



The College of _____
WILLIAM & MARY

Department News, 2003-2004

Faculty and Student Awards

Professor [John H. Drew](#) was the 2003 recipient of the Thomas Ashley Graves, Jr. Award for Sustained Excellence in Teaching. This award was created to underscore the importance William and Mary attaches to superior teaching. The award is named for Thomas Ashley Graves, Jr., who retired in 1985 after nearly 14 years as President of the College. The recipient of the award is chosen by the president from nominations submitted by each of the academic deans. The award was presented to Professor Drew at Commencement Ceremony by College President Timothy J. Sullivan on May 11, 2003.

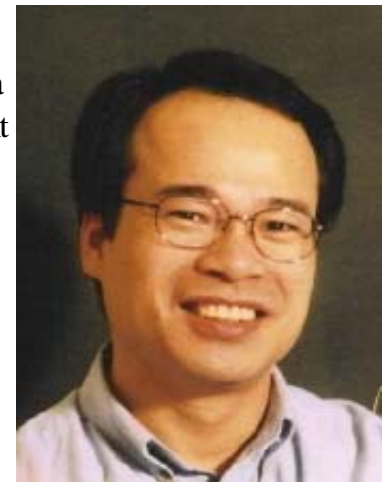


[News article on WM News](#)

[Professor John H. Drew's homepage](#)

Professor [Chi-Kwong Li](#) has been selected as the recipient of the 2003 Faculty Award for the Advancement of Teaching by the Alpha Chapter of Phi Beta Kappa at the College of William and Mary. This award is offered to "a faculty member who has shown a commitment to the concept of an academic community in which teachers and students work together to advance knowledge."

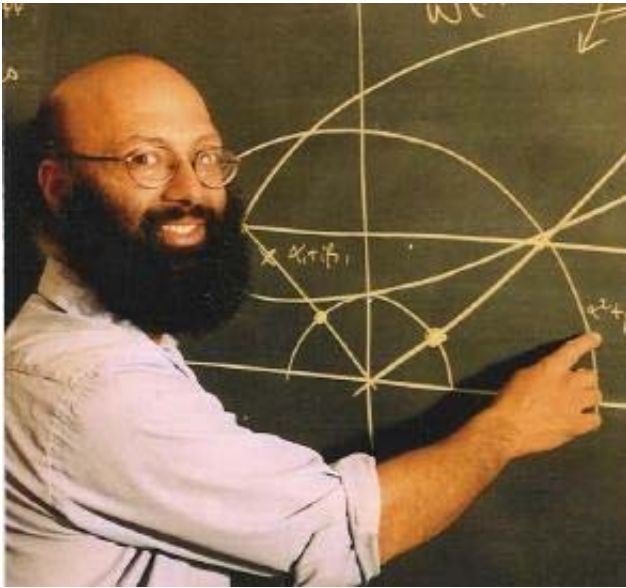
Phi Beta Kappa, the nation's oldest and most prestigious undergraduate honors organization, was founded on December 5, 1776, at the College of William and Mary.



[Professor Chi-Kwong Li's webpage](#)

[Phi Beta Kappa Society](#)

A research article [The Multishift QR Algorithm. Part II: Aggressive Early Deflation](#) (published on [SIAM Journal](#)



on [Matrix Analysis and Applications](#)) co-authored by Karen Braman, Ralph Byers and [Roy Mathias](#) received the [SIAM Activity Group on Linear Algebra Prize](#) by [SIAM Linear Algebra Activity Group](#). The award, established in 1987, is awarded to the author(s) of the most outstanding paper, as determined by the prize committee, on a topic in applicable linear algebra published in English in a peer-reviewed journal in the past three years. The award was presented to Professor Mathias and his co-authors during [SIAM Conference on Applied Linear Algebra](#), which was held on William and Mary campus, July 15-19, 2003 (see separate news item below.)

