



Chemistry Department Newsletter

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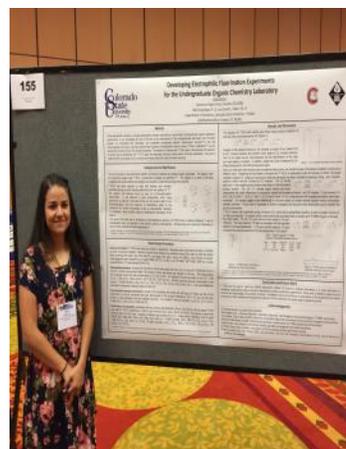
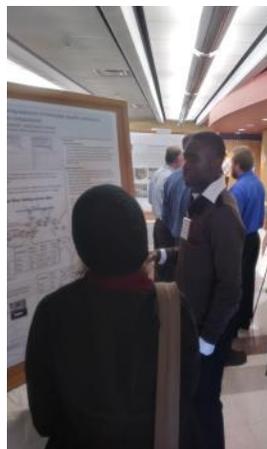
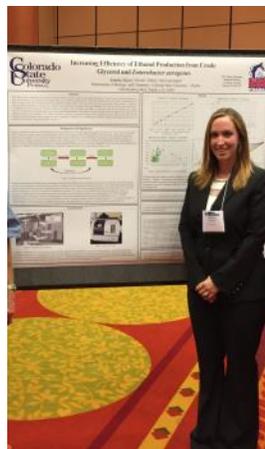
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Welcome to the Chemistry Department's fall semester newsletter. We hope you enjoy reading about the exciting things going on in the department. The department is on the move with new Title III Grant, new NMR and other exciting things going on.

Student Research Presentations

The fall has included several opportunities for students engaged in research to share the results of their projects with their peers at symposia and meetings. The College of Science and Mathematics held the 13th Annual Student Research Symposium on October 12. The symposium was the largest ever with 33 presentation from students in the College. Approximately half of all faculty in the College were co-authors with the students as mentors for the research projects. The Chemistry Department was well represented with 13 poster presentations. A link to the abstract book is available at <https://www.csupueblo.edu/college-of-science-and-mathematics/student-research-symposium.html>. Additionally, 6 students made presentations at the ACS Rocky Mountain Regional Meeting in October, which included Amanda Mayes who received an award for one of the ten best poster presentations at the meeting. And one student made a research presentation at the North American Society of Environmental Toxicology and Chemistry Meeting in early November.

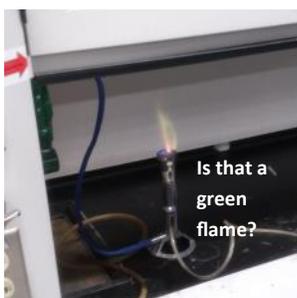


Chemistry Day 2017 — “Chemistry Rock!”:

The Chemistry Department hosted Chemistry Day 2017 on Oct 19th, 2017. More than 50 students from 4 local high schools participated in a series of hands-on activities that were related to the National Chemistry Week theme of “Chemistry Rocks”. This year participating high school students help solve the mystery of the Misplaced Mineral Specimens. After a hypothetical attempted theft of valuable mineral specimens from the mineral collections housed in the Chemistry Department the students used a variety of chemical and physical tests to help determine the identity of the minerals so that they could be returned to the proper location in the various display cases in the Chemistry Building. Tests included use of fluorescence, flame test, reactions with acids and bases, and physical characterization. The activities concluded with lunch and a series of chemistry demonstration that were capped off with a boom (hydrogen balloons!) It is a challenge to organize, prepare for, and pull off activities like Chemistry Day in the middle of a semester, but a team effort from CSU-Pueblo Chemistry faculty, staff, and students made this exceptional educational and fun experience for these local high school students possible. Next semester the Department plans on hosting a similar opportunity for local middle school students to celebrate Earth Day.



Is it galena (PbS_2), hematite (Fe_2O_3), or magnetite (Fe_3O_4)?



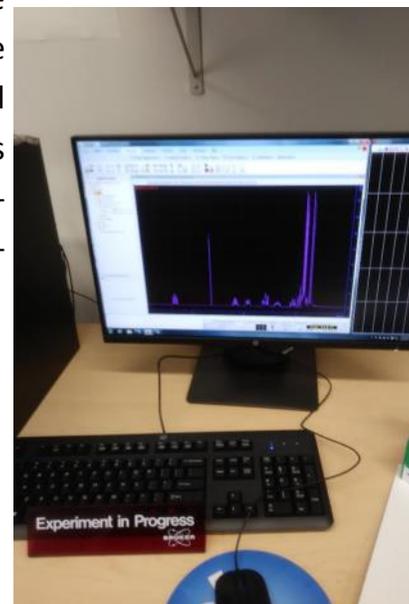
Program-in-a-Box:

In addition to hosting Chemistry Day on Oct 19th, the Chemistry Club and the Chemistry Department served as a host site for the American Chemical Society webinar program (Program-in-a-Box) entitled “Chemistry Rocks” on Oct 24th. Despite some technical difficulties participants learned more about rock and mineral topics including mineralization of carbon dioxide, structural chemistry of various minerals, and biomineralization. After the webinar participants had the opportunity to view some of the spectacular mineral specimens that have been donated to the Chemistry Department over the years. More than 20 participants, including several community members, participated in this activity.

