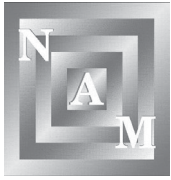


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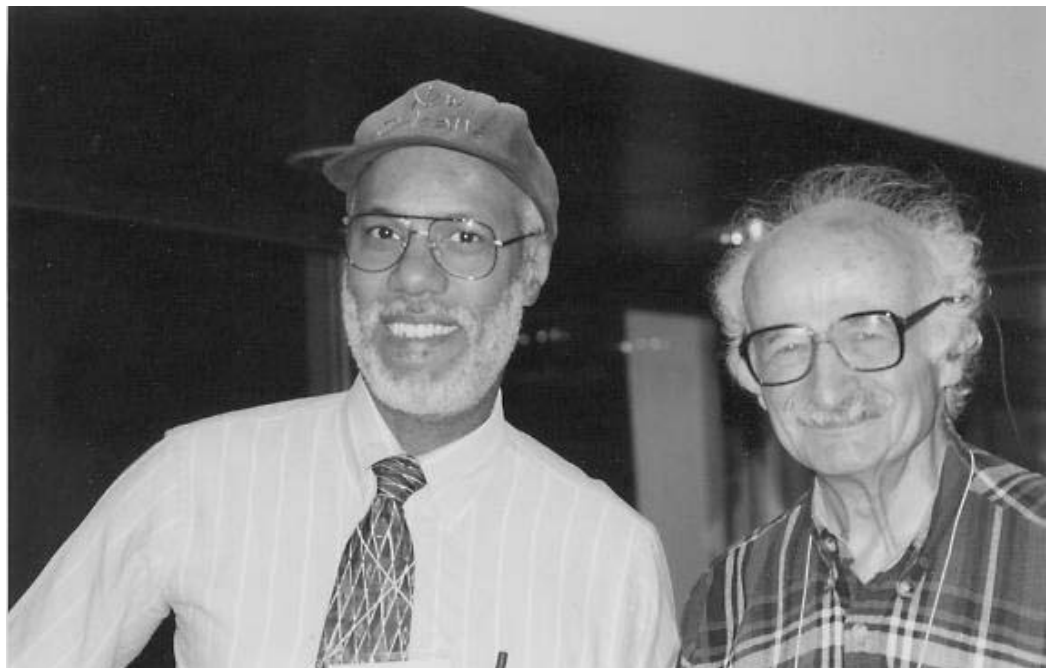
IN THE NEWS

• **Dr. Bernard Mair** is the new Chairman of the Mathematics Department at North Carolina State University, Raleigh. He is leaving his position as Professor of Mathematics and Co-director Center for Applied Mathematics at the University of Florida. Black mathematicians also in the North Carolina State Mathematics Department are Dr. Amassa Fauntleroy, and Dr. Ethelbert N. Chukwu. All three of these men are Full Professors of Mathematics. More can be read about them at Mathematicians of the African Diaspora <http://www.math.buffalo.edu/mad/>

• **Nominations for the NAM Board:** Open positions are President, Region A Representative, and Government/Industry Representative. By September 1, write or email the Editor (address on back page) after your candidate has agreed to run. Please include a CV for the candidate,

• **NAM Undergraduate MathFest XII** to be held at Southern University - New Orleans in October 2002.

• **NAM web site address** changes to <http://www.math.buffalo.edu/mad/NAM>



William Hawkins and Lee Lorch in San Diego - photo by Giles

Calendar

NAM's Online Conference Calendar at <http://www.caam.rice.edu/~nated/orgs/nam/programs/conferences.html> Look there for the most recent links to relevant conferences announcements.

