POINTS AND ANGLES

Newsletter of the Metropolitan Mathematics Club of Chicago

NCTM Charter 1 Metropolitan Mathematics Club of Chicago 1913

Volume XXXVII October 2002 No. 2

Mathematical Modeling in the Movies

Evan Glazer, University of Georgia

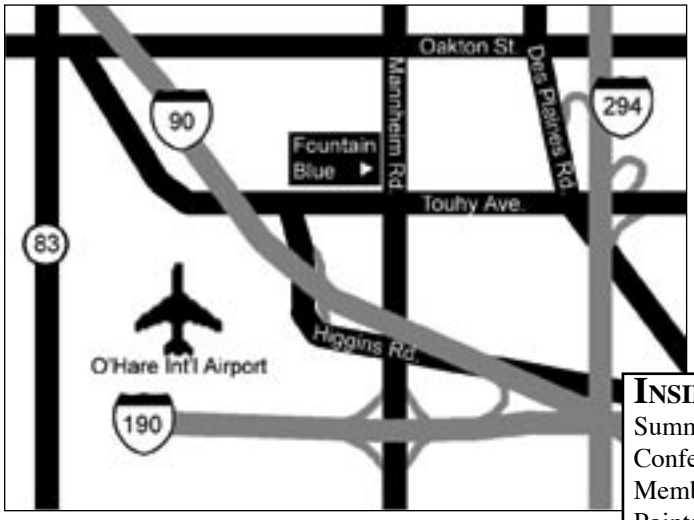
BY SIMONETTE URBAIN

As we continue our tour of the universality of mathematics, we move from the chaos of everyday life to the physical and fictitious phenomena viewed in movies. Be with us on October 25, as Evan Glazer takes us on a cinematic journey. From Star Wars to Jurassic Park, mathematics plays an integral role in the movies we watch. How fast is the tyrannosaurus? How many seats are in the Republic Senate? Evan's presentation will examine how mathematical concepts can be applied in various movie scenes to make estimations and predictions.

Evan Glazer is extremely excited to be coming home to present at MMC. As many of you may remember, Evan spent five years teaching at Glenbrook South High School in Glenview, Illinois. Even at a young age Evan was a frequent speaker on the mathematics circuit. Since leaving Illinois, Evan has moved to the Southern State of Georgia where he is a professor of mathematics at the University of Georgia. His career focus has been in real-world applications of mathematics and applications of technology in mathematics. Over the last two years, he has published books titled Real-Life Math: Everyday Use of Mathematical Concepts (with MMC's John McConnell) and Using Internet Primary Sources to Teach Critical Thinking in Mathematics. Evan is currently completing a doctorate in Instructional Technology from the University of Georgia.

REMEMBER!! You can earn **CPDU** credits for attending dinner meetings!

Date: Friday, October 25, 2002
Time: 5:30 p.m. Doors Open
6:00 p.m. Social Hour
7:00 p.m. Dinner and Talk
Place: Fountain Blue Banquets & Convention Center
2300 Mannheim Rd.
Des Plaines, IL
(847) 298-3636
Cost: Members $29
Nonmembers $35



From Southbound I-294 & Eastbound I-290:
Exit at I-190 East to O'Hare; Exit onto North Mannheim Rd.; Take Mannheim Rd. North 2.25 miles.
From Northbound I-294:
Exit at West Touhy Ave.; Take Touhy Ave. to Mannheim Rd.; Turn right on Mannheim Rd.
Public Transit:
Take the CTA Blue Line to the Rosemont Bus Terminal; Take Pace Bus #223; Exit at Touhy Ave. & Lee Rd.; Walk East on Touhy to Mannheim Rd.

RESERVATION DEADLINE
Friday, Oct. 18, by noon, please!
TO RESERVE:
Call 847-295-1068 or
email bowlerjp1234@msn.com
(Pat Bowler-Johnson)
Day or night, leave a message on machine.

INSIDE...

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Future Meetings:
November 22, December 13, January 17, February 7, March 14 (π day), May 9

Adventures in the Chaos Club

Robert Devaney, Boston University

BY PAT BOWLER-JOHNSON

On a warm September evening, Bob Devaney of Boston University took us on an "Adventure in Chaos." Now the chaos we explored was not the same as it is defined in *Webster's New World Dictionary*—"extreme confusion or disorder"—but rather "a dynamical system with specific properties." Bob is the Director of the Learning Network of New England High School Students, a project that shows both teachers and students—in even the poorest areas of Boston—how to provide for the discovery of the concept of chaos through after-school programs. Bob demonstrated fractal activities and designs that were created by students as part of the Dynamical Systems and Technology Project of Boston University. Bob took us to the web site http://math.bu.edu/DYSYS/, where he demonstrated various chaos club activities. One of the first activities he showed us was the Chaos Game. To play the game, one places three points in the vertices of an equilateral triangle as well as a fourth point within the triangle. Then one locates the position that is halfway to the point and marks that position with another point. This latter step is then repeated. Bob performed that process, and the resulting pattern was Sierpinski's Triangle. Soon one could see smaller and smaller copies of the Sierpinski's Triangle as he continued the process.

