National Association of Mathematicians, Inc.

Undergraduate MATHFest XXXI

October 1—2, 2021

Virtual Meeting
https://www.nam-math.org/mathfest.html#XXXI

NAM Undergraduate MATHFest XXXI

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 14 undergraduate students. Each talk should be 20 minutes long, including 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 2:10 PM—3:00 PM ET. There will be 4 virtual posters and 5 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. There are 15 exhibitors represented at this year's fair. The Graduate Fair will take place Saturday afternoon from 12:00 PM - 1:00 PM ET.

Problem Time
Throughout the conference, students will be presented with challenge problems. Students with correct solutions will be awarded 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 Dr. Pamela Harris (Williams College). Her talk will be Friday from 4:00 PM—5:00 PM ET.

Due to the ongoing COVID-19 global pandemic, NAM MATHFest XXXI 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."

Conference Schedule

(All times are Eastern Time. All activities are held on Zoom or Gather.)

Friday, October 1	
1:00 PM—1:30 PM	**Welcome and Conference Orientation** Dr. Naiomi Cameron, Vice President, National Association of Mathematicians
1:30 PM—2:00 PM	**Problem Time (Round 1 of 3)** Dr. Samuel Ivy, Assistant Professor, University of Mary Hardin-Baylor
2:00 PM—2:30 PM	**Student Talk 1** Naomi Rankin (Howard University) *Agent-Based Model of COVID-19 on the Diamond Princess Cruise Ship* Moderator: Dr. Julian Allagan, Chair, Department of Mathematics, Computer Science & Engineering Technology, Elizabeth City State University
2:30 PM—3:00 PM	**Student Talk 2** Nina Bryan (Howard University) *Ensemble Learning Model in Regression QSPR Application* Moderator: Dr. Julian Allagan, Chair, Department of Mathematics, Computer Science & Engineering Technology, Elizabeth City State University
3:00 PM—3:30 PM	**Student Talk 3** Len White (California Polytechnic University Pomona) *Computing the braid index of 1-bridge braids* Moderator: Dr. Julian Allagan, Chair, Department of Mathematics, Computer Science & Engineering Technology, Elizabeth City State University
3:30 PM—4:00 PM	**Problem Time (Round 2 of 3)** Dr. Samuel Ivy, Assistant Professor, University of Mary Hardin-Baylor

4:00 PM—5:00 PM	**J. Ernest Wilkins Lecture** Dr. Pamela Harris, Associate Professor of Mathematics, Williams College *Parking Functions: Choose Your Own Adventure* Moderator: Dr. Omayra Ortega, President, National Association of Mathematicians
5:00 PM	Closing Remarks **Link to Explore Gather Space** Spelman College: Graduate Fair/Poster Session Morgan State University: Game Room Howard University: Return to main Zoom Meeting Lawn: Problem Time Chat Areas **Instructions for Gather Space**
Saturday, October 2	
11:00 AM—11:30 AM	**Welcome Back** Dr. Naiomi Cameron, Vice President, National Association of Mathematicians **Problem Time (Round 3 of 3)** Dr. Samuel Ivy, Assistant Professor, University of Mary Hardin-Baylor
11:30 AM—12:00 PM	**Student Talk 4** Meagan Hodge (Spelman College) *Counting Linear Chord Diagrams that Avoid Chords of Length One* Moderator: Dr. Naiomi Cameron, Professor, Spelman College
12:00 PM—1:00 PM	**Graduate Programs and Student Opportunities Fair (Gather)** **Link to Scavenger Hunt Activity**

1:00 PM—1:30 PM	**Student Talk 5** Cameron Thomas (Morehouse College) *Generalized Set Partition Pattern Avoidance and Restriction* Moderator: Dr. Steve Hobbs, Mathematician, Naval Information Warfare Center
1:30 PM—2:00 PM	**Student Talk 6** William Hopman (Purdue University), Alex Martinez* (University of Texas at San Antonio), Paul Glenn* (McGill University), Brooke Milligan (Temple University), Noah Doney* (University of Maryland), Saviour Msopa* (American University) *Relevance of Risk Factors in Maternal Mortality Rate in the Dominican Republic* Moderator: Dr. Steve Hobbs, Mathematician, Naval Information Warfare Center
2:00 PM—2:10 PM	**Break**
2:10 PM—3:00 PM	**Poster Session (Gather)**
3:00 PM—3:30 PM	**Student Talk 7** Christopher Soto (Queens College, City University of New York), Parneet Gill (California State University, Fresno) and Pamela Vargas (Smith College) *Preferential and k-Zone Parking Functions* Moderator: Dr. Leon Woodson, Associate Professor (retired), Morgan State University