- *August 1-3, 2002 MAA MathFest (NAM Blackwell Lecture) Burlington, Vermont
- *August 20-28, 2002 International Congress of Mathematicians, Beijing International Convention Center, Beijing, P. R. China
- *October, 2002 NAM Undergraduate MathFest XII Southern University, New Orleans, Louisiana
- *November 14-17, 2002 AMATYC Annual Conference, Phoenix, Arizona
- *January 15-18, 2003 Joint Mathematics Meetings (NAM Events) Baltimore Convention Center, Baltimore, Maryland
- *CAARMS 9, June 2003, Purdue University

Mathematica, Maple, IDL or Matlab

This is a brief discussion of mathematics software packages Mathematica, Maple, IDL, Matlab, WebMathematica, Octave, MAPM, MathToolkit, and Math Xplorer. This article was suggested by the excellent web site Mathematica, Maple, Matlab, IDL Translations: <http://amath.colorado.edu/computing/mmm/>

1. Mathematica

Wolfram's Mathematica is the premier all-purpose mathematical software package. It integrates swift and accurate symbolic and numerical calculation, all-purpose graphics, and a powerful programming language. It has a clever "notebook interface" which is great for documenting and displaying work. Its programming language is **functional** rather than procedural, although a few procedural programming constructs (Do, For, etc.) are included.

Drawbacks: steep learning curve for some beginners, more expensive.

<http://www.wolfram.com/>

2. Maple

Maple is powerful analytical and mathematical software which does the same sorts of things that Mathematica does, with similar high quality. Maple's programming language **procedural** — like C or Fortran or Basic — although it has a few functional programming constructs.

Drawbacks: Worksheet interface/typesetting not as developed as Mathematica's, but it is less expensive

<http://www.maplesoft.com>

3. IDL:

In 1977, Research Systems produced its flagship product, IDL or Interactive **D**ata **L**anguag. IDL excels at processing real-world data, especially graphics, and has a reasonably simple syntax, especially for those familiar with Fortran or C. IDL makes it as easy as possible to read in data from files of numerous scientific data formats. IDL is very popular at NASA, universities and research facilities, and especially at

the University of Colorado where it was originally developed to interpret the data from the Mariner Mars 7 and 9 space probes.

Drawbacks: Does not do symbolic math

<http://www.rsinc.com/>

4. Matlab

Mathworks Matlab combines efficient computation, visualization and programming for linear-algebraic technical work and other mathematical areas. It is capable of doing fairly simple symbolic math.

Drawbacks: The program really for analytical/symbolic math and, other than its excellent linear algebra applications, should not be used by mathematics majors past calculus

<http://www.mathworks.com/products/matlab/>

Other Programs:

5. webMathematica

Wolfram's recent package webMathematica is a Java based program compatible with Mathematica. It creates web sites that allow users to compute and visualize results directly from a web browser.

<http://www.wolfram.com/products/webmathematica/>

6. Octave

GNU Octave Matrix Numeric Tool is a high-level language, primarily intended for numerical computations. The program provides a convenient command line interface for solving linear and non-linear problems numerically, and for performing other numerical experiments using a language that is mostly compatible with MatLab. It can be customized using modules written in C++, C, and Fortran

<http://www.octave.org/octave.html>

7. MAPM:

MAPM calls itself an arbitrary precision math library written in C.

<http://www.tc.umn.edu/~ringx004/mapm-main.html>

8. Math Toolkit:

Toolkit does simple numerical and algebraic operations on equations. Operations include graphing, differentiation, power series and numerical integration.

9. MathXplorer:

MathXplorer provides numerical analysis and visualization capabilities within the Tcl/Tk environment

Translations

From the aforementioned web site Mathematica, Maple, Matlab, IDL Translations, we give a comparison of instructions for solving the same problem: Solve $x^3 + x^2 + 2x - 23 = 0$. Some programs have more than one method.

Mathematica:

(analytical): `Solve[x^3+x^2+2x-23==0, x]`
(numerical): `NSolve[x^3+x^2+2x-23==0, x]`
(to 50 digits): `NSolve[x^3+x^2+2x-23==0, x]`

Maple:

(analytical): `solve({x^3+x^2+2*x-23=0}, {x});`
(numerical): `fsolve({x^3+x^2+2*x-23=0},{x},complex);`
(to 50 digits): `Digits:=50;`
`fsolve({x^3+x^2+2*x-23=0},{x},complex);`

IDL: (numerical only)

`c = [-23., 2., 1., 1.]` ; polynomial's coefficients
`soln = fz_roots(c)`
`print, soln`

