

# MARYLAND-DISTRICT OF COLUMBIA VIRGINIA SECTION NEWSLETTER

Vol. 6, No. 4

Oct. 1984

## INVITED SPEAKERS

Dr. Doris Schattschneider will address the section on Saturday at the fall meeting. She is a professor of mathematics at Moravian College, Bethlehem, Pennsylvania, and is Editor of Mathematics Magazine. She has a long interest in mathematics and art, and is especially interested in symmetry and tilings of the plane. She is the coauthor of M.C. Escher Kaleidocycles and The Perceptive Eye: Art and Math. The title of her presentation is "Mathematics and the Art of Escher".

Dr. Herbert Wilf will address the section on Friday evening at the banquet. Dr. Wilf is a professor of mathematics at the University of Pennsylvania where he is interested in Combinatorial Mathematics and Algorithms. He is the author of several books and numerous papers in these as well as other areas of mathematics. In 1972 he was the winner of the Christian and Mary Linback award for excellence in undergraduate teaching. In the same year he also won a John Simon Guggenheim Memorial Fellowship. He is the co-founder, with Donald Knuth, of the Journal of Algorithms, now in its fifth year. For the past three years he has been Editor of the American Mathematical Monthly. The title of his talk is "Shakespeare or Bacon? Submarine or Whale?"

### Friday Evening Banquet Talk

"Shakespeare or Bacon? Submarine or Whale?"

If a number of samples are taken from one population and a number from another, it is desired to be able to assign unknown samples to one or the other of the two groups in the future. How can this be done? Applications range from authorship of musical or literary works to distinguishing submarines from whales by radar echoes to differential diagnosis of diseases, etc. Computational and analytical methods will be discussed.

### TEAM

The MAA TEAM (Teaching Experiential Applied Mathematics) modules will be shown at the fall meeting. These learning modules are intended to help college instructors introduce into the undergraduate curriculum a viable component in applied mathematics. The three learning modules that are now available and will be shown at the meeting are:

"Hours of Daylight" a junior/senior level problem, presented by Jerry Cline, an applied Mathematician from the McDonnell Douglas Corporation of St. Louis. The problem is to find, for a given date, the amount of time a particular location on a planet spends in daylight. The learning module included software for the Apple II.

"Highway Slope Design" a freshman, sophomore level problem, contributed by Jerry Smith, a civil engineer and Director of Public Services of Enid, Oklahoma. The problem is to find the smooth parabolic transition between two straight roads of different grades.

"Aircraft Sidestep Maneuver" a junior/senior level problem, contributed by Donald Pate, an operations research analyst from the Federal Aviation Administration of Oklahoma City. The problem is to determine the path of an airplane while it is rolling to make the transition from a straight line path to a circular path. The learning module includes software for the Apple II.

In the first part of the video presentations, the industrial representatives discuss their work, philosophy of problem solving, and the problem. In the second part, they present and discuss their solution to the problem. Each part runs for approximately 25 minutes. The modules have been scheduled twice during the day. Why not come by for the problem in the morning part, try your hand at a feasible solution, and come back for the second half in the afternoon to see if you were on the right track?

HOTELS: From the last issue of this NEWSLETTER: Accomodations for those who wish housing. All rates subject to 5% state and 6% local tax.

THR-RIFT INN 3 1/2 miles from USNA  
 2542 River Road, Annapolis, MD 21401 Phone (301)-224-2800.  
 35 rooms set aside until Oct. 26. Each room has two double beds.  
 Rates: One person \$36.95 (\$29); two persons \$42.95 (\$32).  
 Discount rate for participants (Mention MAA meeting when placing your reservation). Lower rate applies if more than 20 rooms are booked.

HOLIDAY INN 3 1/2 miles from USNA  
 210 Holiday Court, Annapolis, MD 21401 Phone (301)-224-3150

Room Type	1 Dbl Bed	2 Dbl Beds	1 King Bed
One person	\$43.00	\$45.00	\$49.00
Two persons	51.00	53.00	57.00

ANNAPOLIS HILTON 1 mile from USNA  
 80 Compromise Street, Annapolis, MD 21401 Phone (301)-268-7555  
 Rates: One person \$58, \$77, \$96, \$115, \$134  
 Two persons \$87, \$106, \$125, \$144, \$163  
 Located on Annapolis Harbor---Room rate depends on view.

