

SAN JOSÉ STATE UNIVERSITY  
**EYH 2009**  
 31<sup>ST</sup> ANNUAL CONFERENCE



expanding  
 your horizons

Saturday, March 14, 2009  
[www.expandingyourhorizons.org](http://www.expandingyourhorizons.org)  
[expandingyourhorizons@sjsu.edu](mailto:expandingyourhorizons@sjsu.edu)

For 6<sup>th</sup> to 9<sup>th</sup> grade young women  
 and interested adults, presented by  
 SAN JOSÉ STATE UNIVERSITY and the EXPANDING YOUR  
 HORIZONS™ NETWORK

EXPANDING YOUR HORIZONS™

SATURDAY, MARCH 14, 2009  
 SAN JOSÉ STATE UNIVERSITY

Conference Schedule

The conference begins **promptly** at 8:50 am Saturday, March 14. Please pick up your conference information packet (containing your workshop assignment) between 8:00 am and 8:45 am on the day of the conference at the Morris Dailey Auditorium, San José State University. *Groups should arrive before 8:30 am.*

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|-------------|---|
| 8:00        | Registration begins at the MORRIS DAILEY AUDITORIUM   |
| 8:50        | Welcome: <b>Bem Cayco</b><br>EYH Coordinator<br>Professor, Department of Mathematics<br>San José State University |
| 9:10        | Showtime!   |
| 10:00       | Snack   |
| 10:15-11:25 | Morning Workshop I  |
| 11:40-12:45 | Morning Workshop II   |
| 12:45       | Lunch   |
| 1:35-2:45   | Afternoon Workshop  |
| 3:00        | Closing Remarks, Door Prizes, Conference Evaluation   |
| 3:30        | End of Conference   |

*Participants are expected to remain on campus and attend all scheduled activities.*

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CONFERENCE SPONSORS

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*Expanding Your Horizons Network*

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*San Jose Conference*

American Assoc. of University Women:  
 Sunnyvale-Cupertino, San Jose, and Los Gatos Branches  
 Expanding Your Horizons Network  
 Intel  
 Offices of Education:  
 Monterey, San Benito, Santa Clara, and Santa Cruz Counties  
 San José State University - College of Engineering & College of Science  
 Society of Women Engineers, Santa Clara Valley Chapter  
 Women in Science and Engineering, SJSU Chapter

# EXPANDING YOUR HORIZONS™

## WHY SHOULD YOU COME?

- Discover how interesting and fun math and science can be
- Learn about career opportunities for women in mathematics, engineering, and science
- Form personal contacts with women working in traditionally male occupations
- Meet other young women interested in science, math, and engineering

## Who is invited?

- Young women in grades 6-9
- Interested adults

## What will we do?

The conference begins with an opening welcome and presentation. The rest of the day is devoted to workshops. Each workshop is a small class involving hands-on activities led by women who have careers in math, science or engineering. All workshops provide an opportunity for you to experiment in a specific area such as computer science or medicine. You will attend three workshops. We will provide lunch.

## Student Responsibility

If you attend this conference you must be mature enough to follow instructions and directions provided by signs and guides on campus. **Also, you must attend all the events scheduled for you, including lunch, and remain on the SJSU campus from 9 a.m. until the conference ends at 3:30 p.m.**

## REGISTER EARLY!

Often the conference is full several weeks before the actual conference date. Also, popular workshops fill up quickly and early registration will help you get your top choices. If your choices are full, we will place you in other workshops. We think they are all terrific, and you may discover some great careers you had not considered before.

## How Do I Register?

All registration is online. After filling out the online registration form, you will receive an email confirmation. You need to print this email, have your parent sign it and mail it along with your registration fee. The fee of \$18 (which applies to both students and adults) includes lunch. We do not accept credit card payment. Checks should be made out to "SJSU EYH."

Registration instructions are posted at [www.science.sjsu.edu/eyh](http://www.science.sjsu.edu/eyh).