Matlab:

(analytical): `solve('x^3+x^2+2*x-23=0')`
(numerical): `roots([1 1 2 -23])`

CAARMS8 Report

The sixtieth birthdays for Professors Earl Barnes, Arthur Grainger, and Scott Williams were celebrated at the Eight Conference for African American Researchers in the Mathematical Sciences (CAARMS8) June 18-21, 2002. In 1964, they graduated from Morgan State University and were three of five Morgan State College (now University) students who scored between the 91st and 99th percentile on the Advanced Mathematics section of the Graduate Record Examination. In the photo, the three are joined by Dr. Ronald Mickens who graduated in 1964 from Fisk University (pictured left to right, Arthur Grainger, Ronald Mickens, Earl Barnes and Scott Williams). CAARMS8 was held at Princeton University this year and the National Security Agency (NSA) was the major sponsor. Additional support came from the Institute for Pure and Applied Mathematics (IPAM, based at UCLA) and Princeton University.

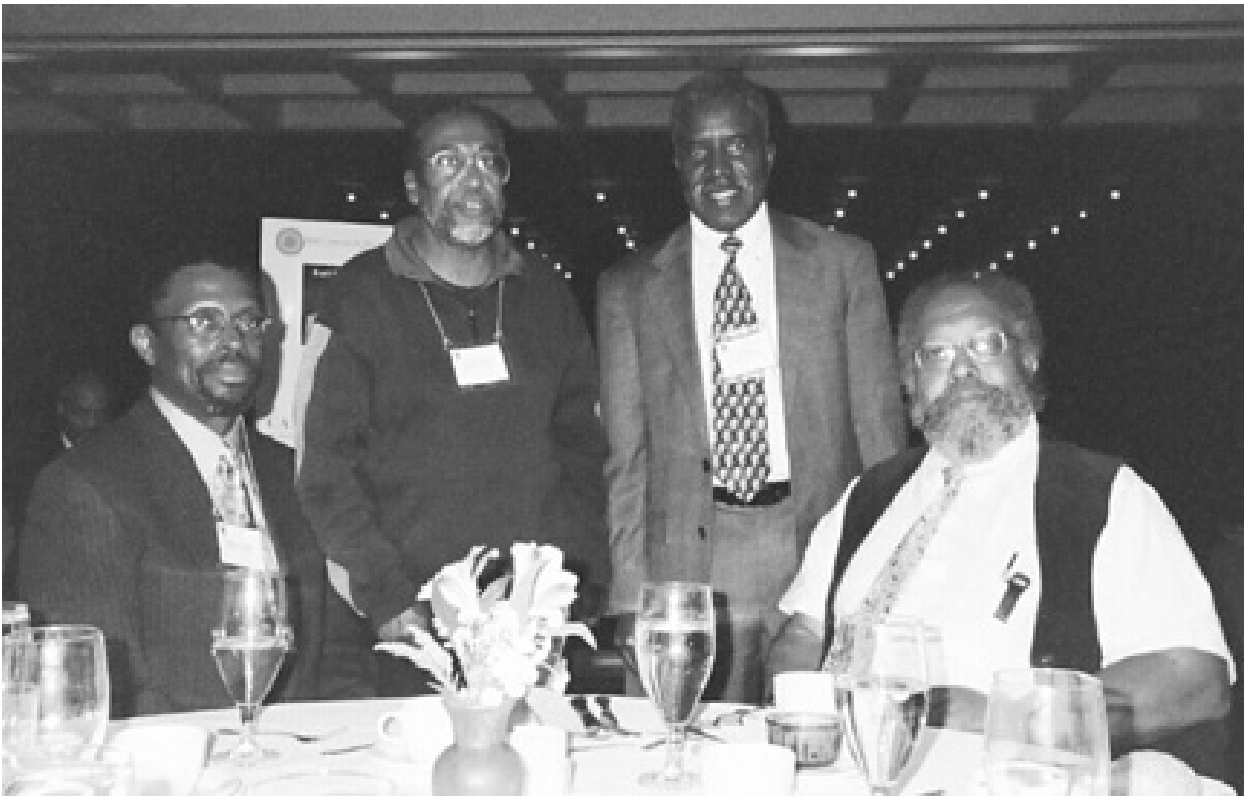


photo by Massey

Over eighty researchers and graduate students attended the conference this year. Welcoming remarks were given by Nobel prize winner and physicist, Joseph Taylor who is currently Princeton's dean of faculty, as well as Erhan Cinlar, who is the chair of Princeton's department of Operations Research and Financial Engineering.