MARYLAND INN 1 mile from USNA  
 21 Church Circle, Annapolis, MD 21401 Phone (301)-263-2641  
 One person - \$62 to \$72; two persons - \$76 to \$86. An historic inn (200 years old) in the heart of Annapolis within walking distance to USNA and having a cocktail lounge with shows.

9:30

- Chauvanet  
114 "Percolation in Continuous Systems"  
James R. Kirkwood, Sweet Briar College
- 116 "Teaching a Calculus of Programming"  
Harlan D. Mills, IBM and University of Maryland
- 117 "Inertial Flight Instruments: Mathematics Applied  
to Flight Training Simulations: A Case Study"  
Tom Allen, Sperry Corporation
- 119 "Hours of Daylight" ( 1 HOUR )  
TEAM Learning Module

10:00

- Chauvanet  
114 2 "L on the Unit Circle: Which Rotationally Invariant  
Subspaces are Hardy-like?"  
Richard B. Tucker, Mary Baldwin College
- 116 "Computer Science Curricula: Where's the Math?"  
Richard W. Dillman, Western Maryland College
- 117 "Sine, Cosine, and Binomial Coefficients"  
Mike Hoffman, U. S. Naval Academy

10:30

- Chauvanet  
114 "Ring Theory and Exact Integer Arithmetic"  
George Mackiw, Loyola College
- 116 "Using the Computer Package SAS in an Undergraduate  
Course"  
Raymond Geremia, Goucher College
- 117 "A Monte Carlo Simulation Involving Alzheimer's  
Disease"  
John C. Hennessey, Loyola College
- 119 "Highway Slope Design" (1 HOUR)  
TEAM Learning Module

11:00

- Chauvanet  
216 MAA Business Meeting

11:30

- Chauvanet  
119 "Aircraft Sidestep Design" (1 HOUR)  
TEAM Learning Module

11:30 - 1:00

Lunch Break (Names of Nearby Restaurants will be provided at the meeting)

1:00

Chauvanet 216

INVITED ADDRESS: "Mathematics and the Art of Escher"  
Doris Schattschneider, Moravian College and  
Editor of Mathematics Magazine

2:00

Chauvanet

- 114 "Pursuit Games"  
Young Lee, Student, Goucher College
- 116 "Mathematics Liberally Applied for/ by the  
Non-Mathematics Major"  
Sister Helen Christensen, Loyola College
- 117 "Hyperbolic Boundary Value Problems Solved by  
Special Functions Methods"  
Peter McCoy, U. S. Naval Academy
- 119 "Highway Slope Design" (1 HOUR)  
TEAM Module

2:30

Chauvanet

- 114 "Optimum Stradegy for a Two Person Poker Game"  
Laura Lamb, Student, Goucher College
- 116 "Synthesizing the Discrete and Continuous: A  
Potential First Year College Math Course"  
Stephen B. Seidman and Michael D. Rice  
George Mason University
- 117 "A Moth to the Flame" and "RMS Without Calculus"  
Robert A. Maynard, Tidewater Community College

3:00

Chauvanet

- 114 "Guessing a Number with Lying"  
Susan Emily Imber, Student, Goucher College
- 116 "An Applications Course for the Terminal  
Mathematics Student"  
Thomas Sonnabend, Trinity College
- 117 "Subparticles and Their Mathematical Generation"  
Robert A. Hermann, U. S. Naval Academy
- 119 "Aircraft Sidestep Maneuver" (1 HOUR)  
TEAM Module

## MINICOURSE

A minicourse titled "An introduction to the Mathematical Foundations of Computer Graphics" will be given starting at 3:30 on Friday, November 9 in Michaelson A09. The mincourse will be given by Dr. Gerald Porter from the University of Pennsylvania. There will be Apple computers available for the participants to have a chance to try out the procedures described. The material presented will be applicable to anyone with access to a computer with graphics capability. For anyone attending the minicourse and bringing a blank disk, copies of the software may be obtained for the Apple IIE. The number of people attending the minicourse is limited to a maximum of 30.

### DIRECTIONS TO THE THR-RIFT AND HOLIDAY INNS

From the West. Exit U.S. 50 at MD 450, Annapolis, Crownsville exit. At the end of the ramp is a light. Proceed straight through this first light onto Riva Rd. Continue through the next two traffic lights. The motels are just after the second light on the right side.

