damage, and death. Since 2015, there have been almost 5,000 fatal shootings by an on-duty police officer in the United States. Although about half of the people shot and killed were white, Black people were shot at disproportionate rates. The Washington Post reports, Black people account for less than 13% of the U.S. population, approximately 42 million, yet are killed by a police officer more than twice the rate of white people. We merged data that includes fatal police shootings collected by the Washington Post in 2015 and population distributions that shows race from Keiser Family Foundation. The new data set was used to create a multivariate logistic regression model to determine variables that are significant for predicting the race of a victim in fatal police shootings. Results from the findings can help identify police departments that can benefit from racial sensitivity training to reduce biases and improve citizen policing. Acknowledgements: This work was funded by the Department of Homeland Security (DHS) & the National Science Foundation (NSF) Award Numbers 1700408, 1912256.

8. **Rebecca Lopez (Marist College)**

Computation of Monodromy Groups for Toroidal Belyi Maps

A Belyi map $\beta : \mathbb{P}^1(\mathbb{C}) \to \mathbb{P}^1(\mathbb{C})$ is a rational function with at most three critical values; we may assume these values are $\{0, 1, \infty\}$. A Dessin d'Enfant is a planar bipartite graph obtained by considering the preimage of a path between two of these critical values, usually taken to be the line segment from 0 to 1. Such graphs can be drawn on the sphere by composing with stereographic projection: $\beta^{-1}\big([0,1]\big) \subseteq \mathbb{P}^1(\mathbb{C}) \simeq S^2(\mathbb{R})$. Replacing $\mathbb{P}^1$ with an elliptic curve E, there is a similar definition of a Belyi map $\beta : E(\mathbb{C}) \to \mathbb{P}^1(\mathbb{C})$. The corresponding Dessin d'Enfant can be drawn on the torus by composing with an elliptic logarithm: $\beta^{-1}\big([0,1]\big) \subseteq E(\mathbb{C}) \simeq \mathbb{T}^2(\mathbb{R})$. In this project, we use the open source Sage to write code which takes an elliptic curve $E$and a Belyi map β to return information about the monodromy group. We use a novel method which employs solving a system of first-order differential equations. Using this, we focus on several examples of Belyi maps which appear in the L-Series and Modular Forms Database (LMFDB).

Student Poster Abstracts

1. **Samuel Heard (University of Oklahoma), Fabian Ramirez (Sonoma State University), Vanessa Sun (Macaulay Honors at Hunter College, City University of New York)**

   Monodromy Groups of Modular Curves

   It is well known that all compact connected Riemann surfaces X of genus at least two are quotients of the extended upper-half plane $\mathbb{H}^*$ by a discrete subgroup Γ of $PSL_2(\mathbb{R})$. For example, when Γ is a classical congruence subgroup such as $\Gamma_0(N)$, $\Gamma_1(N)$ or $\Gamma(N)$, then the Riemann surfaces, namely $X_0(N)$,$X_1(N)$, and $X(N)$ are well-known. By projecting to the ``j-line'' $X(1) \simeq \mathbb{P}^1(\mathbb{C})$, we have a morphism $\beta : X \to \mathbb{P}^1(\mathbb{C})$ branched above $0, 1, \infty$. In this project, we consider the monodromy groups Mon(β) and automorphism groups Aut(β) of such Belyi maps.

2. **Elisa Rodriguez (Ursinus College), William Sablan (University of Guam)**

   To and From 2-Generated Groups and Origamis

   In this research, we focus on the geometric construction of origami in detail. Initially, we construct various origami by considering different examples of 2-generated groups. Conversely, we will also begin with an arbitrary collection of squares and determine its corresponding transitive subgroup.

3. **Meagan Hodge (Spelman College)**

   Application of Grobner Basis to Implicitization Problems

   Given an algebraic variety represented by a set of parametric equations, an implicitization is the representation of the variety by a defining equation(s) of the variables. There are different tools to implicitize a variety. In this poster presentation I will use Grobner basis as a tool to do some implicitizations.

4. **Myka Terry (Morgan State University)**

   Rainbow Cells: Tracking Trends in Cell Division Using Motzkin Paths

   A *proliferated* cell is a cell that descended from a stem cell, does not have a specific task but can be differentiated to create a specialized cell type. When a *proliferated* cell divides into two cells, the resulting cells are either both proliferated, both differentiated, or one of each. Many biologists aim to determine the rate at which a proliferated cell will divide into each scenario. It has been shown that this cell division can be modeled as a random walk that starts at the origin, never goes below the x-axis, and ends at the point $(n,0)$. A random walk is essentially the path used to get to a specific point, there is an infinite amount of possibilities. More specifically, we model this division using Motzkin paths. A Motzkin path is a random walk that starts at the origin and ends on the x-axis using three different steps; an up step $(1,1)$, a down step $(1,-1)$, or a level step $(1,0)$. This research is focused on finding new ways to visualize the Motzkin paths

to determine relative information about the depth of the relationship between the various types of proliferated cell division. We have created various representations for a Motzkin path and describe any characterizations about the cell divisions these visualizations were able to determine. This can in the future be used to predict the state of a cell in a specific phase of its life.

