

MATH/SCIENCE NETWORK BROADCAST

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Fall 2003

Canadian Connections

By Stacey Roberts-Ohr, National EYH Coordinator

From August 21st to August 26th I was in Vancouver, British Columbia on vacation. While there I met with several wonderful women who are actively involved with organizations that encourage young women in math and science. Professor Rachel Kuske, from the University of Vancouver, maintains an e-mentoring website for women (and some men), under the auspices of the Association for Women in Mathematics. This AWM Mentor Network matches mentors, either men or women, with girls and women who are interested in mathematics or who are pursuing careers in mathematics. The site serves a variety of groups from recent PhD's, graduate and undergraduate students, to high school and grade school students, and teachers.

Matching is based on common interests in careers in academia or industry, in mathematics education, in issues that arise from balancing career and family, or general interest in mathematics. We discussed ways that the Math/Science Network might become a part of this important project. (More information at <http://www.awm-math.org/mentornetwork.html>)

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Expanding Your Horizons ... 2003



*Candy Chromatography makes learning chemistry a little bit sweeter!
at University of Missouri, Kansas City EYH*

EYH sites
2003/2004

Alabama
Mobile

Arizona
Tucson

California
Atwater
Chico
China Lake
Los Angeles
Oakland
Rohnert Park
San Bruno
San Diego
San Jose
San Francisco
San Luis Obispo
San Ramon
Santa Clarita
Santa Cruz
Stockton
Turlock
Visalia

Colorado
Boulder
Denver
Fort Collins

Florida
Orlando

Idaho
Boise

Illinois
Carbondale
East Peoria
Normal
Park Ridge/ Niles
Springfield

Indiana
Evansville
South Bend

Kansas
Emporia
Kansas City
Rolla
Springfield
St. Louis

Maine
Orono

Massachusetts
Pittsfield

Missouri
Columbia
Rolla
Springfield
St. Louis

Montana
Bozeman

A Celebration of Life

Anita Borg (1950 - 2003)



How do you organize a memorial service for a woman who was as alive and complex as Anita Borg?

On September 9th, friends and colleagues gathered at Memorial Auditorium, Stanford University to share moments in a very special life. Anita died, at 54, of a brain tumor. As the founder, first of SYSTERS, and more recently of the Institute for Women in Technology (IWT), Anita's life was extremely productive, both as a computer scientist and as an advocate for women in a world that continues to give women short shrift in so many fields. What might have been a truly sad occasion was instead a celebration of a very special life. Anita would have enjoyed being there.

A huge blowup of a painting set the background for the sharing of memories about Anita by several of her closest friends and colleagues. Connecting all these talks was Anita's husband, Winfried Wilcke. The backdrop, was an enlargement of a painting by Maria Klawe, close friend of Anita's and current Dean of Engineering at Princeton University and President of ACM. Each remembrance was dramatized by a wonderful huge photo showing the speaker together with Anita in a shared activity.

Anita Borg was a visionary and computer scientist who was one of the earliest and most effective advocates for women in her field. What was so special about the event was

that the memories that were shared highlighted the humor and vitality of this extraordinarily effective young woman, even as she pursued her dream to enhance the influence of women in the world of technology; to help the voice of women shape the future that technology could help us build.

For those of you who did not know Anita, after getting her doctorate in computer science from the Courant Institute at New York University in 1981, she worked for several computer companies and then spent 12 years in Digital Equipment's labs. She is well known among other female computer scientists for having created a list server for female engineers, called Systems, and for founding a technical conference for women, called the Grace Hopper Celebration of Women in Computing.

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Intel Contest Winners

left to right: Anila Madiraju, Elena Glassman, Lisa Glukhovsky

On May 16th, the Intel International Science and Engineering Fair, held in Cleveland, Ohio, awarded more than \$3 million in scholarships and prizes to high school students from around the world. For the first time in the history of the largest pre-college science competition in the world, three young women were awarded the top prizes of a \$50,000 scholarship and a high performance computer.

Lisa Glukhovsky, 17, from Connecticut, used amateur telescope images to calculate distances to nearby asteroids.

Elena Glassman, 16, from Doylestown, Pa., designed a method that allows computers to read brain wave data, giving the potential for people with severe muscular dystrophy to use computers.

Anila Madiraju, 17, from Montreal, Quebec, found a way to kill cancer cells using ribonucleic acid. Other winners are listed on the Intel website: www.intel.com/education/isef/2003winners.htm

Science News on the web includes an article about the 3 young women: <http://www.sciencenews.org/20030524/fob7.asp>

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Four afternoon panels, covering the range of Anita's interests, were entitled ... "Early Leaders", "Women Changing the World", "Changing the Systems, Not the Women" and finally "Perspective of the Future". The evening was the occasion of a gala Champagne dinner and dance ... again a fitting memorial to a wonderful woman who loved to play as hard as she worked!