The following researchers spoke at CAARMS8:

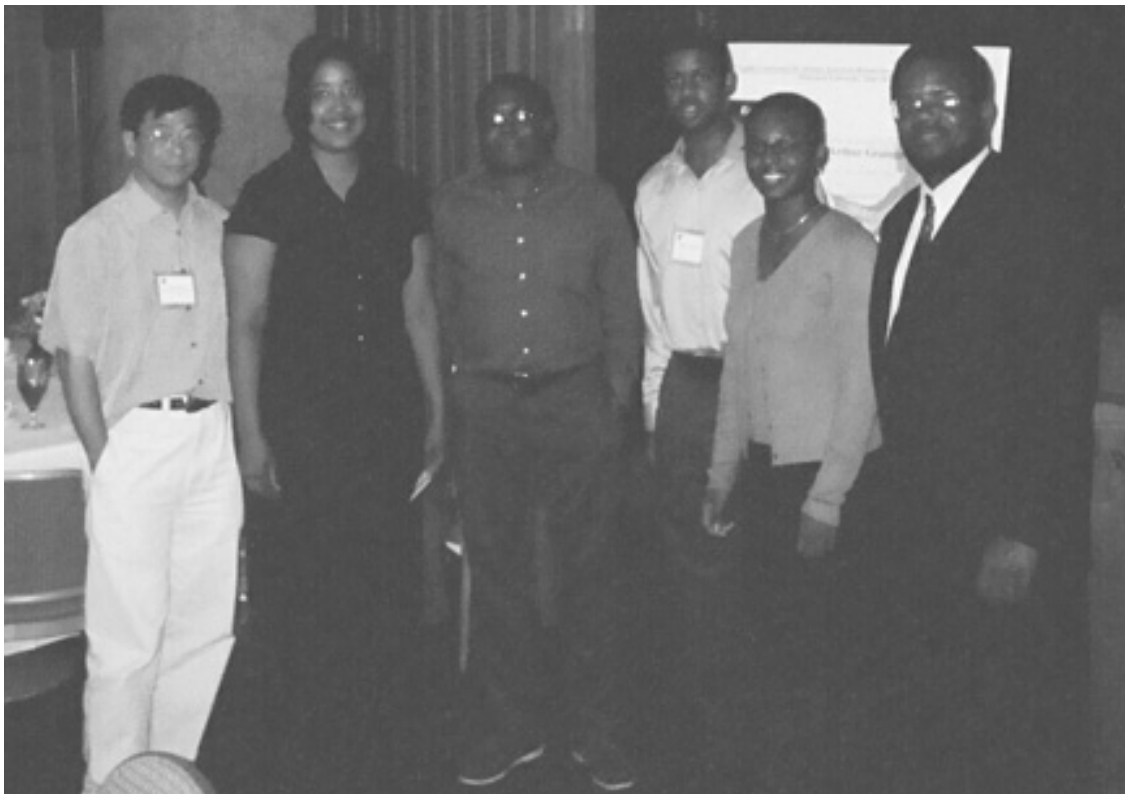
Augustin Banyaga, Penn State University: On the Geometry of Locally Conformal Symplectic Manifolds; Randolph Cooper, California State University: Los Angeles Applications of Variational Inequalities; Wilfrid Gangbo, Georgia Institute of Technology: The Monge Kantorovich Theory and its Applications;; Russell Goward, Purdue University / MSRI / University of Michigan: Resolution of Singularities: An Introduction to Algebraic Geometry; Ben Hansen, University of Pennsylvania / University of Michigan: SAT Scores for Sale? Pseudoexperimental Assessment of Commercial Test Preparation via Optimal Full Matching; Rudy L. Horne, Jr. California State University, Hayward: A Brief Introduction to Soliton Theory in Some Nonlinear PDE's; Fern Hunt, National Institute of Standards and Technology: Multiple Genetic Sequence Alignment; Mark Lewis, University of Michigan, Ann Arbor: Dynamic Load Balancing in Parallel Queueing Systems: Stability and Optimal Control; Cassandra McZeal, ExxonMobil Upstream Research Company: Development Planning and Production Optimization In The Oil and Gas Industry; Asamoah Nkwanta, Morgan State University: Three New R's: Random Walks, Riordan Arrays, and RNA Secondary Structure; Vincent G. J. Rodgers, University of Iowa: The Coadjoint Representation of the Super-Virasoro Algebra and Supergravitons; Sherry Scott, Bowie State University: The Spectral Analysis of Fractal Noise in Terms of Wiener's Generalized Harmonic Analysis; Idris Stovall, Florida State University Computational Fluid Dynamics: Turbulent Convection Inside a Hele-shaw Cell; Ward Whitt, AT&T Labs Research / Columbia University: The Distance Between Two Stochastic Processes;

