

Points & Angles

Newsletter of the Metropolitan Mathematics Club of Chicago
Volume XLVII No. 6 April 2018

Math and Diamonds: The Many Facets of Mathematics

May Speaker

Zalman Usiskin



From I-90 & Southbound I-294: Exit at I-190 West 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 to Touhy Ave. & Lee Rd.; Walk East on Touhy to Mannheim Rd.

Friday, May 11, 2018

5:30 PM Doors Open, 6:00 PM Social Hour
7:00 PM Dinner & Talk

Fountain Blue Banquets & Convention Center

2300 Mannheim Rd., Des Plaines
(847) 298-3636
\$43 for Members, \$49 for Nonmembers

Reserve by Noon, Monday May 7, 2018

Online at www.mmcchicago.org
or by phone at (847) - 486 - 4291

Zalman Usiskin

Description: This talk is a modern update of the presentation following the banquet at the ICTM annual meeting in 1982, held in the Auditorium at the University of Illinois, and given again at the banquet of the NCTM annual meeting in Anaheim, California, in 1987. (Until relatively recently, there was a banquet at the NCTM annual meeting.) The presentation includes a number of songs sung by the speaker and accompanied (live) by him at the piano. It is designed for teachers of mathematics at any level, K-college.

The speaker: Zalman Usiskin is a Professor Emeritus of Education at the University of Chicago. This is the 25th time that Zal has been invited to speak at an MMC meeting and the 26th time that he will do so, one time having been enlisted on short notice to give a talk when the scheduled speaker did not arrive. As a celebration of what might be termed a silver anniversary, Zal is, for the first time since the NCTM annual meeting in Chicago in 2000, performing and interspersing live music into a mathematics presentation. It is the first time he is including music in an MMC presentation.



**Professor of Education
University of Chicago**

Zalman Usiskin received bachelor's degrees in both mathematics and education from the University of Illinois. In high school and throughout college, he sang in and directed choirs, and his teaching minor was in music. While obtaining an M.A.T. from Harvard University, he sang in the Harvard Glee Club. While going for his doctorate at the University of Michigan, he sang in their top choral group, and he was Pooh-Bah in Michigan's Gilbert and Sullivan Society performance of "The Mikado".

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Math And Diamonds

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Zal taught mathematics full time at Niles West H.S. before starting his doctoral work. While a faculty member at the University of Chicago, he taught year-long courses at the University of Chicago Laboratory School for four years, and full single-year courses at Addison Trail, Proviso West, Rich South, and Glenbrook South High Schools. He has been involved with the University of Chicago School Mathematics Project from its inception in 1983 and has been its overall director since 1987. He has authored, co-authored, edited or co-edited 44 books and over 150 articles in mathematics and mathematics education. In 2014, NCTM published a book of 38 of his papers, the first time that the organization published a collection of writings of one individual.

**Mathematics Teacher,
Niles West High School**



Zal was a member of the Board of Directors of the Men's Mathematics Club of Chicago and Vicinity in 1970-73 when the club voted to include women and then changed its name to the Metropolitan Mathematics Club of Chicago. (There was an active Women's Mathematics Club of Chicago at the time, but within a few years it disbanded.) He received a distinguished service award from MMC in 1984 and lifetime achievement awards from NCSM in 1994, NCTM in 2001, and ICTM in 2010. Zal's wife Karen was the first woman MMC president - they became engaged during her presidency. They have now been married for 38 years. Below is a summary of Zalman's previous MMC talks.

