



Pipeline Press



Chemistry: A Pipeline to 21st Century Careers

JULY 14, 2009

VOLUME 1, NUMBER 4

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Cool Chem Fact Did you Know?



Palladium *For cars of the future*

Palladium (46) is an element that in metallic state has a unique ability to absorb up to 900 times its own volume of hydrogen at normal temperature. Because hydrogen is often considered as fuel of the future in motorization, it is possible that future cars will use large amount of palladium for fuel storage.

Director's Message...



Dear Readers,

The College just completed another successful Spring semester. Many of our students transferred to four-year universities to pursue degrees in a variety of disciplines. The physical sciences keep on lagging behind, although we continue to make slow but steady progress.

We added two new chemistry offerings this Summer session. All the chemistry classes are currently running at capacity. Most chemistry classes offered in the Fall are already full or nearly so. We are anticipating a very successful year 2009-2010, especially since we expect the New Chemical Technology Program to be an attractive career choice for students. We have been working with the College's Articulation Department to identify four-year Colleges and Universities offering programs that allow students to transition easily from Cañada's Chemical Laboratory Technology Program into their baccalaureate degree of choice.

We are actively seeking individuals who either work as Chemical Laboratory Technicians or supervise their work. Their expertise in the field is invaluable to guide us in determining the most relevant laboratory and employability skills to teach our students. Please contact us at (650)306-3304 or (650)306-3255 to give us your input. Remember that the graduates of our program could become your company's employees.

During this Summer, we will be working on curriculum development with an Environmental Chemistry focus. Our goal is to create new experiments that will keep students engaged in learning chemistry concepts while discussing topics of widespread interest, particularly in a High School setting. In addition we will explore the possibility to bring science assemblies and teacher training workshops to High School campuses as a way to create awareness and expose students to the many possibilities chemistry can open up for them.

Enjoy your Summer,
Jeanette Medina

Volunteer Industry Partners Needed

We are seeking to establish valuable industry alliances to assist us with the development of an Associate in Science in Chemical Laboratory Technology degree and a Chemistry Laboratory Technology Certificate, a key object of our grant. Volunteers will be asked to assist with: 1) identifying crucial curriculum topics and hands-on exercises to assure that graduates of these programs are well trained on industry relevant instrumentation and can perform a quality job, 2) expanding student access to career opportunities in chemistry and chemistry-related fields, 3) identifying potential internships and on-site training opportunities for students, 4) building long lasting and beneficial alliances among the local industry, four year colleges, high schools, government officials and Cañada College. For additional information contact Dr. Jeanette Medina, Project Director at (650)306-3255 or (650) 306-3304, by email at Canada.NSFGrant@smccd.edu.

Employers Wanted!

If you are an employer who has
Chemical Laboratory
Technicians on your staff we
would like to hear from you!
Please contact us at:
(650) 306-3304
email us at:

Canada.NSFGrant@smccd.edu

Cañada College News

Cañada Engineering Student Chosen for Stanford Research Project

Jeremy Morales-Madrigal, a chemical engineering student at Cañada College, is the only community college student selected this year to participate in Stanford University's prestigious Center on Polymer Interfaces and Macromolecular Assemblies Summer Undergraduate Research Experience. He will receive a \$4,500 stipend and will be completing a research project that he will also use for the Cañada College Honors Program.

Cañada Graduate Heads to France to Study Cinematography

Lindsey Renee Warner, a Cañada College graduate in English, will travel to Paris this summer to begin studying cinematography at EICAR, the International Film School of Paris. She said her desire to pursue a career in film has always been there but it was heightened by Cañada Professor David Clay, who introduced her to film noir.



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Project News:

IISME: Industry Initiatives for Science and Math Education, seeks to transform teaching and learning through industry-education partnerships. This industry-education partnership focuses on teachers as the primary agents for effecting meaningful change in mathematics and science education. IISME provides teachers with the experiences and tools they need to adapt their practices and change their schools so that all students are prepared to be lifelong learners, responsible citizens and productive employees. This year, our grant funded the placement of three San Mateo County Chemistry teachers in an IISME Summer Fellowship at Stanford University!

- * **Michael Patterson**, teaches 11th grade Chemistry at Junipero Serra High in San Mateo. Placed in Stanford's Nanocharacterization Laboratory.
- * **Kevin Doyle**, teaches Chemistry, Physics and Physical Science at Aragon High School in San Mateo. Placed in the Chemistry Department at Stanford University.
- * **David Hall**, teaches 10th and 11th grade Chemistry at Sacred Heart Preparatory in Atherton. Placed in the Chemistry Department at Stanford University.

High School Chemistry Curriculum Development: Two high school chemistry & environmental science teachers, Lance Powell from Menlo-Atherton High School and Mark Abruzzese from Menlo School, will be working this Summer to develop new hands-on lab activities to enhance the chemistry curriculum for high school classrooms. Mr. Powell will be developing a lab unit on storm drain water quality analysis. Mr. Abruzzese will be developing activities for the quantitative detection of carbon dioxide production by chemical reactions compared to theoretical yield and modeling how chemical preservatives work by looking at oxygen consumption by sulfites in solution.