CAARMS8 Graduate Students Awards

Also at the CAARMS8 conference, the Institute for Pure and Applied Mathematics, one of the CAARMS8 sponsors, financially supported the prizes for graduate student poster presentations. The following awards Awards were given:

Best Algorithm: Rachel Vincent, graduate student in Computational and Applied Mathematics at Rice University; Best in Modelling: Robert Hampshire, graduate student in Operations Research and Financial Engineering at Princeton University; Best Presentation Style: Mave Houston, graduate student in Computer Science at Auburn University; Best Theory: Kasso Okoudjou, graduate student in Mathematics at Georgia Institute of Technology.

Shown in the photo are Dr. Cao Huai-Dong, Associate Director of IPAM; Mave Houston; Kasso Okoudjou; Robert Hampshire; Rachel Vincent; Dr. William Massey of Princeton University's Operations Research and Financial Engineering, also the CAARMS8 organizer.



Addition to the article The Best Journal

This is an update of an article written in the issue 32(2). There is another Annals of Mathematics paper by an African American: Kevin Corlette. Archimedean superrigidity and hyperbolic geometry. Ann. of Math. (2) 135 (1992), no. 1, 165-182.

Dr. Corlette is currently chair of the mathematics department at the University of Chicago. For more on him go to the mathematicians of the african diaspora: http://www.math.buffalo.edu/mad/PEEPS/corlette_kevin.html

African Journal of Mathematics

There is a new journal. The African Journal of Mathematics. The editor-in-chief is Dr. Joshua Leslie, a Professor and Chair of Mathematics at Howard University.

The African Journal of Mathematics is an international journal for mathematical research of highest rank. It offers a forum for mathematical research with some emphasis on the contributions of African mathematicians and the rich connections between African Universities and those of other continents. Papers in all areas of Mathematics will be considered.

At the journal's web page you can read about the Editorial board, Honorary Editor, addresses, and other journal information.: Authorship, Manuscript submission, Subscription, Links, Events
web page: <http://www.african-j-math.org/>

Errata - President's Prospective

The editor wishes to apologize to the author and readers of the Spring 2002 President's Perspective. There are numerous typographical errors, all the fault of The Editor.

Dues \$15 - \$25

The cost of producing the newsletter have gone up. Please pay your dues. The rates are
STUDENT : \$15; INDIVIDUAL : \$25; INSTITUTIONAL : \$100. There are more choices. There is a form on page 10 of this newsletter.

Support AMUCHMA

For 24 issues, the African Mathematical Union's Commission on the History of Mathematics in Africa (AMUCHMA) has revealed new and interesting mathematical material to the world of history, archeology, and education. The reproduction and distribution of the first 24 issues of the AMUCHMA Newsletter counted with the generous support from the Research Department of the Swedish International Development Agency (SIDA-SAREC). The contract with SIDA-SAREC came to an end and there is a call for support financially AMUCHMA's activities and/or to suggest alternative sources of financing.