Photo by Pat Bowler-Johnson

Robert Devaney (left) along with first Chaos challenger Robert Usiskin, President-Elect Simonette Urbain, and second Chaos challenger P.J. Karafiol

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Mark the Date

Saturday, February 1st

in your assignment notebook!

MMC Conference of Workshops

at Argo Community High School

*in Summit just 2 miles from Midway

**No substitute needed

To all who sent in speaker forms—
Thank you! We have 88 amazing workshops!
We'll be in touch soon. Thanks again!
—Virginia & Mary

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Volume XXXVII, Number 2, October 2002

Points and Angles is the official publication of the Metropolitan Mathematics Club of Chicago. Founded in 1913, the Metropolitan Mathematics Club is the National Council of Teachers of Mathematics' first affiliate.

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Using Java Applets for Chaos and Fractals, we then visited FRACTALINA, written by undergraduate students. The challenge of FRACTALINA is to produce Sierpinski's triangles from three points (located anywhere) thus forming a scalene, right, or even obtuse triangle. Bob stated that the adventures went even farther than three points. We discovered geometrical images using five and six points to form Sierpinski's pentagons and hexagons. As a final look at FRACTALINA, Bob provided us with a fractal quiz!

Another adventure was the Fractal Movie. Each frame of the movie is a different chaos game that changes the rotation of the fractal "creation." Students are given the task to make a movie that is "beautiful"—"a lot of symmetry, geometry, and mathematics."

Lastly, Bob challenged members in a game of Chaos. This time the game was filled with targets, rotations and different skill levels. After individuals challenged Bob, he concluded that, "these applications are unbelievably interesting to kids. Students get excited about these explorations and kids want more." We all seemed to feel the same. After Bob's talk on Adventures in Chaos, we just wanted him to continue!

THE 2003 CHICAGO AREA ALL-STAR MATH TEAM TRYOUTS

Thursday, February 27, 2003,

4 – 10 pm (with a break for dinner)

at Evanston Township High School

All interested high school students welcome. The teams compete in the national ARML contest at the Iowa City site on May 31.

For more information about the tryouts, the team, or coaching opportunities, contact Coach Isaac Greenspan via email: greenspani@eths.k12.il.us

Do you use e-mail?

Would you like an e-mail reminder about each MMC meeting, as well as other MMC events? If so, send an email to wiltjerm@eths.k12.il.us and ask to be added to *the list*.

MMC Membership and Change of Address Form

Mail to: MMC
801 Elmwood Ave. #2
Evanston, IL 60202

Name _____

Address ❑ _____

_____

Phone _____

School _____

Address ❑ _____

_____

Phone _____

E-Mail _____

Check preferred mailing address above.

❑ **Change of Address**

Make check payable to MMC.

Please use a different form for each person.

Membership: ❑ New ❑ Renewal

Choose one:

❑ 1 year ($20) _____

❑ 2 year ($35) _____

❑ 3 year ($50) _____

❑ 1st year teacher
❑ retired
❑ student
($10) _____

Donations:

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Total amount of check: _____

If you have any questions, e-mail wiltjerm@eths.k12.il.us

Points from the Interior

BY PAT BOWLER-JOHNSON

The month of October brings many changes: the seasons change from the warmth of the summer to the cool breezes of fall; the leaves of the trees begin to change, bringing the beauty of fall colors; the hour of the day changes from being light in the late afternoon to darkness. At the same time, our schedules change to center around our professional calendars; each of us, in our own unique way, travels on new adventures that will allow us to discover exciting and challenging learning experiences to share with our students, our colleagues, and our peers.

As these seasonal changes take place, we begin to change our own methods of learning. As we are faced with the challenge of looking for learning opportunities within our own walls, take the opportunity to explore what our cities have to offer us as classrooms without walls. If you have not already done so, take time to visit the Dale Chihuly Art Glass Exhibition at the Garfield Park Conservatory, until November 23, 2002. The beauty of the geometry comes alive in the lush setting of the many plants in the conservatory, and this beauty becomes even more outstanding as the sun begins to set.

This is, however, only one of the many opportunities in which we can explore the field of mathematics within the city of Chicago. Virginia Highstone and Mary Wiltjer have been busy finalizing the program for the MMC Conference of Workshops to be held on Saturday, February 1, 2003. This program will provide each of you the opportunity to explore different teaching techniques in addition to explore concepts of interest to you outside of your classrooms.

Is any [person] afraid of change?
Why what can take place without change?
What then is more pleasing or more suitable to the universal nature?
— Marcus Aurelius

METROPOLITAN MATHEMATICS CLUB OF CHICAGO
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Your membership renewal date appears in the upper right corner of the label.