

# For Women in Science & Engineering

## 2012 TECHNICAL SYMPOSIUM & ANNUAL MEETING — REGISTER NOW! —

The 2012 NMNWSE Technical Symposium and Annual Meeting (**AM12**) will be held November **2–4** at the New Mexico Space History Museum in Alamogordo, NM, known for its unique coverage of space history, capitalizing on the nearby Spaceport America and the region's place in the history of rocketry and the aerospace industry.

The meeting will commence with a reception Friday evening. Saturday begins with the annual business meeting, followed by free time to explore the area and have lunch. The afternoon technical session this year will be held in a museum classroom followed by a poster session. This is a good opportunity to practice a formal talk in an encouraging supportive environment. We highly encourage the submission of posters. The poster session is combined with a pre-dinner reception to encourage networking. Saturday evening's banquet will be at the in Historic Tulie CantinaTularosa. And we'll close with Sunday morning's board meeting at a meeting room at the Best Western Desert Aire in Alamogordo.

Rooms are blocked until mid-October at the Best Western Desert Aire. They have 2 queen beds and will cost \$75+tax/night (other types of rooms are available). Reservations for lodging can be made by calling 575/437-2110, and mentioning NMNWSE . We encourage you to make your hotel reservations early.

For more details visit <http://nmnwse.org/AM/2012/>.

Nanette Founds, AM12 Meeting Chair  
Cheri Burch, AM12 Accommodations Chair  
Laurie Marnell, AM12 Technical Chair

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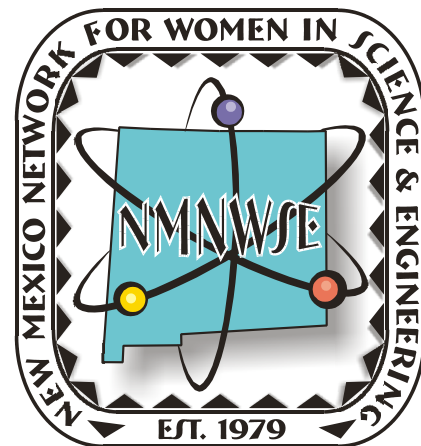
## 2012 IMPACT AWARD

The deadline for accepting 2012 nominations for the NMNWSE IMPACT! Award has passed. The winner will be announced at the 2012 Technical Symposium and Annual Meeting. The impact award is presented every year and is a great opportunity to honor a woman who has made contributions to the Network's goals:

***To encourage the entry into and career development of women in science and engineering professions.***

This is an annual award so please consider taking time out of your busy schedule to nominate for the 2013 Award a friend or colleague that should be recognized for her contributions. Nominees do not need to be members of NMNWSE. For the purposes of the award, science and engineering includes mathematics and all engineering fields as well as physical, biological, behavioral, medical and social sciences, and related Technical and non-traditional fields.

Nomination forms etc available at <http://nmnwse.org/ImpactAward/>. 2012 forms can be used for 2013 nominations and any form received from now until the 2013 deadline will be considered for the 2013 award.



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for more news, see  
[nmnwse.org](http://nmnwse.org)

Contact us at:  
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## NM Celebration of Women in Computing 2012

Las Cruces has been selected to host the NM Celebration of Women in Computing, November 8-9, 2012. This Celebration will be held at the NM Farm & Ranch Museum, and is on par to include a tour of the Spaceport, plus highlight outstanding speakers from Virgin Galactic, Microsoft, Intel, Google, NMSU, UNM, NM Tech, the NM Girls Collaborative, the National Girls Collaborative Project (NGCP), Grace Hopper Regional Consortium (GHRC), and the National Center for Women in Technology (NCWiT), plus many more!

The NGCP has a vision to bring together organizations throughout the United States that are committed to informing and encouraging girls to pursue careers in computing, science, technology, engineering, and mathematics (CSTEM). K-12 STEM Outreach events provide opportunities for organizations, individuals, companies, non-profits, schools, universities and other engaged in supportive of K-12 STEM Outreach to connect, learn and collaborate.

The GHRC works to expand the positive impact of the national Grace Hopper Celebration of Women in Computing (GHC) and the NCWIT Practices Summit to underserved, local, diversity-rich populations. The vision of GHRC is to develop self-sustaining regional communities using ACM-W regional conferences and ACM-W student chapters within the regions.

Whether you are a student early in your education or a corporate CEO, we invite you to join us.