## Information about groups, fee waivers, cancellations, etc.

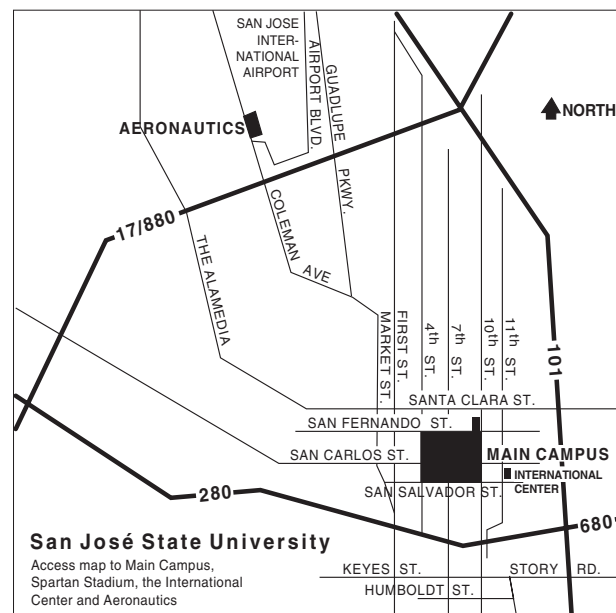
**Groups:** If you wish to bring a group of 10-40 students, email us by February 1, 2009 at [ExpandingYourHorizons@sjsu.edu](mailto:ExpandingYourHorizons@sjsu.edu). Fill out the online registration forms by February 8 and payment must be received by February 15. Groups must provide chaperone(s) with one chaperone designated to oversee at most 10 girls, e.g. a group of 25 needs 3 chaperones. We reserve the right to limit the size and number of groups.

**To request fee waivers:** A student's application fee may be waived if the student is in a school lunch program. Please check the appropriate box on the student application form. A limited number of fee waivers are available this year.

**Refunds:** Email us by February 21 to request a refund. NO refunds will be given after that date.

**On-site registration:** There is NO on-site registration. You cannot register at the conference.

**Photography:** A photographer may take pictures of you or your child. These photos may appear on our web site or in publications. If you register yourself or your child, you have given us permission to use your or her photos.



San José State University is bordered by San Fernando, 10<sup>th</sup>, San Salvador, and 4<sup>th</sup> Streets.

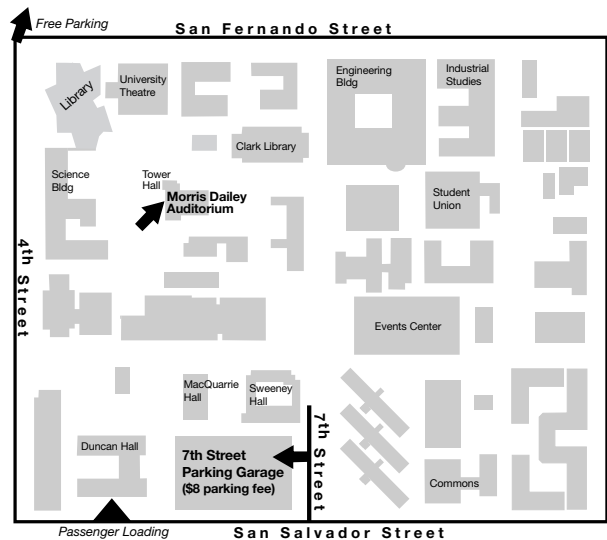
**Parking is free at the city garage on 4<sup>th</sup> Street at San Fernando.**

**From U.S. 101:** Take I-280, exit at Seventh St., proceed north to the main campus.

**From Interstate 880 South:** Take 101 to I-280, exit at Seventh St., proceed north to the main campus.

**From Interstate 680 South:** I-680 becomes I-280 (at U.S. 101), exit at Seventh St., proceed north to the main campus.

**From Interstate 280:** Exit at Seventh St., proceed north to the main campus.



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## COMPUTER/MATHEMATICS WORKSHOPS

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### 1 LOVE AT FIRST BYTE

Write a computer program in BASIC! Debug (fix) an adventure game program. Play with other games on the computer.

*Adrienne Jardetzky, Senior Director, Network Appliance*

### 2 THE HUMAN INTERNET GAME: HOW THE NET WORKS

Have you ever wondered how the Internet works? When you type [www.myspace.com](http://www.myspace.com), how does your computer connect to Myspace? The Human Internet Game (HIG) is a fun, interactive activity designed to teach you how the Internet operates. You will take on roles of computer devices and work together to route as many "human" packets through the network as fast as possible.

*Munmun Baishya, Software Engineer, Cisco Systems Inc*

### 3 THE HUMAN INTERNET GAME: WHY THE NET IS FAST

Ever wonder how your email messages get to your friends? Or how you can quickly grab information from the Net for your term paper? Come see Warriors of the Net's witty, animated short movie explaining routers, switches, packets, the ping of death, and much more about the Internet. Then, you take the roles of routers, switches, and packets, and see what goes on "from the inside view" - see what elements that contribute to your speedy surfing and messaging via the Internet.