3:30 PM—4:00 PM	**Student Talk 8** Jai James* (American University), Harris Johnson* (Morehouse College), Jordan Turner (Morehouse College), Thea Nicholson (Xavier University) *Riordan Array Representations of Catastrophe Paths* Moderator: Dr. Leon Woodson, Associate Professor (retired), Morgan State University
4:00 PM	**Group Photo**
4:00 PM—4:45 PM	**Graduate School Panel, Part I** Dr. Michael Young, Associate Dean for Diversity, Equity and Inclusion, Carnegie Mellon University Dr. Kimberly Weems, Associate Professor of Mathematics and Co-Director of the Bridge-to-PhD Program, North Carolina Central University Moderator: Dr. Dennis Davenport, Associate Chair, Director of Graduate Studies, Howard University
4:45 PM—5:30 PM	**Graduate School Panel, Part II (Students Only)** Kevin Harris, University of Texas Arlington Myka Terry, North Carolina State University Shakuan Frankson, Howard University **Faculty Chat with the Membership Committee**
5:30 PM—5:45 PM	**Problem Time Results** Dr. Samuel Ivy, Assistant Professor, University of Mary Hardin-Baylor **Prize Announcements** Dr. Shea Burns, Secretary, National Association of Mathematicians **Closing Remarks** Dr. Naiomi Cameron, Vice President, National Association of Mathematicians

J. Ernest Wilkins Lecture

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.

Dr. Pamela Harris
Williams College

Parking Functions: Choose Your Own Adventure

Consider a parking lot consisting of n consecutive parking spots along a one-way street labeled 1 to n. Suppose n cars want to park one at a time in the parking lot and each car has a preferred parking spot. Each car coming into the lot initially tries to park in its preferred spot. However, if a car's preferred spot is already occupied, then it will proceed forward in the street parking in the next available spot. Since the parking lot is along a one-way street, it is not guaranteed that every car will be able to park before driving past the parking lot. If we let a_i denote the preference of car i and all of the cars are able to park under these conditions, then the preference list $(a_1,a_2, \ldots, a_n)$ is called a {\textbf{parking function}} (of length n). For example, $(1,2,4,2,2)$ is a parking function, but $(1,2,2,5,5)$ is not (you should convince yourself of this!). In this talk we provide an answer to the question of how many parking functions of length n there are and we consider many new avenues for research stemming from this enumerative question.

Dr. Pamela E. Harris is a Mexican-American mathematician and serves as Associate Professor in the Department of Mathematics and Statistics and Faculty Fellow of the Davis Center and the Office of Institutional Diversity, Equity, and Inclusion at Williams College. She received her B.S. from Marquette University, and M.S. and Ph.D. in mathematics from the University of Wisconsin-Milwaukee. Dr. Pamela E. Harris's research is in algebraic combinatorics and she is the author of over 50 peer-reviewed research articles in internationally recognized journals. An award winning mathematical educator, Dr. Harris was the 2020 recipient of the MAA Northeast Section Award for Distinguished College or University Teaching, the 2019 MAA Henry L. Alder Award for Distinguished Teaching by a Beginning College or University Mathematics Faculty Member, and the 2019 Council on Undergraduate Research Mathematics and Computer Sciences Division Early Career Faculty Mentor Award. She was also selected as a 2020 Inaugural Class of Karen Uhlenbeck EDGE Fellows and was one of 50 women featured in the book "Power in Numbers: The Rebel Women of Mathematics." Her professional mission is to develop learning communities that reinforce students' self-identity as scientists, in particular for women and underrepresented minorities. In support of this mission, Dr. Harris co-organizes research symposia and professional development sessions for the national conference of the Society for the Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS), and is an editor of the e-Mentoring Network blog of the American Mathematical Society. Moreover, in order to provide visibility to and increase the positive impact of the role models within our community, Dr. Harris co-founded Lathisms.org, a platform that features the contributions of Latinx and Hispanic scholars in the Mathematical Sciences. She cohosts the podcast Mathematically Uncensored and has recently coauthored the books *Asked And Answered: Dialogues On Advocating For Students of Color in Mathematics* and *Practices and Policies: Advocating for Students of Color in Mathematics.*