This regional conference, modeled after the Grace Hopper Celebration of Women in Computing in combination with the National Girls Collaborative Kickoff Conferences, will bring together students, faculty, business leaders, and technology experts from across NM and neighboring states to discuss the role of women in today's computing and technology, and STEM fields, share experiences and strategies for success, and explore issues common to women working in these fields. Specifically, the goal is to provide an opportunity for young women to explore opportunities in computing, to network with other women from academia, industry and government, and to create friendship among women in the region who share the same interest and passion for computing. This celebration is part of a nationwide effort to address the alarming decline of women choosing computer science and STEM professions.

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## NM Girls Collaborative Project

The vision of the National Girls Collaborative Project (NGCP) is to bring together organizations throughout the United States that are committed to informing and encouraging girls to pursue careers in science, technology, engineering, and mathematics (STEM). The NGCP began in 2002 as the Northwest Girls Collaborative Project through funding from the National Science Foundation (NSF). In 2004, NSF awarded additional funding to replicate the NGCP model. To date, 22 Collaboratives, serving 34 states, have been established as a part of the NGCP, facilitating collaboration between more than 8,800 organizations serving more than 5.3 million girls.

In April 2011, the National Girls Collaborative Project received funding from the National Science Foundation to reach additional states identified as high priority areas and new Collaboratives are beginning to organize. New Mexico was identified in the proposal as a high priority area and Young Women in Computing (YWiC) has been approved to host Collaborative activities as the Convening Organization in New Mexico. The structure of NGCP Collaboratives consists of a Convening Organization and a Collaborative Leadership Team. The Convening Organization works with the Leadership Team to carry out the activities of the Collaborative. The Leadership Team includes members of organizations that are also invested in girls in STEM-CS and are able to contribute to the project's success.

NMNWSE member Cheri Burch was appointed as chair of the NMNWSE Ad-Hoc Committee to follow NGCP activities and coordinate with NMNWSE efforts as appropriate. Cheri will be representing NMNWSE on the NCGP Collaborative Leadership Team, allowing NMNWSE the opportunity to provide statewide leadership in initiating and expanding STEM-CS activity in New Mexico, as well as the opportunity to be a recognized partner in a National Science Foundation grant. You can contact Cheri via the Board email, or directly at [ctburch@unm.edu](mailto:ctburch@unm.edu).

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## Phyllis Baca Speaks on Best Practices

### in Pedagogy and Advising to Enhance Success of Under-Represented Students in Majoring in Engineering

NETWORK News, p.3

Submitted by Claudia Barreto

Every year I attend the New Mexico Higher Education Assessment and Retention Conference which, as the name implies, is a forum for the dissemination of research on best practices for helping college students learn and successfully complete degree programs. This year I chose to attend a session titled, *Engineering: Holistic Approach to Engaging and Retaining Under-Represented Minors*. When I arrived at the session the presenter seemed familiar and it turned out to be Phyllis Baca, who has been so supportive of our EYH conferences. Phyllis is the Director, STEM Initiatives in the Department of Technologies at Santa Fe Community College (SFCC). Phyllis has developed an incredible program in “pre-engineering” at SFCC “to engage and retain traditionally underrepresented students in high demand and high wage engineering and related technical programs. Using numerous strategies beginning with dual enrollment in high school and working through college attendance and retention, we have designed a program to adapt with the dynamic needs of the learner.” Students who have completed the program are prepared to make the transition and excel in bachelor’s programs. Phyllis is very passionate about promoting student success in the STEM fields and willing to *actively* mentor and advise students to make sure they can take advantage of the wide variety of support resources at SFCC. To get a feel for what a dynamic STEM student advocate Phyllis is, you can listen to her being interviewed in a podcast of Campus Connections, broadcast on KSFR 101.1 FM, at [http://www.sfcc.edu/files/pods/CC\\_2-14-10.mp3](http://www.sfcc.edu/files/pods/CC_2-14-10.mp3) .

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## NMNWSE Student Awards

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Congratulations to NMNWSE award winners, & their teachers and mentors!

