Spring 2001 Meeting: April 20–21
Virginia Military Institute

The Virginia Military Institute, a four-year undergraduate college founded in 1839, combines the studies of a full college curriculum within a framework of military discipline that emphasizes the qualities of honor, integrity and responsibility. VMI's 1,250 cadets pursue BA or BS degrees in 14 disciplines in the general fields of engineering, science, and liberal arts. Undergirding all aspects of cadet life is the VMI Honor Code, to which all cadets subscribe. VMI's unique educational system produces leaders for all walks of life; business, industry, public service, education, the professions, and the military. Approximately 18 percent of VMI graduates make the armed forces a career.

VMI's demanding academic program reflects the established needs and the emerging trends of a constantly changing society on the local, regional, national, and international levels. The Institute's rapidly developing international program includes student and faculty member exchanges with fourteen international academies and universities, seven internships, and numerous semester-abroad opportunities. VMI is classified as Liberal Arts Baccalaureate I by the Carnegie classification system, along with many of the nation's prestigious liberal arts colleges. Though best known for its engineering programs, 52 percent of its graduates major in liberal arts fields. Approximately 30 percent of the cadets major in one of the three engineering branches (civil, electrical, or mechanical), while economics/business and history are the two most popular majors. The 2001 edition of U.S. News & World Report's "America's Best Colleges." ranks VMI 21st (among 75 schools) for undergraduate engineering programs at schools without a Ph.D. program. VMI's civil engineering program ranks 8th, and its mechanical engineering program 14th, among specific engineering disciplines.

VMI has a combined mathematics and computer science department with 11 full-time faculty members and about 95 majors. During the last ten years there has been a decrease in the number of mathematics majors to about 15, and a dramatic increase in the number of computer science majors to about 80. The department continues to have a very heavy service teaching-load, with each cadet required to take at least six hours of mathematics. Over 40 percent of the cadets take more than minimum, as they major in a science or engineering. The department is strongly committed to undergraduate teaching and the faculty members engage the students in special projects whenever there is a mutual interest.

To Register For The Meeting Go To The Section Web Site.
Registration Deadline is April 6!!

All information for the meeting can be found on the section web site. To register for the meeting use the form available on the web site. The web site also contains directions, maps, hotel information, the complete meeting program (including the schedule for contributed papers when it becomes available in April), registration forms, contributed paper forms, distinguished teaching nomination forms, minutes of the previous meetings, reports from the Section Governor, Chair, Treasurer, and section news! Sections news items should be sent to Dan Kalman at *kalman@american.edu*. Information will be added and updated throughout the Spring. Please note that the old web address for the section is no longer working; please change your browser to the address below.

MD-DC-VA Section Web site
http://www.maa.org/md-dc-va

Meeting Highlights

The Spring meeting of the MD/DC/VA Section of the MAA will begin with a reception and banquet Friday evening, featuring an address by Prof. Robert Mena of California State University, Long Beach and the National Science Foundation. Saturday there will be addresses by Prof. Sam Lomonaco of UMBC, Prof. Tim Snyder of Georgetown University, and Prof. Virginia (Lyn) Stallings of American University. There will be contributed papers and exhibits.

Dr. Robert Mena, *National Science Foundation.*

Robert Mena is on loan to the Educational Systemic Reform Division of the National Science Foundation from California State University, Long Beach, where he joined the faculty in 1988. He has won several teaching awards as well as the MAA Allendoerfer award–happily shared with his co-authors Dan Kalman and Shahriar Shahriani.

Dr. Mena will present **The Case of the Conjecture Slain by a Deck of Cards (Borsuk's Conjecture)** Suppose we are asked to cut an object into pieces that have a strictly smaller diameter–if we are given an ellipse, we easily see that we can succeed in our quest by cutting it into two pieces (if we use the shorter axis as our cutting line). However, if we are given a circle, or a square or an equilateral triangle, we easily see we need to cut it into three pieces. As we try other flat (two-dimensional) objects, we see that we can always succeed by cutting the object into either two or three pieces–never needing more than three!

If we now move to three-dimensional objects, again we can experiment for a while, and soon we come to the realization that we will never need more than four pieces to succeed in our quest. Naturally, we can project that for four four-dimensional objects, five pieces will be the most we will ever need; and that for dimension 5, 6 pieces, etc... Indeed, Borsuk (who proved the two-dimensional case) conjectured so in the 1930's: that in dimension d, one would never need more than d+1 pieces. After several meaningful successes (including the d=3 case), the conjecture stood until the 1990's when it was proven false for infinitely many cases. We will give the smallest example available from the construction given by Kahn & Kalai. It is d=1326.