*Kathryn Welds, Ph.D., Program Manager, Cisco Systems*

### 4 KALEIDOCYCLES AND SYMMETRY

Participants will construct an individually designed 3-dimensional kaleidocycle of both geometric and artistic interest.

*Betty Weiss, Mathematics Instructor, West Valley College*

### 5 USING MATH IN REAL LIFE - TRADING IN THE STOCK MARKET

Have you ever wondered what the stock market is and how it works? Come and learn how to read stock charts, pick good stocks, and buy and sell stocks!

*Melanie Swan, Hedge Fund Manager, Registered Investment Advisor and Futurist, Cygnet Capital*

### 6 MATH DELIGHTS

We'll have fun playing games and solving puzzles, during which you are likely to discover some interesting mathematical concepts.

*Nancy Blachman, Founder, MathDelights.org & the Julia Robinson Mathematics Festival; Lucy de Anda, Elementary Math Specialist, Palo Alto School District; Rita Wespi, founder, Math Matinee; Sudha Dhandapani, Math Enthusiast and Management Consultant*

### 7 WRITE AN ANIMATION

Use your logic skills to create an animated drawing. No artistic skills required. We will help you write programs that blossom and spin. Come try it! (<http://www.embry.com/rLogo/>).

*Alta Elstad, Sun Microsystems Inc.; Mary Nguyen, Synopsys*

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## EARTH AND ENVIRONMENT WORKSHOPS

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### 8 OBSERVING THE WEATHER

Use the tools of Atmospheric Scientists, experience the advanced technology of Meteorologists, learn countless ways precipitation is measured, and find out how weather balloons are used.

*Tom Evans, Meteorologist, National Weather Service*

### 9 FINDING FAULTS: INVESTIGATING EARTHQUAKES IN THE BAY AREA

Discover how faults move, learn how scientists measure earthquake shaking, and explore direct effects of earthquakes.

*Heidi L. Stauffer PhD Student, Dept of Earth & Planetary Sciences, UC Santa Cruz*

### 10 FLOAT DOWN MEMORY LANE

Want to see how Santa Clara Valley has changed the past 500 years? How might this reflect current concerns of global warming and water shortages? We'll mark the changes on a huge map with symbols while listening to music and reading brief descriptions of each period.

*Kathy Machado, Education and Volunteer Programs Coordinator, Santa Clara Valley Water District*

### 11 STORIES ONLY ROCKS CAN TELL

Why are there volcanoes in Oregon and Washington, but not in the Appalachian Mountains? What makes volcanoes in Hawaii different from those in Alaska? Maps can tell us a lot about earth's history. Learn how maps of geologic features like earthquakes, volcanoes, and elevation above sea level tell the story of our planet. We will also have examples of rocks from all over the earth for you to look at and handle.

*Karen Knee Ph.D. Candidate, Geological and Environmental Sciences, Stanford University*

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## ENGINEERING WORKSHOPS

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### 12 A BALLOON GIVES US LIGHT

Turning on the light requires just a flip of the switch. Have you ever imagined lighting a light bulb without touching the light switch, i.e. magical powers? In this workshop, we will show you how to light a light bulb by just using a balloon. You will also learn about how an energy saving light bulb works and how electricity works.

*Wendy Lee, Graduate Student, San Jose State University*

### 13 BENDING, BOUNCING AND COLOR MIXING: PLAY WITH LIGHT

Find out for yourself how light bends, reflects without mirrors, travels along curves and loops and sometimes even changes color. Learn how light can be used to transmit your phone calls, make color displays, and read DNA sequences.

*Annette Grot, Pacific Biosciences*

### 14 PLASMA PHYSICS IN SEMICONDUCTOR INDUSTRY (PLASMA TECHNOLOGY)

We will learn about plasma and the role it has in the semiconductor industry. Also, we will emphasize the importance of science in today's industry and career opportunities for budding engineers, physicists, technologists, and chemists.

*Savita Raina, Application engineer, MKS Instruments (Master's in EE with focus Thin films)*

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## PHYSICAL SCIENCE WORKSHOPS

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### 15 FASCINATING FUNGI

Explore the interesting world of fungi. Observe the beautiful forms under the microscope and learn about good and bad fungi.