Student Oral Presentation Abstracts

Friday, October 1

- 2:00 PM--2:30 PM **Naomi Rankin (Howard University)**

  Agent-Based Model of COVID-19 on the Diamond Princess Cruise Ship

  COVID-19 was declared to be a global pandemic in March 2020, but there are smaller outbreaks before this moment that give us the chance to understand the dynamics of the disease. One such outbreak was on February 5, 2020, when the Japanese government ordered the passengers and crew on the Diamond Princess Cruise Ship to begin a two week quarantine after a former passenger tested positive for COVID-19. This quarantine was incredibly ineffective, and the virus ran rampant onboard. We model this outbreak and resulting failed quarantine with an agent-based SEIR model. The stochastic model captures the movement patterns of passengers and crew members onboard the ship, as well as how this movement changes at times of quarantine. The study includes the derivation of the basic reproduction number based on contact numbers and transmission rates. We show that, based on this reproductive number, an outbreak is bound to occur in the majority of simulations. We also show that crew members are responsible for the majority of infections due to the nature of their movement onboard.

- 2:30 PM--3:00 PM **Nina Bryan (Howard University)**

  Ensemble Learning Model in Regression QSPR Application

  A relatively new application of machine learning techniques is ensemble learning. Ensemble learning generally improves the results of a single machine learning algorithm by using multiple classifiers rather than relying on only one. Researchers have recently applied ensemble learning to QSPR/QSAR modeling. These models evaluate a hypothesized relationship between chemical structures and biological activity and/or chemical properties. These models assume that similar molecules react similarly in certain environments. Machine learning is used to predict the target value of a chemical property based on molecular structures or descriptive factors. There are four different classification algorithms used in this research: Random Forest, ExtraTrees, Adaptive Boosting, and Gradient Boosting. Ensemble learning is the process of combining each algorithm's results and establishing their weights to make an overall prediction. This talk will present the QSPR machine learning algorithm to complete the regression task of predicting the fluorescence emission wavelength of samples using over 2,000 factors by using an ensemble learning algorithm.

- 3:00 PM--3:30 PM **Len White (California Polytechnic University Pomona)**

  Computing the braid index of 1-bridge braids

  A knot is a potentially knotted circle in 3-dimensional space. Knots provide a powerful probe into studying 3- and 4-dimensional phenomena, which is why they are a central object of study within low-dimensional topology (a subfield of pure mathematics). It is known that every knot is realized as the closure of a braid. An important invariant of a knot, K, is the braid index: a numerical value that represents the minimum number of strands required to present K as the closure of some braid. In general, this knot invariant is very hard to compute! In this work, we determine the braid index of all 1-bridge braids, an infinite family of well-studied knots, which are determined by three parameters. We also present some avenues for future directions generalizing this work.

Saturday, October 2

- 11:30 AM--12:00 PM **Meagan Hodge (Spelman College)**

  Counting Linear Chord Diagrams that Avoid Chords of Length One

  This presentation highlights research on linear chord diagrams. A linear chord diagram consists of $2n$ points labeled $1,2,\dots,2n$ and n edges called chords where each chord (i,j) contains exactly two points. We consider linear chord diagrams in which for every chord (i,j), where $i<j$, has length $j-i$ of at least two. We refer to chords of length two as short chords. The data on the number of diagrams with k short chords is inserted into a matrix and the goal is to determine a recursive formula or generating function for the entries. To do this we write a program to generate the information needed and investigate whether the matrix qualifies as a Riordan Array. We do see some comparisons with the matrix that counts diagrams with chords of at least a certain length and the matrix that counts diagrams by the amount of chords of length one. There are also patterns found within our matrix. To continue the research, the main goal is to solidify a recursive formula for our matrix that avoids chords of length one.