Dr. Samuel J. Lomonaco, *University of Maryland Baltimore County.*

Since 1985, Dr. Samuel J. Lomonaco has been a professor in the Department of Computer Science & Electrical Engineering at the University of Maryland, Baltimore County. Dr. Lomonaco's current research is in quantum computation where he has made advances in quantum cryptography and quantum entanglement. His book entitled "Quantum Computation" will be published by the AMS in 2001. For more information see: **http://www.cs.umbc.edu/˜lomonaco http://www.csee.umbc.edu/˜lomonaco/ams/Lecture Notes.html**

Dr. Lomonaco will present **An Overview of Quantum Computation: Concept and Intuition.** This talk will give an overview of quantum computation in an intuitive and conceptual fashion. No prior knowledge of quantum mechanics will be assumed. The talk will begin with an introduction to the strange world of the quantum. Such concepts as quantum superposition, Heisenberg's uncertainty principle, the "collapse" of the wave function, and quantum entanglement (i.e., EPR pairs) will be introduced.

Dr. Timothy Law Snyder, Georgetown University

Dr. Timothy Law Snyder is the Wright Family Distinguished Professor of Computer Science at Georgetown University. From 1995 to 1999, Professor Snyder was Georgetown's first Dean of Science. He has a passion for teaching, especially using new media (he speaks of chalk use as "cave drawing"), and helped design Georgetown's innovative Sony Scholars Program for teaching science to non-science majors. His research interests include computer music and digital signal processing; combinatorics; geometric probability; computational geometry; and airline flight safety.

Dr. Snyder will present **Comfortably Injecting the Learning of Writing into the Teaching of Mathematics.** "How can I teach my students how to write, let alone how to do a proof?" This is a question most of us have when we approach the topic of teaching writing in our mathematics classes. Meanwhile, we struggle to understand what our students are trying to say when we grade their work. In this talk, we examine the seeds of these struggles and look at ways of examining the learning of writing without compromising traditional mathematical teaching. The process we use will have a bonus of accelerating students' abilities to think mathematically—and, yes—even design proofs.

Dr. Lyn Stallings, American University

Dr. Lyn Stallings, Associate Professor in the Department of Mathematics and Statistics at American University, coordinates the Ph.D. program in Mathematics Education. She received the Mathematical Association of America's Regional Award for Distinguished College or University Teaching of Mathematics in 1998 and the American University Award for Outstanding Teaching in 1994. She was designated the 1987 Presidential Awardee for Excellence in Mathematics Teaching for her work in training teachers to adopt innovative methods in geometry and algebra. After serving as Department Chair from 1997 to 1999 and Associate Dean of Academic Affairs in the College of Arts and Sciences from 1999 to 2001, Lyn will return to the department this Fall to resume her research interests in authentic assessment, student self-evaluation, and writing in mathematics.

Dr. Stallings will present **Using Rubrics and Reflection in Mathematics Courses** This talk will provide an introduction to nontraditional assessment techniques for evaluating students' work in math courses. Techniques include rubric grading, verification or justification of solutions, writing and analysis of errors, and documentation of progress.

Please share this Call for Papers with your colleagues!!

Maryland/DC/Virginia Section of the MAA
Spring 2001 Meeting: April 20 – 21
Virginia Military Institute
Call for Papers

Presenter: _____

Institution/Organization: _____

Address:_____

_____

Phone number: _____ day _____evening

E-mail Address:_____

Title of paper: _____

Content area: _____

Is this talk recommended for students: ☐ Yes   ☐ No

Equipment needed: _____

Status: ☐ Faculty
            ☐ Professional
            ☐ Student: ☐ Undergraduate   ☐ Graduate

Please attach a two- or three-sentence description of your proposed talk. Please also attach a brief *vita* so that we may introduce you properly.

Deadline: MARCH 21

Send to Program Chair: Dr. Robert B. Grafton, 5013 Cloister Drive, Rockville MD 20852.
Or by email: kgottes@attglobal.net, FAX: (703) 292-9059, or phone: (703) 292-8936.

Student Paper Competition!!!

The Spring program will include student talks and awards. There will be $ CASH $ prizes awarded for the best student talks. Students are offered a discount registration price of only $5 and free lunch if they preregister by April 6. Any student who presents a contributed paper earns a free one year membership or journal subscription from the MAA (see the web page for details).

So reach out and touch those special students – encourage them to attend the Spring meeting and give a talk!

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