Date	Location	Title	Date	Location	Title
5-69	Skokie	Geometry – a Transformation Approach	5-94	Chicago	From “Mathematics for Some” to “Mathematics for All”
5-71	Chicago	Group Theory to Make Things Easier in First and Second Year Algebra	5-96	Chicago	Some Astounding Theorems 202
5-73	Western Springs	What Should Students Learn about Mathematics?	5-98	Chicago	The Development into the Mathematically Talented
12-75	Chicago	Statistics and Probability in First-Year Algebra	5-00	Chicago	Educating the Public about School Mathematics
12-76	Westchester	Debate with Frank Allen re: Transformations in Learning Geometry	5-02	Des Plaines	Glimpses of Teachers' Mathematics
12-78	Chicago	“Fluff”, extemporaneous	5-04	Des Plaines	The Importance of the Transition Years, Grades 7-10, in School Mathematics
1-79	Chicago	Some Non-trivial Problems and Proofs Involving Simple Fractions	5-06	Des Plaines	The Current State of School Mathematics
5-82	Chicago	Results of a Nationwide Geometry Study	5-08	Des Plaines	Will You Be Teaching Your Great-Grandmother's Algebra?
5-84	Chicago	Some of My Best Friends are Problems	5-10	Des Plaines	The Shape of Geometry and the Geometry of Shape
5-86	Chicago	The UCSMP Approach to Geometry in Grades 7-12	4-12	Des Plaines	Mathematical Understanding in the Common Core Standards
5-88	Chicago	Applications of Algebra and Geometry that Should Be on Your Minimal Competency Test	5-14	Des Plaines	An Amazing Century: Where We Have Been and Where We Are Going
5-90	Chicago	Understanding Mathematics	5-16	Des Plaines	The Real Big Ten: The toughest mathematical ideas for high school students to learn, and how to approach them
5-92	Chicago	Some Content is Obsolete, but How Can You Tell?	5-18	Des Plaines	Mathematics and Diamonds: The Many Facets of Mathematics

Points From The Interior

BY MATTHEW MORAN

Spring break is over, there are still too many school days left to start the summer break countdown, not to mention that it is snowing in mid-April...and cold. You have to figure out how to get yourself recharged and get to the end of the school year intact. Nobody said being a teacher was going to be easy.

Some of you are lucky enough to be heading out to Washington D.C. for a few days of professional development and collaboration at the NCTM Annual Meeting. For those that are not, do not fret, MMC has you covered! You can get the same high quality (if not higher) professional development experience at the upcoming MMC Friday Night Talk with our very own Zalman Usiskin. This will be Zalman's 26th talk for an MMC meeting, so it ain't his first rodeo. There is a high bar set for Zalman's talks, and this one is sure to be a great one. It will even include singing and piano accompaniment! Come out and recharge yourself for the remainder of the year.

Above I mentioned that "nobody said being a teacher was going to be easy." This is not at all true. Many people say and believe that being a teacher is easy. Now that I'm no longer a full-time, in the trenches, day in, day out hero we call a teacher, something I get asked a lot is, "Don't you miss the breaks?"

When speaking to a non-teacher, I use this as an opportunity to be an ambassador for teachers. To inform on the reality that these breaks are when teachers have a chance to breathe. A chance to catch up on sleep. A chance to reacquaint themselves with their families. A chance to catch up on grading, planning, paperwork, letters of recommendation, etc. that all were put aside for the more pressing, immediate needs of 100+ students. Breaks are when teachers go to the doctor, dentist, and auto mechanic. Breaks are when teachers file their tax extensions because dealing with their taxes on a one week spring break among all the other things that were put aside is just too overwhelming. They'll file those taxes over summer break. These are not breaks for most teachers. These are small interruptions from the calling that they regularly put so much of themselves into. If we didn't force a week off on them they'd never stop working.

When a teacher asks me if I miss the breaks, however, I politely say yes.

Hope you all had a restful spring break. Good luck with the end of your school year! Hope to see you on Friday, May 11 for the final MMC talk of the year. Don't miss it, as you won't have a chance to eat that delicious, Fountain Blue chicken again until September!

March Meeting Summary

BY NICOLETTE NORRIS

Math and Identity: How Our History Shapes Us

What is your math identity? How does your math identity effect your role as a teacher? Esther Song greeted the audience with a song before leading them on an exploration of how their math identity was formed and its effect on their role as a teacher.