### NMNWSE Awards at NAISEF 2012

NMNWSE Award winners at the 2012 National American Indian Science & Engineering Fair held 22-24 March 2012 at the Albuquerque Convention Center in Albuquerque, NM

Senior categories:

- **Cassandra Roy**, Cloquet Sr HS, *The Development of a cloud based methodology to share images of dicentric chromosomes and collect data for use in an international collaboration for dose assessment in a radiation emergency*, Sr Computer Science / Cellular & Molecular Biology
- **Raquel Redshirt**, Shiprock HS, *Improving the performance of a homemade solar oven phase III: Modifying material insulation*, Engineering: Materials & Bioengineering

Junior categories:

- **McKalee Steen**, Grove MS, *Rain, rain, come this way*, Environmental Management
- **Riley Howes**, Cloquet Middle School, *Can plant microfossils and diatoms indicate a change in lake levels?* Plant Sciences

The winners each received \$50 plus a tote bag with career materials and award certificate. The judges for the NMNWSE Special Awards were Pat Pettit, Cheri Burch, Laurie Marnell, and Tinka Gammel.

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### NMNWSE Award at the 2012 NM Supercomputing Challenge Expo

The NMNWSE Special Award at the 2012 NM Supercomputing Challenge Expo, held April 23-24, 2012 in Los Alamos, NM, went to team 56 from La Cueva High School for their project *Optimizing Community Detection*, which investigated efficient optimization of decomposition of complex networks into simpler communities or modules with maximum modularity (see <http://www.challenge.nm.org/archive/11-12/finalreports/56.pdf>). Each student on the team received \$40 and an NMNWSE tote bag, and the teacher also received a tote bag. Congratulations to the team members Alexandra Porter, Stephanie Djidjev, and Lauren Li as well as their teacher Samuel Smith.

The judge for the NMNWSE Special Award was Eleanor Walther.

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## NMNWSE Awards at NMSEF 2012

NMNWSE Special Award winners at the 2012 New Mexico Science and Engineering Fair held March 30-31, 2012 at NM Tech in Socorro, NM

Received \$50 check, certificate and tote bag, Junior categories:

- **Elsie Anne Koskelo**, Los Alamos Middle School, *Does Architecture Tamper with Temperature?*, Energy and Transportation
- **Holly Perez**, Vaughn Elementary School, *Wonder Wool*, Energy and Transportation
- **Anya Rosen-Gooding**, Jefferson Middle School, *The Math of Magnets*, Mathematical Sciences

Received \$50 check, certificate and tote bag, Senior categories:

- **Elisabeth Burton**, Rio Rancho High School, *A Big Fat Deal: Phase III*, Behavioral and Social Sciences
- **Jacqueline Baros**, St Pius X High School, *Lost in the Los Conchas Fire*, Earth and Planetary Sciences
- **Miquela Apodaca**, AIMES@UNM, *Can I Give You a Lift? Airfoils IV*, Energy and Transportation
- **Holly Erickson**, Los Alamos High School, *Intelligent, Self-Assembling Systems Using Robotic Cells*, Engineering
- **LynnMarie Jarratt**, Los Lunas High School, *Bubbling for a Cleaner Tomorrow*, Environmental Sciences
- **Soiba Mansoor**, Albuquerque Institute for Math and Science, *Diabetes: A Rising Epidemic? Or Can It Be Controlled?*, Medicine and Health Sciences
- **Rosemary Elliott Smith**, Monte Del Sol Charter School, *Things Fall Apart: Entropy in the Macroscopic World*, Physics and Astronomy

Received certificate and tote bag, Junior categories:

- **Haley Golden**, Mesa View Middle School, *Can Responses on Surveys be Primed?*, Behavioral and Social Sciences
- **Madalena Roeber**, Jefferson Middle School, *Fungi as Fertilizer*, Botany
- **Jaime Wood**, Mesa View Middle School, *Effects of Increased CO<sub>2</sub> Concentration on the Growth Rate of *Triticum Aestivum L.**, Botany
- **Micaela Cordova**, Taos Middle School, *Grow with the Flow*, Environmental Sciences
- **Grace Wood**, Edgewood Middle School, *Eroding Roads - Phase 3*, Environmental Sciences
- **Hiba Muhyi**, Sierra Middle School, *Animated Learning Tool-Mobile Device to Enhance Math Abilities of General and Deaf Students, Phase III*, Mathematical Sciences
- **Aurelia Jones**, Loving Middle School, *Tsunami Stopper*, Physics and Astronomy
- **Megan Risner**, Heights Middle School, *Can Human Interaction Affect a Shelter Dog's Performance on Mental and Behavioral Tests?*, Zoology

Received certificate and tote bag, Senior categories:

- **Caitlynn Mayhew**, Piedra Vista High School, *Lunar Roots: The Next Phase*, Botany
- **Valerie Perea**, St. Pius X High School, *Putting the Pieces Together: Enzymes and Biofuel Synthesis*, Chemistry
- **Abby Hengtes**, Piedra Vista High School, *Up, Up, and Away*, Mathematical Sciences

Judges for the 2012 NMNWSE Special Awards were Claudio Barreto, Karen Agogino, Victoria Dery, Clifton Murray, Nanette Founds, Cherri Burch, Laurie Marnell, Klaus Heinemann, Tinka Gammel, and Juanita Gammel.