- 1:00 PM--1:30 PM **Cameron Thomas (Morehouse College)**

  Generalized Set Partition Pattern Avoidance and Restriction

  Let π be a set partition then π contains the partition σ if a subpartition of π that standardizes to σ. Otherwise we say π \textbf{avoids} σ. This is the classical definition of pattern avoidance. In 2000, generalized permutation pattern avoidance was introduced where certain elements are required to be adjacent. However this concept has only been applied to permutations. In this research I

introduced the concept of generalized set partition pattern avoidance and the notion or restriction. I explored the effects of various restriction on the size and characteristics of $\Pi_{n}(\sigma)$ where $\Pi_{n}(\sigma)$ denotes the set of all partitions of size n that avoid the partition σ. Finally, I enumerate the number of set partitions that avoid various restricted patterns.

- 1:30 PM--2:00 PM **William Hopman (Purdue University), Alex Martinez* (University of Texas at San Antonio), Paul Glenn* (McGill University), Brooke Milligan (Temple University), Noah Doney* (University of Maryland), Saviour Msopa* (American University)**

  Relevance of Risk Factors in Maternal Mortality Rate in the Dominican Republic

  The Dominican Republic has long suffered from a high maternal mortality rate (MMR) despite a health system that would indicate relatively low rates. Multiple studies in the past have tried to find the missing puzzle piece in the DR's high rate of pregnancy and birth related deaths, often pointing to low bed rates in hospitals or a healthcare workforce spread too thin. Using the most recent data from the National Office of Statistics of the Dominican Republic, we have tested both previous significant predictors of MMR as well as new hypotheses supported by research done elsewhere in the world. Our research has produced multiple surprising findings, such as higher unwed mother birth rates and higher C-section rates strongly indicating lower MMR. We have also discovered significant relationships between maternal deaths, infant deaths, and teen pregnancies, indicating interesting directions for future research on the nation's MMR.

- 3:00 PM--3:30 PM **Christopher Soto* (Queens College, City University of New York), Parneet Gill* (California State University, Fresno) and Pamela Vargas (Smith College)**

  Preferential and k-Zone Parking Functions

  Parking functions are vectors that describe the parking preferences of n cars that enter a one-way street containing n parking spots numbered 1 through n. A list of each car's preferences is also compiled into vectors in which we denote as ($a_{1}, \ldots , a_{n}$), such that a_i is the parking preference for car i. The classical parking rule allows cars to enter the street one at a time going to their preferred parking spot and parking, if that space is unoccupied. If it is occupied, they then proceed down the one-way street and park in the first available parking spot. If all cars can park, we say the vector ($a_{1}, \ldots , a_{n}$) is a parking function.
  In our research, we introduce new variants of parking function rules with backward movement called k-Zone, preferential, and inverse preferential functions. We study the relationship between k-Zone parking functions and k-Naples parking functions and count the number of parking functions under these new parking rules which allow

cars that find their preferred spot occupied to back up a certain parameter. One of our main results establishes that the set of non-increasing preference vectors are k-Naples if and only if they are k-Zone. For one of our findings we provide a table of values enumerating these new combinatorial objects in which we discover a unique relationship to the order of the alternating group A_{n+1}, numbers of Hamiltonian cycles on the complete graph, K_n, and the number of necklaces with n distinct beads for $n!$ bead permutations.

- 3:30 PM--4:00 PM **Jai James* (American University), Harris Johnson* (Morehouse College), Jordan Turner (Morehouse College), Thea Nicholson (Xavier University)**

  Riordan Array Representations of Catastrophe Paths

  In this talk we examine several specific sets of integer lattice paths consisting of up steps (1,1), level steps of either length (1,0) or (2,0), and down steps of various lengths. By converting these lattice paths into their generating functions and subsequent Riordan arrays, we examine how one set of integer lattice paths consisting of up steps of length (1,1) and down steps of arbitrary length (1,-1),(1,-2),(1,-3),(1,-4)... is a binary shift "between" the Catalan Path and Motzkin Path. There are also results considering a potential bijection between a ‘faux’ catastrophe path and rooted trees.