[Professor Roy Mathias' webpage](#)

[SIAM \(Society for Industrial and Applied Mathematics\)](#)

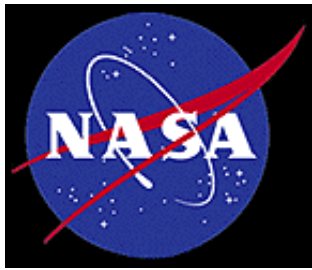
Mathematics and economics concentrator Hanley Chiang, Class of 2003, received this year's Lord Botetourt Medal. Chiang was the only member of the class of 2003 to graduate with a 4.0 grade point average. The award was established in 1772 by Norborne Berkeley, Baron de Botetourt, Governor of Virginia. It is awarded "for the honor and encouragement of literary merit" and is given to the graduating senior who has attained the greatest distinction in scholarship. Chiang, who graduated with a double major in mathematics and economics, is a member of Phi Beta Kappa and earned "highest honors" in mathematics. In nominating Chiang for the award, a faculty member wrote, "He has an extraordinary level of intellectual curiosity and analytical ability and...is a first-rate scholar." Chiang also won 2002 Thomas Jefferson Prize in Natural Philosophy, and Truman Scholarship. He will begin his graduate study on economics in Harvard University starting 2003 fall.



[News article on WM News](#) [Other awards won by Hanley Chiang](#) (in 2002 Newsletter) [Hanley Chiang profile](#)

Research Grants

- Professor [Robert Michael Lewis](#) receives a [National Aeronautics and Space Administration](#) (NASA) research grant for his project *Robust Techniques for*



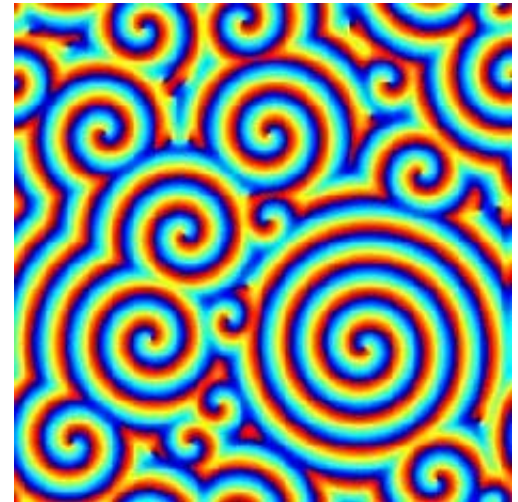
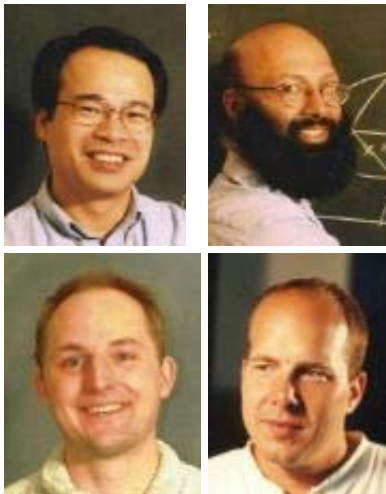
Multidisciplinary Design Optimization Problem Synthesis and Solution. The duration of the grant is 5/16/2002 - 5/15/2005.



- Professor [Rex K. Kincaid](#) received a [NASA Faculty Fellowship](#) for the summer of 2003.

[Professor Rex K. Kincaid's homepage](#)

Professors [Chi-Kwong Li](#), [Roy Mathias](#), [Sebastian Schreiber](#) and [Gregory Smith](#) (Applied Sciences) receive a [National Science Foundation](#) NSF grant of \$100,000 for Research Experience of Undergraduate in Mathematical Biology. The duration of the grant is 2003-2005. The grant is a supplement to the grant DMS-0091774 awarded to Mathias and Li on Matrix Analysis on Science and Engineering. For the project, each year 5-6 undergraduate research students will work with professors on matrix problems that arise in Markov chains models of Ca Release Site Dynamics and population dynamics.



Homepages: [Chi-Kwong Li](#), [Roy Mathias](#), [Sebastian Schreiber](#); [Gregory Smith](#)

Mathematical Biology REU in William and Mary (site coming soon)

Professor [Junping Shi](#) receives a [National Science Foundation](#) (NSF) research grant of \$108,545 for his project *Persistence and*

Pattern Formation in Biological Systems. The duration of the grant is 9/1/2003--8/31/2006. The grant includes summer and travel support for Professor Shi, and it will also support related research of two undergraduate students each year. Professor Shi is going to study some reaction-diffusion models of population ecology and of pattern formations of biochemical systems.