She began with a list of jobs that identifies her at this point in her career. Some of the job titles identified are ITCM board member, Co-founder of Nepantla Teachers Community, Network 11 Teacher Leader and 2018 APME Editor. Then she asked audience members to move and sit by some one they did not know and to be honest as they completed each reflection question. Everyone was given two different color post-its and a long piece of white paper. The white paper was folded into 4 columns. Each column represented a different reflection question. One color post-it would represent the positive effect and the other the negative effect. In the first column, Esther asked us to put the names of people who encouraged us as a Math teacher in one color and people who discouraged us as a math teacher in the other. The next column was dedicated to books and articles that have encouraged and discouraged one as a math teacher. In the third column, events where one felt they were valued or their accomplishments were recognized in one color, and events where one felt discouraged as a math teacher in the other color. The last column was for the mathematics that was learned throughout the years. In one color was the math learned that was enjoyable, and in the other, the math learned that was useless or boring. After all the columns were done, the audience was instructed to order all post-its from the ones that had the highest impact on them as a math teacher to the ones that had the least impact. Then we were instructed to share our stories with our partner.

Esther asked the question “What did you have control of?” This led many in the audience to realize that some things in our math identity we had control over and others we did not. Esther then said, “What if our students did the activity, what would their experiences be?”. What is the math history of our students? In talking to students, Ester has heard students say this about their math history: You should not take this class, it’s too hard for you, that is easy, I remember when you used to be smart. Ester then asked how do we, as teachers, impact student’s math identity. Some things she had heard teachers say: When I was in high school I did all of my homework. I help out the kids who want help. Kids just want the answer. In saying these things, what message are we sending students about their identities as math people?

Esther shared her own math identity with us. She was a Korean kid who spoke very little English but was given opportunities to study advance mathematics because she could beat the whole class at Around the World, using multiplication tables, in the Fifth grade. She said that there was another Korean boy in the class that was also good mathematically, but he was not offered the same opportunities as she was because he spoke very little English. Her question to the audience “Who gets to be the math person?” One of the audience members asked how she would fix “the math identity problem of her students”. Esther responded, “I would start with myself”. Esther left the audience with one last message as we shape the math history of our students: Teach Math with Empathy. All people want to learn, and all people want to be loved.

ICTM / NCTM Affiliate Report

BY PAT TRAFTON

ICTM

Upcoming Webinars

The Illinois Council of Teachers of Mathematics offers monthly Webinars which are professional development opportunities that encourage communication and collaboration among ICTM members and potential members. Webinar speakers are teaching professionals invited to share their expertise in short online sessions. The next webinar that will be offered is All Sorts of Fun with Desmos Card on Tuesday, May 15 3:30 p.m. - 4:30 p.m. Central Daylight Time.

See the ICTM website for more information about this or previous webinars this school year.

<http://www.ictm.org/ictm-webinars>,

Upcoming events:

May 5, 2018: ICTM State High School Math Contest at Univ. of IL Urbana/Champaign

Oct. 18-19, 2018: ICTM Annual Conference in Tinley Park

NCTM

New Publication

At the Annual Meeting in Washington, NCTM will release and have an enhanced conference strand on the new book *Catalyzing Change in High School Mathematics: Initiating Critical Conversations*.

Catalyzing Change seeks to initiate critical conversations around the following challenges:

- Explicitly broadening the purposes for teaching high school mathematics beyond a focus on college and career readiness
- Dismantling structural obstacles that stand in the way of mathematics working for every student
- Implementing equitable instructional practices to cultivate students' mathematical identity
- Identifying Essential Concepts that all high school students should learn and understand
- Organizing the high school curriculum around these Essential Concepts in order to support students' future personal and professional goals

High school mathematics education is a complex system of policies, traditions, and societal expectations. Therefore, it is the system and its structures that need to be critically examined and improved. Changes to high school mathematics education require the engagement of all stakeholders involved. Therefore, *Catalyzing Change in High School Mathematics: Initiating Critical Conversations* begins a serious discussion of the issues involved among classroom teachers; counselors, coaches, specialists, and instructional leaders; school, district, and state administrators; curriculum developers; and policymakers at all levels. For President Matt Larson's complete message about this new book, see his March 21, 2018 message in MY NCTM blog <https://my.nctm.org/blogs/my-nctm/2018/03/21/catalyzing-change-in-high-school-mathematics>.