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## NMNWSE EYH Conference Reports

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### EYH Albuquerque, January 28<sup>th</sup>, 2012

Dr. Klaus Heinemann,, EYH ABQ Co-Chair

This year's EYH Conference at Albuquerque took place on the UNM Campus (January, 28th) and it was a great success in many ways. As far as the evaluations are concerned, the 5th-9th grade students liked the conference in general and the workshops in particular (workshops chosen on a come-first-serve-first basis). The kids obviously enjoyed to be on a "real campus", in fact arguably one of the nicest campuses in the United States. Of course it is in the spirit of EYH to give the students a glimpse into the world of higher education.



## EYH Reports, ABQ, cont'd

So they not only were taught science in the workshops but also learnt that a campus can be beautiful and large and that on Saturdays people even marry there (aka, in the Alumni Chapel). As a co-chair (together with Dr. Elizabeth M. Kallman) the main challenges for me were time pressure and coordination issues but the fun part was to experience support from all the visible and nonvisible helping hands and, last-but-not least, to hear the children's enthusiastic yells at the conference's plenary.

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## EYH Las Cruces, February 25<sup>th</sup>, 2012

*from the LC EYH Committee Report*

The first Expanding Your Horizons conference at NMSU was held on Saturday, February 25th. The event drew 30 middle school girls from 10 schools/programs in southern New Mexico. The self-identified ethnicity responses reflect that of the 30 attendees, 18 students were Hispanic, 10 students were White, 1 student was African American, and 1 student was American Indian. Seven different workshops were held. In addition a keynote speaker (Dr. Patty Lopez from Intel) was hosted and a Career Panel was held including 5 women from a diverse background of ethnicities and careers: Dr. Patty Lopez from Intel, Dr. Jennifer Kreie and Dr. Bobbie Green with the Department of Information Systems in the College of Business at NMSU, Natasha Nesiba as a google Ambassador to NMSU, and Rachel Jensen as a program Coordinator for Young Women in Computing. A total of 27 conference evaluation forms were submitted at the end. For example the girls were asked if they had learned about some new careers that they had previously not considered, but were now interested in as a result of their participation in the conference to which 81% responded favorably. New careers that they learned about included: working at Google, creating apps, NASA jobs, being a forensic scientist, and being an astronaut and crime solver. Two scholarships were awarded to students who were not able to provide the \$5 registration fee.

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## 20 Years of EYH in Silver City

*Adrienne Dare, SC EYH Chair*

Last year's EYH, February 25, 2012, was the 20<sup>th</sup> EYH conference in Silver City held on the WNMU Campus. This was a great success again with a little over 250 5<sup>th</sup> – 8<sup>th</sup> grade girls attending. Here is a little background on our conferences.

Back in 1992 I attended a workshop at Mills College in Oakland, California. The purpose of the workshop was to help people organize EYH conferences. I came home from the workshop excited about starting an EYH conference at WNMU and since I was president of our local AAUW branch I got the branch involved in putting on the conference. Prior to attending the workshop at Mills I had attended 2 Las Cruces EYH conferences which were held at White Sands Missile Range.

At the beginning our conferences were small, probably under 100 girls attended. One year we were so excited because we expected to have 200 attend. We ended up with only 40 that year. However it was a successful conference. We just had to do a little shuffling at the last minute. Once we gained more volunteers our conference numbers grew to over 200. One year we had almost 500 register and had about 350 girls attend. We decided 350 was too large so we have aimed for 250 the last couple of years. It has been frustrating that our no show rate seems to be around 33%. We did start sending letters to the parents and it seemed to improve the no show rate to about 25%. But more recently even with letters going to parents the no show rate is still about 33%. We do not charge the girls for the conference and it is always on a Saturday.