B E W A R E of Electronic Voting Machines Prone to errors and vulnerable to fraud!

Check out what computer experts say!
<http://www.verifiedvoting.org/index.asp>

Any Amount Will Help!!

You probably know that most non-profits are hurting during this difficult financial time for both individuals and corporations. Corporations that have consistently supported the Math/Science Network are deferring contributions this year.

Please contribute any amount that you are able to at this time. We can really use it. Our programs and staff continue to provide services that promote our mission. We are successful. We need your help to continue to be successful.

New from the Math/Science Network EYH 'Kits to Go'

Have you been asked to speak to a small group about how to start an EYH conference? Do you know other groups seeking information about Math/Science Network services? Would you welcome specific tools for a dynamic presentation that would help you provide this information?

The Math/Science Network is pleased to announce the creation of EYH 'Kits to Go'.

EYH 'Kits to Go' have been designed to help volunteers and board members present information about the Math/Science Network and EYH conferences to interested groups. The kit contains the following items:

- A PowerPoint presentation about the Math/Science Network
- History and goals of the network plus a mission statement
- A FAQ sheet to help answer questions about EYH conferences
- Description of actual EYH conferences
- Timeline and structure for organizing an EYH conference
- Funding suggestions
- A registration Start-Up packet to encourage people to register their site
- Math/Science Network brochures
- Sample brochures from EYH conferences around the U.S.
- Business cards of the National Coordinator for EYH conferences
- EYH stickers and buttons
- Statistics about women in math and science
- Math/Science Network Annual Report
- Copies of Broadcasts (M/SN newsletter)
- Site networking information
- Responses to hard questions

'Kits to Go' are available at no charge.

To order call (510) 430-2222, the Math/Science Network office. Please be prepared to let us know the estimated size of the intended audience.

Note that this kit has been tested at a National meeting of the American Chemical Society with great success.

Hunting for Solutions

Single-sex education does not solve all problems ... but it is more likely to hunt for solutions. Karen Stabiner, the author of "*All Girls: Single-Sex Education and Why it Matters*" (Riverhead Books) states that even in an all girls school, computer science courses are not popular. How to deal with this? The author identifies differing points of view.

"One camp says that girls see computers as a communications tool, and the best way to engage them is to exploit that and offer classes that stress using programs--say, designing Web sites of online magazines--over creating them. The other side says that such preferences exist only because no one has tried to expand girls' technological horizons."

Including more reading in its math curriculum has been the solution of one school to increasing their students' interest in mathematics.

U-M new study helps define why fewer women choose math-based careers

An interesting finding from a new study by two University of Michigan researchers reports that 'values' trumps 'skills' when girls and boys, equally confident in their math abilities, choose a science career. Both people-oriented girls and boys tend to choose college majors in the biological sciences over mathematically based sciences such as engineering or physics.

The study, by Jacquelynne Eccles, a professor of psychology and women's studies and a research scientist in the University's Institute for Research on Women and Gender (IRWG), and Mina Vida, a research associate in IRWG, suggests that those who want to attract and retain more women in math-based academic programs and careers in industry need to develop different intervention programs for girls and young women. "It's not enough to simply try to raise girls' confidence levels," Eccles said. "We need to develop interventions that will not only demonstrate the utility of mathematics, but also show how the mathematically based sciences do something concrete to help people."

Eccles and Vida's research is based on a data set collected over 17 years as part of the Michigan Study of Adolescent Life Transitions (MSALT). MSALT follows some 1,700 southeastern Michigan students from 6th grade through college and beyond, looking at a wide variety of interests, motivation and achievement-related self-concepts.

Eccles points out that women are going into science, but they tend to concentrate in the life and social sciences. For instance, in 1997, 63 percent of psychologists and 42 percent of biologists were women, compared with 10 percent of physicists and astronomers and 9 percent of engineers. In 2002, women made up 43 percent of the incoming U-M Medical School class, but were just 14 percent of doctoral students in the College of Engineering.

The study also has implications for universities and industry. "Both undergraduate and graduate programs in engineering and the mathematical sciences will need to take a hard look at their curriculums if they want to increase the number of women," Eccles said. "It's not enough to concentrate solely on abstract mathematics. Women (and more people-oriented men) need to be able to make the link to wider societal values."

Eccles adds that U-M's GO-GIRL program for seventh-grade girls is a good example of a program that incorporates the importance of helping students make connections. Students in GO-GIRL design questionnaires on topics of their own choosing and conduct surveys via the school's Smartgirl.org website. They learn how to analyze and present the data they collect. "By demonstrating a strong connection between math and the things that concern them in their daily lives, GO-GIRL increases the chances that these girls will continue their interest in math and the mathematical sciences," Eccles said.

Free from the National Science Foundation!