*Ziva Abraham, Microbiology Consultant, Microrite, Inc.*

### 16 FOOD ON FIRE: MEASURING CALORIES

My favorite food has how many calories?!? Build a calorimeter and use it to determine the number of calories stored in common foods.

*Clare Lawson, HW Systems Engineering Manager, Dell Inc.; Hannah Lewbel, Senior Hardware Design Engineer, Amazon.com - Lab126; Eyrene Lawrence, Graphics QA Engineer, Apple, Inc.*

### 17 LIFE IN A VACUUM

Vacuums are not just for cleaning! Learn about silicon wafers and how a vacuum is used to make integrated circuits. Coat surfaces with metal films in our plasma chamber and learn how these are used to make such things as mirrors. Find out how water, steam and ice can exist at the same time when we perform experiments in a vacuum.

*Kathy Arnold, R&D Project Mnager, Agilent Technologies*

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## BIOLOGICAL/MEDICAL WORKSHOPS

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### 18 MEDICAL DETECTIVES

Learn how scientists use epidemiology and solve medical mysteries like disease outbreaks and how they spread. We'll follow clues and solve the mysteries - prizes at the end!

*Candra Abraham, B.S., M.P.H., Biologist & Health Educator*

### 19 CRASH COURSE: CANCER

Cancers are diseases caused when the process of cell division goes crazy. Watch cool movies of cells dividing, discover how a tumor is formed and progresses, find out how cell division is regulated by DNA, and isolate DNA, maybe even from your spit!

*Kirstin J. Milks, Debbie Burkhart, Ruth Tennin, Biosciences Ph.D. students, Stanford*

### 20 EPHALUMPS AND WUZZLES

Dissect a bovine eyeball and learn about the correct descriptions of ocular diseases.

*Wani Wynne, O.D., Optometrist, Kaiser Permanente Medical Center*

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## MATERIALS SCIENCE WORKSHOPS

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### 21 CRAZY COOL CHEMISTRY

A selection of fun demos and hands-on activities to explore the wonderful world of chemistry!

*Sarah Sherlock, Graduate student, Stanford University*

### 22 MATERIALS MADNESS

How do you make a flower shatter like glass? Ever met a metal with a memory? Why does aluminum foil bend while china plates break? Do we really eat the same stuff cars are made out of? Come discover how materials shape the world around you!

*Whitney Gaynor and Cynthia Ginestra, Materials Science and Engineering Graduate Students, Stanford University*

### 23 POLYMER PANACEA

Enter the bouncing, oozing, rubbery world of polymers. From your pajamas, chewing gum, toothbrush to bike tires, polymers are everywhere! How are they the same? How are they different? Get your fingers dirty making, testing and comparing polymers. Why do some bounce and some splat? Learn what gives polymers their amazing range of properties.

*Linda De Young, Ph.D., President, IND Enabling Consulting*

### 24 STRANGE LIQUIDS

The way liquids flow can be really strange. Some are thin, some are thick and some are springy. Come learn about the difference between a polymer liquid and other liquids and what makes liquids flow the way they do. You will make your own polymer liquid (gak) that you can take home with you.

*Shirley J. Johnson, Ph.D., Program Manager, Applied Biosystems; Wendy B. Levine, Ph.D., Manager Quality Assurance, Genemed Biotechnologies*

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## CAREER WORKSHOPS

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### 25 GIRLS ROCK!

This workshop uses hands on projects to explore the careers of Recording Engineers, Music Producers, Live Sound Reinforcement Engineers, Radio Producers, and more. Participants will learn to record music, operate a small PA, use digital audio to record and edit voice AND make some noise!

*Women's Audio Mission*

### 26 NURSING-LOOKING TOWARDS THE FUTURE

Hands-on workshop. We will give the students a chance to play with equipment that nurses use. They will view a video of nursing and have a short period of time to ask questions and talk about nursing.

*Dr. Barbara Willard ND, RN-Assistant Professor-SJSU School of Nursing*

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## WORKSHOPS FOR ADULTS

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### A1 FINANCIAL AID: MEETING COLLEGE COSTS

Information on the types of financial aid available.

*Anthony Bettencourt, Financial Aid Counselor, San Jose State University*

### A2 PLANNING AHEAD FOR COLLEGE: FINDING "GOOD FIT" SCHOOLS, GETTING IN, PAYING FOR COLLEGE

Make the most of high school years while still preparing for college and future success. A high school college advisor will introduce you to several ways you can prepare your child to make those important choices in Senior year.

*Laurel Brock College & Career Center Coordinator Mountain View High School*