From the East. Exit U.S. 50 at the MD 2 South, Prince Frederick exit. This is several miles from the MD 2 North exit. Turn left at the second light, Forest Drive. At the end of Forest Drive, turn left at the light onto Riva Rd. The motels will be on the right side just after the turn.

### DIRECTIONS TO THE NAVAL ACADEMY

From the West. Exit U.S. 50 at MD 70, Rowe Blvd. Cross over Weems Creek and turn left at the second traffic light, Taylor Ave. (approx. .8 mile from U.S. 50 exit). Turn right where Taylor Ave. ends at Annapolis St. (approx. .2 mile). Stay in the left lane around the curve and go straight at the first light. Ignore the signs to the Naval Academy at this point. Turn right at second light and enter Gate 8.

From the North. Proceed South on MD 2, Richie Highway. Enter left lane as you approach U.S. 50, U.S. 301, MD 450 interchange. The exit ramp will merge with another lane of traffic on the right. Immediately enter the right lane to proceed onto MD 450. The ramp will make a sharp right hand turn and end at a stop sign and flashing red light. Cross the first lane of traffic and turn left onto MD 450. Proceed straight across the the Severn River and turn left at the first light after the river to enter Gate 8.

From the East. Enter middle lane of U.S. 50 as you approach interchange with MD 2 North and MD 450. Exit at MD 450. The ramp will make a 180 degree turn and merge with another ramp from the right. Stay in the right lane to proceed onto MD450. The ramp will make a sharp right turn and end at a stop sign and flashing red light. Cross the first lane and turn left onto MD 450. Proceed straight across the Severn River. Turn left at the first light after the river into Gate 8.

Inside the Academy. Tell the guard at the gate that you are going to the M.A.A. meeting. Proceed straight. Hubbard Hall, where the banquet will be held is located on the right side just before College Creek. To get to Chauvenet Hall where the rest of the meeting is being held, cross the creek to the F14 Fighter Plane. Turn left in front of the jet and follow the road between the creek and the buildings. Turn right at the stop sign and drive past the track field on the right. Turn right at the next parking lot and park. Chauvenet hall is the building next to the track at the far end of the parking lot. Walk up the outside stairs to the first level. Go around the building to the foyer area by the fountain where registration takes place.

THE MARYLAND - DISTRICT OF COLUMBIA - VIRGINIA SECTION OF  
THE MATHEMATICAL ASSOCIATION OF AMERICA

FALL MEETING - NOVEMBER 9 AND 10, 1984  
U. S. NAVAL ACADEMY  
ANNAPOLIS, MARYLAND

FRIDAY, NOVEMBER 9

3:30 - 6:30

MICHAELSON  
A09

MAA WORKSHOP (Advance Registration Required)  
"An Introduction to the Mathematical Foundations  
of Computer Graphics"  
Gerald Porter, University of Pennsylvania

7:00

HUBBARD

BANQUET (Advance Registration Required)  
INVITED ADDRESS: "Shakespeare or Bacon?  
Submarine or 'Whale?'"  
Herbert Wilf  
University of Pennsylvania and  
Founder and Editor of Journal  
of Algorithms

SATURDAY NOVEMBER 10

8:00 - 11:00 and 12:30 - 1:00  
Registration at Chauvanet Hall  
Fountain Side of Foyer, First Floor

8:40

Chauvanet  
216

"Welcoming Remarks"  
Dr. Richard Mathieu, Associate Dean  
U.S. Naval Academy

9:00

Chauvanet  
114

"Applications of Jacobi's Method for Computing  
Singular Values"  
T. Hoy Booker, Gallaudet College

116

"Computers in the Mathematics Classroom: A Good  
Idea? Maybe."  
Ephraim Salins, Montgomery College

117

"An Extension of Euler's Theorem"  
Bill Wardlaw, U. S. Naval Academy

119

"TEAM (Teaching Experiential Applied Mathematics)"  
John Smith, George Mason University

3:30

Chauvanet  
116

"Are the Japanese Really Ahead in Mathematics  
Education?"  
Donald R. Peeples, Mary Washington College

117

"Pragmatics, Transactions, and Consensic Logics:  
Applications in Programming Languages and  
Artificial Intelligence"  
John Hays, Naval Research Lab

4:00

Chauvanet  
119

"Hours of Daylight" (1 Hour)  
TEAM Module

Chauvanet  
118

Computer Demonstrations of IBM and IBM Products by  
and IBM Representative  
This will be available throughout the day.