Upcoming Events

September – November, 2009 Chemistry Workshops at High School Sites

High school teachers are invited to attend two hands-on chemistry workshops:

- (1) **The Gas Laws Workshop** includes various hands-on, equipment-based, and virtual computer activities that are designed to demonstrate Boyle's Laws, Charles's Law, Dalton Law of Partial Pressure, and the Ideal Gas Law.
- (2) **The Spectrophotometry Workshop** covers hands-on activities that demonstrate everyday application of spectrophotometry including how to "solve crime" by studying the chemical fingerprint of the ink used to write a ransom note.

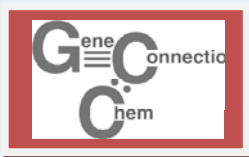
September/October, 2009 - Second Annual NSF Advisory Board Meeting at Cañada College Campus

A group of individuals from industry, government agencies and academia will again meet on the Cañada College campus to discuss issues pertaining to the creation of a the new program in Chemical Laboratory Technology that was submitted to and approved by the College's Curriculum Committee. This marks a significant step toward the goal of beginning to offer this program in Spring, 2010.



For additional details about our grant go to the National Science Foundation Website at:

<http://www.nsf.gov/awardsearch/showAward.do?AwardNumber=0703188>



Gene Connection: Chem Connection

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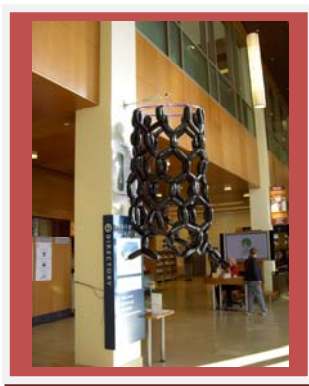
Email:
Canada.NSFGrant@smccd.edu

We're on the Web!
www.canadacollege.edu/nsfgrant

Newsletter archives can be found on the Photo Gallery page of the web site

Events This Quarter

March 25, 2009 - A "Major Affair" Event - The NSF Grant staff participated in this popular annual career event sponsored by the Cañada College Counseling Department. A representative from each academic discipline spoke to the group of over 100 students about their area of study and the career opportunities available in their field. Details about the new Chemical Laboratory Technology Certification Program and the new AS degree offering in Chemical Laboratory Technology were presented. After the presentation period, students were encouraged to "visit" information tables set up around the room hosted by representatives from each department.

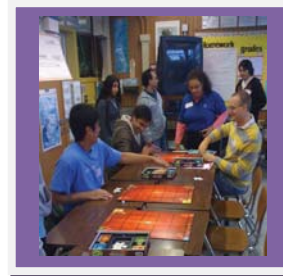


March 28, 2009 thru April 5, 2009 - NanoDays

Gene Connection: Chem Connection and Cañada College co-sponsored several NanoDays events to increase awareness of the application of chemistry in everyday life. On March 30 & 31 various table top activities were set up on the Cañada Campus that explored the properties of nanomaterials. In addition, students in the organic chemistry class did experiments synthesizing nanomaterials. On April 2, 200+ visitors of all ages came to the San Mateo Public Library to participate in various hands-on activities to learn about nanotechnology. A public lecture was given by Dr. Nicola Ferralis, entitled "Nanotechnology: A Solution to Our Global Challenges?" Over 76 people attended the lecture, including 55 high school and community college students.

April 16, 2009 - Family Science Night in Colma

The Santa Clara Valley Section of the American Chemical Society hosted "Family Science Night" at the Ben Franklin Intermediate School in Colma, CA. At this event, chemists, including Dr. Jeanette Medina, set up over 15 science games and experiments including an identification of mystery powders, paper chromatography, pH experiments, making Slime, plastic recycling, and sampling liquid nitrogen ice cream. Several hundred students and their families attended making this event an overwhelming success.



May 13, 2009-Guest Speaker, Celia Hartnett, B.S., M.P.A.,

The NSF grant sponsored a presentation by Celia Hartnett, CEO, Forensic Analytical Laboratories, Inc. Over forty students attended. Ms Hartnett spoke for an hour about her career and the fascinating world of forensic science highlighting all of the areas listed below.

- ❖ Toxicology - controlled substances
- ❖ Gunshot Residue Analysis
- ❖ Impression Evidence - fingerprints shoeprints - tire tracks
- ❖ Trace Evidence - Fibers, hairs, paint
- ❖ Scene Reconstruction - Blood pattern, bullet trajectory, firing distance
- ❖ Firearms & Toolmark Examinations - bullets, cartridges cases and tool marks comparisons
- ❖ DNA & Forensic Biology - biological screening, Body fluid identification, DNA typing