Thanks to Scott Williams, the English language edition of all issues of the AMUCHMA Newsletter is also accessible for free on the following website:

http://www.math.buffalo.edu/mad/AMU/amuchma_online.html

JOB Openings

Job Openings Web Site

Recall that for several years, NAM has had a web site with job openings. This process is open to advertisers in the Newsletter. The advertisements appear there four to six weeks before they appear in the Newsletter. Go to the editor's NAM web site within MAD:

<http://www.math.buffalo.edu/mad/NAM>

Smith College

Department of Mathematics

Statistics

The Mathematics Department of Smith College invites applications for a tenure-track position, at the level of assistant professor, to begin in the fall of 2003. Candidates must have a Ph.D. in statistics or probability and must provide evidence of excellent teaching and an active research program. Experience in teaching applied and mathematical statistics is strongly preferred. Send a curriculum vitae, a description of your research program, a statement of teaching experience and philosophy, and arrange to have three letters of recommendation sent to:

Statistics Search Committee, Clark Science Center, Smith College, Northampton, MA 01063.

Applications will be reviewed as they are received and will be considered until the position is filled. Please indicate if you will attend the Joint Statistics meetings in New York. Smith College is an equal opportunity employer encouraging excellence through diversity.

Nominations for the NAM Board

Open positions are President, Region A Representative, and Government/Industry Representative.

By September 1, write or email:

The Editor
Dr. Scott W. Williams
Department of Mathematics
244 Mathematics Building
University at Buffalo, The State University of New York
Buffalo, NY 14260-2900
<http://www.math.buffalo.edu/~sww>

Please include a CV for the candidate.

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INSTITUTIONAL : \$100. There are more choices. There is a form on the page 10 of this newsletter.

NAM'S ENDOWMENT CAMPAIGN

"A CAMPAIGN FOR THE PERPETUITY OF NAM"

PLEDGE – CONTRIBUTION FORM

The principal of the campaign is never to be spent; only the interest and dividends received from the investment of these funds may be spent. (All life memberships will go toward NAM's campaign).

To help with the success of this campaign, we are requesting all members and friends of NAM to contribute what you can and to assist NAM by helping NAM to locate other contributors.

Please pledge the amount that you desire to contribute and please honor all pledges (where feasible) by paying \$100.00 or more toward the pledge. Persons may pay for a Life Membership over a period of one year by making four payments of \$100.00 each.

**Send to: Dr. Robert E. Bozeman, Secretary-Treasurer, NAM; Depart. of Mathematics;
Morehouse College; Atlanta, GA 30314; (404) 215-2613 (office);
rbozeman@morehouse.edu**

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All contributions are tax deductible. (Please make checks payable to NAM's Endowment Campaign)

- | | | |
|----|-----------------------------------|----------------------|
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| 2. | Bronze (B) ----- | \$500 - 999 |
| 3. | Silver (S) ----- | \$1,000 - 4,999 |
| 4. | Gold (G) ----- | \$5,000 – 9,999 |
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*(Any contribution of \$500 or more from an individual will include life membership upon request)

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Do you desire a Life Membership in NAM? [] Yes [] No

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SELECT APPROPRIATE MEMBERSHIP TYPE

STUDENT : \$15

INDIVIDUAL : \$25 CONTRIBUTING : \$50 SUSTAINING : \$75

INSTITUTIONAL : \$100 LIFE : \$400

PLEASE RETURN THIS COMPLETED FORM AND MEMBERSHIP DUES TO :

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Department of Mathematics

Morehouse College

Atlanta, GA 30314

(404) 215-2613 (office)

E-mail: rbozeman@morehouse.edu

Web page: (new) <http://www.math.buffalo.edu/mad/NAM/NAM-index.html>

INDIVIDUALS AND STUDENTS : Please complete below if you did not send NAM this information within the past three years.

List all degrees you currently hold. Circle the correct degree.

B.S. or B.A. : Area _____ Institution _____

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Ethnicity : African American Hispanic American White Other

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NAM Newsletter

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