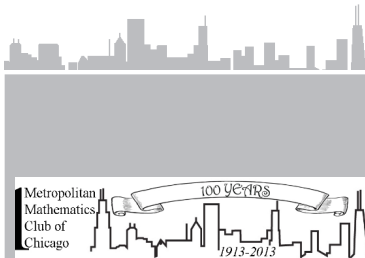
2019 Speaker Proposal

Submit a Speaker Proposal for the 2019 Annual Meeting. Consider applying to share your experience and expertise with the attendees of this meeting from April 3-6, 2019 in San Diego. The deadline to submit proposals is May 1, 2018

Upcoming Webinar

Catalyzing Change in High School Mathematics: Initiating Critical Conversations

Webinar Series: Author Talks May 16, 2018 | 7:00 p.m. ET



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MMC

CONFERENCE OF WORKSHOPS

Save the Date.....

Saturday, Jan. 26, 2019

At

**University of Chicago
 Lab School**

We need YOU to make this
 conference great!

Speaker proposals will be accepted
 through the website beginning on July 1.
 Start thinking about what workshop YOU
 can present next year!



Don't forget to renew your MMC membership for next year. It's never to soon to do so. Complete the form below and send it in. Or better yet, attend the MMC dinner on May 11 and bring your completed form and your dues.

NAME		PREFERRED CONTACT Check one: <input type="checkbox"/> Home <input type="checkbox"/> Work	
HOME ADDRESS			
CITY	STATE	ZIP	
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ELECTRONIC-ONLY MEMBERSHIP Check the box below for electronic-only membership. You will receive an email with a direct link to each issue of <i>Points & Angles</i> when it is posted on the web site, often before paper copies are mailed. You will no longer receive <i>Points & Angles</i> by mail. <input type="checkbox"/> Electronic-Only Membership		MEMBERSHIP TYPE Check one: <input type="checkbox"/> 1 year (\$35) <input type="checkbox"/> student*, 1 yr (\$22) <input type="checkbox"/> 2 years (\$65) <input type="checkbox"/> 1 st yr teacher*, 1 yr (\$22) <input type="checkbox"/> 3 years (\$90) <input type="checkbox"/> retired, 1 yr (\$28)	
FORM USE Check one: <input type="checkbox"/> New Membership <input type="checkbox"/> Renewal <input type="checkbox"/> Former Member <input type="checkbox"/> Change of Address		MEMBERSHIP COST \$	
<small>* The student and 1st-year teacher memberships are only available as electronic-only.</small>		DONATIONS	
		SCHOLARSHIP FUND \$	
		SPEAKER FUND \$	
		TOTAL AMOUNT OF CHECK \$	

Make check payable to *MMC*

Mail completed form and check to:

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 Chicago, IL 60631

MMC Membership and Change of Address Form

Upcoming Events

Fri., May 11 Zalman Usiskin

Mathematics and Diamonds: The Many Facets of Mathematics

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Don't forget to turn in your ballot for the upcoming MMC election.

Please be sure to vote!!

Your vote is important.

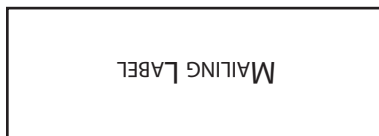
You can either mail in your ballot or bring it to the May 11 meeting.



VOTE

Send upcoming event items to jharding@d120.org no later than the date of the MMC dinner meeting preceding the issue in which the item should appear. All items are subject to editing.

Your membership renewal date appears in the upper right corner of the label.



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