New NMR Installed in the Chemistry Department

The Chemistry Department took delivery of its new 300 MHz nuclear magnetic resonance (NMR) spectrometer from Bruker in September. The new instrument was installed over a multi week period in October. Major research universities purchase new NMR systems on a regular basis, but this is certainly a big deal for the Chemistry Department at CSU-Pueblo. Many regional comprehensive predominantly undergraduate institutions do not have the fortune to house a research grade NMR as we do at CSU-Pueblo. The new system replaced an aging instrument that was becoming increasingly difficult to maintain given its age and the fact that manufacturer was no longer supporting it. Furthermore, the new instrument has several advantages over the previous instrument including greater sensitivity, the ability to perform more advanced structural analyses, the ability to do low temperature analysis (down to -150°C), and can perform analysis on more diverse array of nuclei.

The purchase the new NMR has a unique backstory. NMR instruments are far from inexpensive and the Department was fortunate for the financial stars to align to make the purchase possible. CSU-Pueblo was awarded a U.S. Department of Education Title III grant that funds the CBASE Program on campus. As part of that grant, funds were budgeted to contribute to the purchase of an NMR. The Chemistry Department has a fund that is used to support the maintenance and repair of instrumentation in the Department as well as to potentially replace instruments when possible. However, these two funding sources combined were not enough to purchase a new 300 MHz NMR. To make this purchase possible in steps the Provost and the CSU-Pueblo Foundation who worked with a very generous donor, Dr. Ronald Montano, who just happens to be a CSU-Pueblo Alum and did research in the Chemistry Department as an undergraduate student with Dr. Mel Druelinger. The additional resources from Dr. Montano through the Foundation and from the Provost's Office made up almost a third of the purchase price of the instrument. As the fall semester comes to a close the new NMR is already starting to be used to support coursework and research efforts within the Chemistry Department.



Faculty Focus

Dr. Sandra J. Bonetti has been a Professor in the Department of Chemistry at Colorado State University—Pueblo since 1991. She holds a BS degree in Chemistry and a Ph.D. in biochemistry from Georgia Institute of Technology. She completed post-doctoral studies at the University of Florida in NMR spectroscopic characterization of fungal polymers. Dr. Bonetti supports graduate, undergraduate and high school students in research experiences to provide high value learning and engagement in sciences for all. To support these experiences she has obtained funding through major grants from the NIH, NSF, Dept. of ED. , ACS, and CSU –Pueblo. She served for many years as the Director and principal investigator of the University’s NIH-supported Minority Biomedical Research Support Program and is currently research mentor for the Dept. of Ed funded CBASE program. The former grant provided biomedical research opportunities for underrepresented undergraduate students interested in pursuing a graduate degree in biomedical research and the latter grant is an initiative to create research communities to support student success and enhance STEM curriculum.

As a mentor for the American Chemical Society (ACS) Project SEED , she provides research experiences for economically disadvantaged high school students in her laboratory. As a member and councilor of the Colorado ACS Section, she participates in outreach activities to the larger Pueblo community to celebrate National Chemistry Week, Earth Day, Boys and Girls Clubs, and Girl Scouts.

During the Awards Banquet at the 2017 American Chemical Society Rocky Mountain Regional Meeting on Thursday night (10/26) Dr. Bonetti (center) received the Stanley C. Israel Regional Award for Advancing Diversity in the Chemical Sciences: The award is sponsored by the ACS Committee on Minority Affairs. Its purpose is to “recognize individuals and/or institutions who have advanced diversity in the chemical sciences and significantly stimulated or fostered activities that promote inclusiveness within the region. The award consisted of a medal and a \$1,000 grant to support and further the activities for which the award was made. The award also includes funding to cover the recipient’s travel expenses to the ACS regional meeting at which the award was presented.



In addition to receiving this distinguished award Dr. Bonetti had a number of contributions to the ACS Rocky Mountain Regional Meeting. Dr. Bonetti, along with Dr. Crans from CSU Ft. Collins and Dr. Chen, presided over the Young Scholars Symposium, (10/26, 8:30-10 a.m.). Three presentations were made at three different sessions by undergraduate student Brooklynn Trujillo, undergraduate/graduate student Brent Schofield , and Ph.D. student and CSU-Pueblo Stockroom Coordinator Jim Carsella; all of who are mentored by Dr. Bonetti.



How can you help support excellence in education and research within the Chemistry Department?

If you are interested in supporting the Chemistry Department with a gift for program enhancement or student scholarships please call the CSU-Pueblo Foundation office at (719) 549-2380 or visit www.csupueblo.edu/foundation/ and simply specify that your gift is to support the Chemistry Department or Chemistry Student Scholarships.

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