[Project Description on NSF website: DMS-0314736](#)

[Professor Junping Shi's webpage](#)

Mathematical Biology REU in William and Mary
(site coming soon)

Professor [Michael W. Trosset](#) and [Dennis M. Manos](#) (Applied Sciences) receive a research grant of \$49,975 for their project *Proteomics Software Package for Detection and Analysis of Cancer* from [INCOGEN, Inc.](#) The duration of the grant is 4/1/2003 - 9/1/2003. The grant is a subcontract of a Phase I Small Business Innovation Research (SBIR) grant from [National Institute of Health](#). INCOGEN, Inc. is a bioinformatic company located in Williamsburg, and it provides software and professional services to scientists involved in pharmaceutical, agricultural and biotechnology research. The project develops algorithms to classify patient profiles for early cancer diagnosis based on SELDI (Surface Enhanced Laser Desorption Ionisation) mass spectrometry data.



[Professor Michael W. Trosset's homepage](#)

[News about INCOGEN relocating to Williamsburg](#) [NIH SBIR 2003 award](#)



- Professors [Chi-Kwong Li](#) and [Junping Shi](#) obtained a [Ky and Yu-Fen Fan Fund Travel Grant](#) from [American Mathematics Society](#). The fund, together with a matching fund from William and Mary, will bring two visiting

William and Mary, will bring two visiting professors Dr. Zhongzhi Bai and Dr. Zhitao Zhang of [Chinese National Academy of Sciences](#) to our department in Spring 2004.



- Professor [Chi-Kwong Li](#) (joint with Dr. Jor-Ting Chan of the [University of Hong Kong](#)) have been awarded an "RGC Competitive Earmarked Research Grants," by the Research Grants [Council of Hong Kong](#) ("RGC CERG project HKU 7007/03P") to study "Linear Preserver Problems" in 2003-2005.
- Professor [Junping Shi](#) (joint with Professor Yuwen Wang of [Harbin Normal University](#)) have been awarded a research grant by the [Science Council of Heilongjiang Province](#) of China to study bifurcation theory of nonlinear elliptic equations and applications to mathematical biology in 2003-2006.



Professor [Robert Michael Lewis](#), [Roy Mathias](#), [Larry M. Leemis](#), and [Michael W. Trosset](#) receive a [National Science Foundation](#) (NSF) equipment grant of \$39,999 for the project *Scientific Computing Research Environments for the Mathematical Sciences*. The duration of the grant is 8/15/2002-7/31/2004. The grant will be used to purchase equipment for the creation of a computing network dedicated to the support of research in the mathematical sciences. The award will provide funds for high-bandwidth networking equipment, high-performance computers for numerical calculations, and a file server. This equipment, together with desktop machines providing platforms for smaller computations, will provide a numerical/file server cluster for the faculty investigators and students working on a number of research projects. This equipment will be used for computationally intensive research projects spanning a wide range of applied mathematics. These include numerical methods for engineering design, numerical mathematics, computational biochemistry, and operations research.



[Project Description on NSF website: DMS-0215444](#)

New Faculty Members

Department

- Professor [Alexander Pankov](#) joined our department as a visiting professor for the academic year of 2003-2004. His research areas are Partial Differential Equations, Mathematical Physics, Nonlinear Analysis, and Calculus of Variations. Before joining W&M, Professor Pankov was a visiting professor in Texas A&M University.

[Professor Pankov's webpage at Texas A&M University](#)



Professor [Alexander Pankov](#)

- Dr. [Martine Reurings](#) from Vrije University, Amsterdam, Netherlands will visit us for the academic year of 2003-04 as a post-doctoral fellow of Professor Leiba Rodman. Dr. Reurings' research interest is on the dynamics of maps on the set of Hermitian matrices. Dr. Reurings obtained her Ph.D degree in April 2003 in Vrije University under the supervision of Professor [André C.M. Ran](#).