Student Poster Abstracts

The Poster Session is Saturday, October 2, 2:10--3:00 PM ET in Gather at “Spelman College.”

1. **Leah Woldemariam (Cornell University)**

   Glacial Cycle Attractors

   Oftentimes, a system must be modeled, but there is a lack of information surrounding the system apart from observed data. Attractor reconstruction methods allow us to create a dynamical system model from a single observed time series. Takens theorem allows us to create a topologically equivalent attractor of the dynamical system from this single observed time series. The data used in the reconstruction and the reconstruction itself can be analyzed with various techniques such as computing fractal dimensions or measuring dynamical invariants. Using attractor reconstruction methods and time series analysis, we investigate the relationship between variables commonly used in conceptual glacial models and compare the ability of different data sets to accurately reconstruct the glacial cycle attractor.

2. **Jakeyl Johnson (San Francisco State University)**

   Unit Interval Rational Parking Functions

   A *unit interval rational parking function* is a parking function with m cars and n spots, where $m \leq n$, and each car can park in their preferred spot or the next. This concept unifies two existing generalizations of classical parking functions: rational parking functions, with m cars and n spots, and unit interval parking functions, where each car can park in their preferred spot or the next. A p*referential arrangement* on the set $[m] = \{1,..., m\}$is a ranking of the elements with ties allowed. Separating the blocks with bars creates a *barred preferential arrangement*. In this paper, we show a bijection between the set of unit interval rational parking functions with m cars and $l = n - m$ additional spots, and the set of barred preferential arrangements on $[m]$ with l bars. This bijection yields the use of the recursive formula by Ahlbach, Usatine, and Pippenger for counting the number of unit interval rational parking functions.

3. **Oscar Escobar (University of California, Riverside), Sergio Gomez (University of California, Riverside)**

   Norse and Inca Mathematical Arithmetic Systems of Calculations: Ropes and Chainmail

   An introduction to mathematical operations in Inca and Norse societies. How math intersected with these cultures and some interesting ideas that developed from their knowledge.

(Continued on next page)

4. **Taylor Stephens (University of Florida)**

Exploring Geometric Algebra for Beamline Operations

At Brookhaven National Laboratory, the National Synchrotron Light Source II (NSLS-II) houses 28 beamlines that use circulating electrons moving close to the speed of light to generate x- rays that are used to identify the structure and makeup of various samples and materials. As a result, the crystallographic diffraction studies commonly done at the NSLS-II rely heavily on the beamlines as well as mathematics. In order to conduct these projects, scientists must know how the crystals are oriented in their crystallographic coordinates or hkl space. Currently, the orientation and calibration of samples are calculated through matrices, while geometric algebra deals with geometric objects such as points, lines, planes, spheres, etc. Geometric algebra has the potential to be an effective alternative because of its ability to function in all dimensions. To investigate further, we are using numerical and symbolic libraries such as Sympy and Galgebra to begin translating matrix algebraic calculations to the geometric algebra system. We have successfully shown that the d-spacing formula can be expressed with only geometric algebraic operations and that rotors provide more ease with completing rotations. As an aspiring mathematician this project has allowed me to explore a new system of math that is not commonly used which can serve to be a topic of research for my personal work in the future.

Graduate Fair Exhibitors

The Graduate Programs and Student Opportunities Fair is Saturday, October 2, 12:00--1:00 PM ET on Gather at "Spelman College." (Link to exhibitors' handouts.)

BAMM!: Bolstering the Advancement of Masters in Mathematics
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(Continued on next page)

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MA in Mathematics Brochure
MS in Statistical Data Science Brochure
BAMM! Flyer
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Thank You

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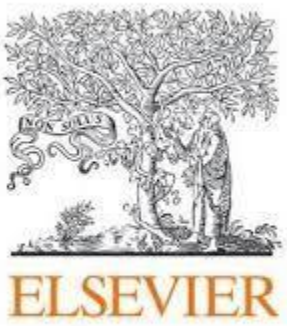

Previous NAM Undergraduate MATHFests

- MATHFest XXX: October 9 - October 10, 2020 (Virtual)
- 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)