Originally we targeted 6<sup>th</sup> to 12<sup>th</sup> grade girls. We had almost no high school girls coming to the conferences. Since then we have targeted 5<sup>th</sup> – 8<sup>th</sup> grade girls. The 5<sup>th</sup> and 6<sup>th</sup> grade girls are the most interested in coming to the conferences. Many girls come year after year as long as they are eligible. We have been targeting the 4 southwest counties of New Mexico.

We have selected March 16<sup>th</sup> as the date for our 21<sup>st</sup> EYH conference. However there is the problem of burn out. Several volunteers do not want to work as hard as they have in the past. We do have a new person with a lot of leadership skills who will hopefully be a big help in getting things going for the 2013 conference. About 3 years ago there were 3 main people trying to do everything and there was really burn out big time. The next

## **EYH Reports, Silver City, cont'd**

year at least 2 or the 3 were not back. The person I mention with all those leadership skills will be back in town mid-October at which time we will need to decide how we are going to do our 21<sup>st</sup> conference. Perhaps we will plan a much smaller conference and try to train new volunteers.

Throughout these past 20 years WNMU has been very supportive of our EYH conferences. For Several years now the Girl Scouts of the Desert Southwest have also been very helpful. The AAUW members continue to participate as well as other community friends. We hope to have another great EYH conference in 2013 but with less stress. We would be glad to hear from anyone who has a solution or suggestion to the burn out problem!!

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## **EYH Santa Fe, May 4<sup>th</sup>, 2012**

*From Summary Report by Irene A. Lee*

Our third Santa Fe 2010 Expanding Your Horizons conference event can be viewed as very successful based on diverse metrics. The event drew a diverse group of middle school girls; geographic - from all over Santa Fe (public, private, and home schooled) and the surrounding communities. Sixteen different schools were represented. The participants were diverse in terms of race / ethnicity – 80% of respondents were from underrepresented groups in STEM; and socioeconomic status – 52% of the participants requested and received scholarships to attend. The mission of EYH is to encourage young women to pursue STEM careers by providing STEM role models and hands-on activities for middle and high school girls. Based on the participant responses, the event changed girls' perceptions of STEM careers (84%) and STEM practitioners (85%) in a positive way, and 87% of the girls were encouraged to take more STEM classes. The activities were appropriate for girls at this age level, though the second set of workshops were rated higher in appeal of the content presented and appropriate level of difficulty. As in previous years, the overwhelming number of volunteers at this event was integral to its success. We intend to nurture this new network of volunteers to start planning for next year's EYH event in Santa Fe.

There were substantive changes to this year's EYH. The date of the conference was earlier in May than in past years in response to teacher and school district concern with hosting the event during the last week of the school year. The new venue, Desert Academy, had a smaller capacity than our previous venue, Santa Fe Community College, but overall the logistics worked well for the conference. Providing substitute teachers for teachers who brought groups of girls and busing to and from schools was key to getting a diverse group of participants to attend on a school day. Teachers and parents who attended an adult session on "supporting girls interests in STEM" was very well received. One important new feature of this year's EYH conference was the inclusion of high school aged students as panel presenters and workshop facilitators. These fine young women served as role models and near peers who were engaging and demonstrated the STEM/Computing skills and knowledge they had gained through STEM classes, and through participation in the Project GUTS, GUTS y Girls, and Supercomputing Challenge programs.

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## **EYH Los Alamos, March 21<sup>th</sup>, 2012**

*from the LA-EYH Summary Report*

EYH conferences nurture girls' interest in STEM careers. About 100 girls and 12 teachers attended the 33<sup>rd</sup> Los Alamos EYH, organized by LAWIS. LA-EYH targets 8-10<sup>th</sup> grade as it affords the girls time to take the necessary pre-requisites in high school and enter college with a stronger foundation for scientific studies. Workshop topics included DNA, aerospace, cryptography, robotics, polymers, minerals, oceans, hydrogen fuel cells, nutrition, and emergency science. Featured speakers were LANL Deputy Director Beth Sellers and Alicia Ortega from Santa Clara Pueblo. The teacher workshops were given by Cathy Pedro, who gave a tutorial on hydrogen fuel cells with two lucky teachers getting kits to take back to the classroom, and Barbara Grimes, who talked on upcoming science/math competitions such as the NM Supercomputing Challenge. Our feedback was outstanding – many teachers wrote that they and their students want to return next year.

**In 2013, Los Alamos and Santa Fe will hold a combined EYH conference targeting grades 5-12.**

**See <http://nmnwse.org/eyh/> for more information on all 2013 NMNWSE EYH conferences.**