Dr. [Martine Reurings](#)

[Dr. Martine Reurings's webpage at Vrije University](#)

- Marilyn Gloyer joined our department as a part-time instructor for the academic year of 2003-2004. She will teach Math 111 in both the fall and spring semesters. Before joining William and Mary, she taught at the [University of Memphis](#), [Fairfield University](#) and other colleges in Connecticut and Virginia.

Class of 2003

Information on Graduating Seniors (2003)



Chiang	(Economics, graduate study)
Mariel Conlon	University of North Carolina (Bioinformatics, graduate study)
Frank Curtis	Northwestern University (Operations Research , graduate study)
Matthew Duggan	College of William and Mary (Computational Operations Research , graduate study)
Rebecca Ellison	University of Arizona (Mathematical Biology, graduate study)
Sarah Hockensmith	The Analytical Sciences Corporation in Washington DC (work)
Michael Levy	University of Colorado (Applied Mathematics, graduate study)
Robert McGregor	College of William and Mary (Computer Sciences , graduate study)
Jessica Otis	University of Virginia (Mathematics, graduate study)
Suzanne Robertson	University of Arizona (Applied Mathematics , graduate study)
Matthew Schu	(teaching high school)
Mary Swajkoski	Teach for America program (teaching)
Daniel Sweeney	US Air Force (applying)
James Turner	College of William and Mary (Computational Operations Research , graduate study)
Bryan Walter	NASA-Langley Research Center (work)

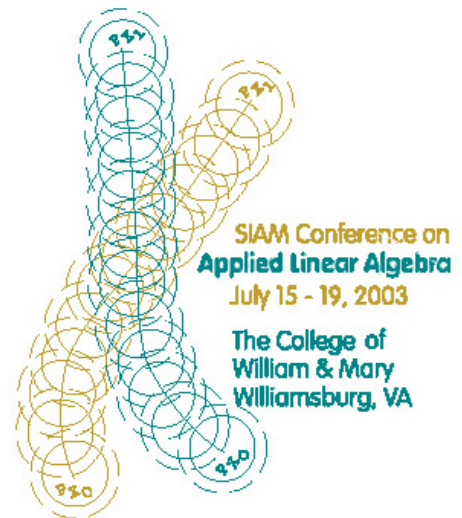
Information on Graduating Master Students (2003)

Catherine Easterling	NASA-Langley Research Center and Lockheed Martin (computer systems analyst)
Lane Yingjie Lan	University of Maryland (Computer Sciences, graduate study for PhD)

Dear graduate, Please let us know where you are now.
Please sent news about you to shij@math.wm.edu

Conferences

Professors [Roy Mathias](#) and [Hugo Woerdeman](#) co-chaired the organizing committee of [SIAM Conference on Applied Linear Algebra](#), which was held on William and Mary campus, July 15-19, 2003. The meeting is sponsored by [SIAM Activity Group on Linear Algebra](#) (SIAG/LA). It the latest in a successful series of meetings that began in Raleigh more than 20 years ago. The meeting is being organized in cooperation with the [International Linear Algebra Society](#) (ILAS) and covers a wide and inclusive range of topics in applied and core linear algebra, as well as applications, both emerging and established. Ten distinguished mathematicians and researchers delivered the invited plenary lectures, and about 200 presentations about the linear algebra and applications were given in minisymposia (MS) and contributed sessions. Professors [Chi-Kwong Li](#) and [Leiba Rodman](#) organized MS: Indefinite Inner Products and Applications; Professors [Vladimir Bolotnikov](#), [Charles R. Johnson](#), [Chi-Kwong Li](#), [Leiba Rodman](#), and [Michael W. Trosset](#) all gave talks in the meetings, as well as Thomas Milligan (graduate student, W&M) and Frank Curtis (undergraduate, W&M). Professor [Roy Mathias](#) received the [SIAM Activity Group on Linear Algebra Prize](#) in the meeting (see news item above).