5. **Ariana Richardson (Spelman College)**

Application of Gröbner Basis to Graph Coloring Problems

In this presentation we will apply an application of one branch of mathematics, Abstract Algebra, to a totally different branch of mathematics called Graph Theory. From Abstract Algebra, we studied a special set of generators for ideals in polynomial rings. These generators are called Gröbner bases for ideals. They are effective computational tools in algebra. In my research this summer, we applied the Gröbner basis theory to graph coloring, and also to a practical application which involved coloring counties in the Virginia and Washington D.C. area with three colors.

6. **Doria Lee (Central State University)**

A Topological Space with its Properties

In this poster, we find topological properties for a topological space.

Graduate Fair Exhibitors

The University of Alabama, Department of Mathematics
David Cruz-Uribe, OFS, Chair, dcruzuribe@ua.edu
David Halpern, Graduate Program Director, dhalpern@ua.edu
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West Virginia University, Department of Mathematics
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University of Florida, Department of Mathematics
Miklos Bona, Chair of Graduate Admissions Committee, bona@ufl.edu
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University of Iowa, Department of Mathematics
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Asher Auel, Graduate Admissions Committee representative at NAM MATHfest, asher.auel@dartmouth.edu
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Research in Industrial Projects for Students (RIPS) Program
Institute for Pure and Applied Mathematics (IPAM), UCLA
Dr. Susana Serna, RIPS Program Director, rips@ipam.ucla.edu
http://www.ipam.ucla.edu/programs/student-research-programs/
http://www.ipam.ucla.edu/programs/student-research-programs/research-in-industrial-projects-for-students-rips-2021/

The University of California, Riverside, Graduate Programs in Mathematics
Margarita Roman, mroman@ucr.edu
Dr. Fred Wilhelm, wilhelm@ucr.edu
https://mathdept.ucr.edu/prospective-graduate-students

Howard University, Department of Mathematics
Dennis Davenport, Associate Chair and Director of Graduate Studies, dennis.davenport@howard.edu
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Wake Forest University, Department of Mathematics and Statistics
Stephen Robinson, Professor of Mathematics, Graduate Program Coordinator, sbr@wfu.edu

Previous NAM Undergraduate MATHFests

- MATHFest XXIX: September 27 - September 29, 2019 at Southern University of New Orleans (Region A)
- MATHFest XXVIII: September 28 - September 30, 2018 at Spelman College (Region A)
- MATHFest XXVII: September 29 - October 1, 2017 at Medgar Evers College (Region B)
- MATHFest XXVI: November 10-12, 2016 at Morgan State University (Region B)
- MATHFest XXV: October 29-31, 2015 at Morgan State University (Region B)
- MATHFest XXIV: Cancelled
- MATHFest XXIII: November 8-9, 2013 at Texas State University (Region C)
- MATHFest XXII: November 1-3, 2012 at Morgan State University (Region B)
- MATHFest XXI: November 3-5, 2011 at Dillard University (Region C)
- MATHFest XX: November 18-20, 2010 at Miami Dade College (Region A)
- MATHFest XIX: November 12-14, 2009 at the University of District of Columbia (Region B)
- MATHFest XVIII: November 13-15, 2008 at Texas Southern University (Region C)
- MATHFest XVII: November 8-10, 2007 at Spelman College (Region A)
- MATHFest XVI: November 9-11, 2006 at Howard University (Region B)
- MATHFest XV: November 10-12, 2005 at Texas Southern University (Region C)
- MATHFest XIV: October 7-9, 2004 at Morehouse College (Region A)
- MATHFest XIII: October 20 - November 1, 2003 at Delaware Statue University (Region B)
- MATHFest XII: October 2002 at Southern University of New Orleans (Region C)
- MATHFest XI: October 4-6, 2001 at Florida A&M (Region A)
- MATHFest X: October 26-28, 2000 at Morgan State University (Region B)
- MATHFest IX: October 21-23, 1999 at Texas Southern University (Region C)
- MATHFest VIII: October 21-23, 1998 at Benedict College (Region A)
- MATHFest VII: October 23-25, 1997 at Elizabeth City State University (Region B)
- MATHFest VI: October 24-26, 1996 at Xavier University (Region C)
- MATHFest V: October 26-28, 1995 at Clark Atlanta (Region A)
- MATHFest IV: October 13-15, 1994 at North Carolina A&T (Region B)
- MATHFest III: October 21-23, 1993 at Southern University (Region C)
- MATHFest II: March 18-20, 1993 at Spelman College (Region A)
- MATHFest I: November 1991 at Hampton University (Region B)