New Formulas for America's Workforce: Girls in Science and Engineering, a free book from the National Science Foundation promises to help teachers, counselors, museums, schools, faculty, and parents find experts, get ideas to change the face of science and engineering, learn hundreds of proven ways to engage students.

o Read it online at <http://www.nsf.gov/pubs/2003/nsf03207/start.htm>

o To order, go to <http://www.nsf.gov/home/orderpub.htm> and request NSF 03-207 for book or NSF 03-208 for CD.



Margo Nanny at National Education Computer Consortium, July 1, 2003. Together with Teri Perl, Nanny described Pathways, part of the Math/Science Network web site.

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Another interesting woman I met was Margaret Ann Armour, the Assistant Chair of the Department of Chemistry at the University of Alberta. Armour has implemented a wonderful six week internship program where young women meet with women in industry and academia to learn about each others work. One of the goals of this program is to increase the number of qualified women moving into academic fields.

Other relevant observations ...

- The Canadian Government has put a great deal of money into programs that support women in math and science. However, although many organizations have few problems securing funding, they do lack the staff to implement large-scale programs.
- Across Canada, 11.5 % of degrees awarded in the physical sciences go to women.
- The Canadian Mathematical Society has a subcommittee that works on encouraging young women in math and science.
- Our EYH program is much larger than any similar Canadian program. In British Columbia, for example, although conferences very similar in scope to EYH exist, they reach out to much smaller numbers of young women and adults. SCWIST, The Society for Canadian Women in Science and Technology (<http://www.harbour.sfu.ca/scwist/>) sponsors these conferences. Known as Ms. Infinity, these conferences serve only a few hundred young women each year. The most interesting part of my visit to SCWIST was reviewing the materials produced for the Ms. Infinity conferences. These materials are similar in scope to our EYH materials and I got some good ideas on how to incorporate some of their materials into what we do.

All in all, these visits were a most interesting and valuable sidebar to my Canadian vacation. I learned that the Math/Science Network's mission is not limited to the United States alone. I found this to be a most gratifying and encouraging discovery.

EYH sites
2003/2004

Montana, cont.
Butte
Kallispell

Nebraska
Bellevue
Chadron
Crete
Lincoln
Omaha

New Mexico
Albuquerque
Los Alamos
Silver City

New York
Buffalo
Ithaca
New York
City
Westchester

North Carolina
Raleigh

North Dakota
Fargo
Jamestown

Ohio
Wooster

Oregon
Klamath Falls
Portland
Salem-Keizer

Pennsylvania
Pittsburgh
University
Park
York

Rhode Island
Portsmouth

Tennessee
Murfreesboro

Texas
Arlington
Austin(2)
Brookhaven
College Station
Denton

El Paso
Farmers Branch
Fort Bend
Fort Worth
Houston
Kerrville
Killeen

Lancaster
Nacogdoches
Richardson
San Antonio
Stafford
Temple
Tyler
Wichita Falls

Utah
Orem

Washington
Bellevue(2)
Bellingham
Centralia
Des Moines
Ellensburg
Olympia
Richland
Seattle(2)
Spokane

Wisconsin
Madison
Platteville

Interesting Web Sites!

http://arcytech.org/java/patterns/patterns_i.shtml

This website allows users to explore with Pattern Blocks ... one of the most interesting versatile math manipulative materials. Create patterns. These virtual pattern blocks can be used to explore fractions as in the following website.

<http://math.rice.edu/~lanius/Patterns/add.html>

contains activities you can do with the pattern blocks from the site above.

<http://illuminations.nctm.org/mathlets/>

an interesting set of math tools that are animated

<http://www.figurethis.org/>

This site presents math challenges for teachers and families at the middle school level. It was funded by NSF and is distributed by NCTM.

<http://www.princeton.edu/%7Emcbrown/display/women.html>

Faces of Science: African Americans in the Sciences
Among other things, this site lists the first African Americans who earned doctoral degrees in science, mathematics, and engineering.

<http://www.math.buffalo.edu/mad/wmad0.html>

An interesting fact at this site about Black women in mathematics is that of the less than 1% of all mathematicians who are Black, 25% of these are women.

<http://www.physics.ucla.edu/%7Ecwp/>

Contributions of 20th century women to physics. Check out the photo gallery.

<http://www.agnesscott.edu/lriddle/women/women.html>

Resources and references about women mathematicians

<http://crux.astr.ua.edu/4000WS/4000WS.html>

4000 years of women in science. This site contains an interesting photo gallery of people, places and things.

<http://www.uidaho.edu/imc/2002/past.html>

This site is a treasure trove of interesting math puzzles from the University of Idaho's Internet Math Challenge.

http://www.webct.com/math/viewpage?name=math_medley

Listen to Math Medley, radio interviews that address issues involving mathematics, many concerning gender equity.



*Firefighting Workshop
Tri-Valley/San Ramon EYH conference, 2003*

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