- Professor [Rex K. Kincaid](#) gave a presentation at the [44th AIAA Structures, Structural Dynamics, and Materials Conference](#), April 7-10, 2003, Norfolk, VA. His talk is "Bell-Curve Based Optimization for Mixed Continuous and Discrete Structural Optimization Problems," (with M. Griffith, R. Sykes and J. Sobieski).
- Professor [Sebastian Schreiber](#) was one of the main lecturers in [Scales in Mathematical and Theoretical Ecology, From Individuals to Ecosystems: A Summer School](#), held in Sigüenza, Spain,



[Summer School](#), held in Sigüenza, Spain, August 25-September 3, 2003.

- Professor [Junping Shi](#) gave an invited plenary lecture in *Workshop: New Perspective of Nonlinear Partial Differential Equations*, held in [Ryukoku University](#), Japan, June 23-25, 2003; he was also invited to give a talk in [Workshop on Defects and their Dynamics](#), held in newly founded [Banff International Research Station](#), Canada, August 9-16, 2003.
- Professor [Nahum Zobin](#) gave invited lectures in [Workshop on Noncommutative Geometry](#) (April 5-10, 2003) and [Workshop on Analysis and Geometric Measure Theory](#), (July 26-31, 2003) held in newly founded [Banff International Research Station](#), Canada; he was invited to the [Max Planck Institute of Mathematics](#) (Bonn, Germany) to conduct a joint research in Mathematical Physics with Professor Dimitri Gurevich (July 1-15, 2003).

Summer Research Experience for Undergraduate

Since 1990, William and Mary has hosted an NSF-funded summer Research Experiences for Undergraduates (REU) program. For eight weeks in the summer of 2003, nine REU students from around the country visited the William and Mary mathematics department to work with faculty mentors on research projects on matrix analysis and its applications. Three of the students (Kevin Armstrong, Audrey Crittenden, and Paul Smith) were William and Mary undergraduates. The faculty research mentors were Professors [Chi-Kwong Li](#), [Charles R. Johnson](#), [Roy Mathias](#), [Vladimir Bolotnikov](#), and [Sebastian Schreiber](#). In addition, three doctoral students (Tom Milligan, Raymond Sze, and Brian Sutton) assisted faculty mentors in working with the visiting undergraduates. [David Lutzer](#) served as the overall project coordinator.

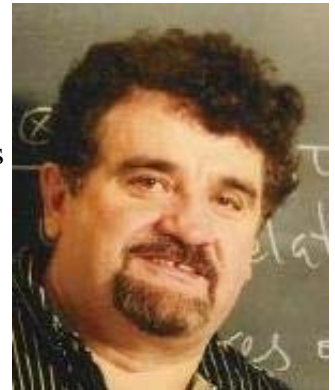
REU students choose their research projects from a group of problems described by faculty mentors during the first week of the program. These problems were not textbook exercises. Instead, they were open-ended projects designed to attack unsolved questions related to linear algebra and, in some cases, to its applications in bio-mathematics, computational mathematics. At the end of the summer, students presented written and oral summaries of their projects and, if history is a guide, about half of their papers will grow into refereed journal articles with the students and research mentors as co-authors. (A list of previous publications by our mathematics faculty members and undergraduate co-authors can be found at

<http://www.math.wm.edu/~klsmit/udres.html>)

REU students find that participating in mathematical research is quite a different experience from what they have seen in typical undergraduate classes. NSF hopes that REU experiences will encourage participants to continue their studies in graduate school, and the William and Mary summer REU program has a very strong record in that regard. Since its inception in 1990, about 75% of William and Mary REU students have gone on to graduate school in a mathematical science, and in some years' REU groups, the percentage is closer to 90%.

Interdisciplinary Research

During the last 3 years there have been three very successful interdepartmental seminars running at William and Mary, bringing together mathematicians and physicists. These seminars helped to create active joint research groups in several areas of mutual interest. Professors [Carl Carlson](#), [Christopher Carone](#) (Physics) and [Nahum Zobin](#) (Mathematics) are studying noncommutative gauge field theories which are meant to explain the small scale structure of space-time, Professor [John Delos](#), Dr. Kevin Mitchell (Physics) and Professor [Nahum Zobin](#) are working on problems of dynamical systems related to break up of large molecules and atoms, Professors [Eugene Tracy](#) (Physics) and [Nahum Zobin](#) are using algebro-geometric methods to investigate complex dynamical systems arising in plasma physics and oceanography.



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