



American Chemical Society East Texas Section September 2016

Next Section Meeting

Date: Tuesday, September 20
Place: The Great Room, Truman Arnold Center
Texarkana College
Texarkana, TX

Dinner: On your own
Time: Speaker 7:00 P.M. (No charge for the talk)

The Need for Baseline Measurements in Climate Change Research: Ethene, a Case Study

Dr. Jeff Gaffney
Professor of Chemistry
University of Arkansas at Little Rock

Abstract

Climate change is typically focused on carbon dioxide and its effects as a greenhouse gas. Many other greenhouse species are also important to consider, and there is a real need for baseline measurements of greenhouse and aerosol species measurements as we move forward in mitigation plans as well as development of alternate energy sources. Specifically this talk will examine the potential impacts of the simplest alkene - ethene.

It is well known that combustion of ethanol/gasoline blends will lead to enhanced emissions of methane, ethene, aldehydes, and NO when compared to gasoline alone. However, the impacts of increases in atmospheric ethene levels from use of biofuels with higher ethanol content, i.e. E85, has not received much attention. Ethene is a well-known air pollutant. It is a very potent plant growth hormone that can cause reduction in agricultural yields. It is also associated with the formation of ozone and peroxyacetyl nitrate (PAN) that can also lead to enhanced plant damage. Ethene is also produced in significant quantities from biomass burning including natural wildfires and agricultural burning. The potential consequences of ethene will be discussed along baseline data recently published (Gaffney, *et. al*, 2012) and carbon-14 data taken at UALR indicating the significant amounts of biomass burning that impacts the southern states. The case will be made for establishing the use of long-path FTIR high resolution spectrometers across the country for baseline measurements in order to determine if mitigation or changing energy technologies are working.

J.S. Gaffney, N.A. Marley, and D.R. Blake, "Biofuel Impacts on Air Quality: Ethene, PAN, and Ozone Enhancements from Ethanol Combustion." *Atmospheric Environment*, **56** 161-16 (2012).

Speaker Bio

Dr. Gaffney obtained his doctorate from the University of California, Riverside in June of 1975 under the direction of the late Dr. James N. Pitts, Jr. in Physical Organic Chemistry. He joined the UALR Dept. of Chemistry as Chair and tenured Professor in July of 2006 after conducting research for the Department of Energy at three of their national labs (Brookhaven, Los Alamos, and most recently Argonne National Laboratory) in Atmospheric and Environmental Chemistry and in Climate Change research for over 30 years. He completed work as the Mentoring Coordinator for the Department of Energy Global Change Education Program (GCEP) that supported both Summer Undergraduate Research Experience Fellows and Graduate Research Environmental Fellows from 1998-2013 as a national program. He was also the Lead Scientist for the DOE portion of the Megacity Initiative: Local and Global Research Observations (MILAGRO) research project that was a cooperative effort with DOE, NSF, NASA, and Mexican Science Agencies in Mexico City in 2006. In 2000, he was awarded the Public Service award from ACS, and in 2007 was given an Appreciation Award from the Department of Energy for his work in Atmospheric and Environmental Chemistry and his leadership in the Global Change Education Program. Dr. Gaffney was recognized by the UALR College of Science in 2012 as the Faculty Excellence Award winner in Research, and the College of Arts, Letters, and Science and as the overall UALR winner of the Faculty Excellence Award in Public Service for his efforts in working with the ACS Committee on Chemistry and Public Affairs and for mentoring students in the DOE Global Change Education Program. He is a nationally and internationally known chemist in atmospheric, environmental, biogeochemical, nuclear chemistry, and climate change research. He served as the Chair of the Expert Panel External Review Committee for the EPA report entitled: Biofuels and the Environment: the First Triennial Report to Congress, and was a contributing author to the Southeast Regional Climate Change Assessment Chapter 12: Mitigation of Greenhouse Gases in the Southeast USA. His most recent papers include a review of Mercury (J.S. Gaffney and N.A. Marley, "In-depth review of atmospheric mercury: sources, transformations, and potential sinks." *Energy and Emission Control Technologies*, 2, 1-21 2014. <http://dx.doi.org/10.2147/EECT.S37038>) and a paper co-authored by his long-time colleague and spouse Dr. Nancy Marley in the J. Phys. Chem Mario Molina Festschrift Special volume (J.S. Gaffney, N.A. Marley, K.J. Smith, Characterization of Fine Mode Atmospheric Aerosols by Raman Microscopy and Diffuse Reflectance FTIR, *J. Phys. Chem.* 119, 4524-4532, 2015.)



On the lighter side, Dr. Gaffney and Dr. Marley have recently written a true story about their passion for raising and training parrots, cockatoos, macaws and other birds in a short book entitled, "Confessions of a Birdaholic: From cockatiels to cockatoos and beyond." while working as Senior Scientists at Argonne National Laboratory and at UALR. Details on this can be found on facebook under Confessions of a Birdaholic.

Upcoming Dates

September 20	Jeff Gaffney, University of Arkansas-Little Rock @ Texarkana College
October 11	Dawn Mason, Eastman Chemical, Kingsport, TN @ ETBU, Marshall
November 10-13	Southwest Regional Meeting, Galveston, TX

ACS Science Coach Program

Rhonda Small, 5th grade science teacher at Johnston-McQueen Elementary School in Longview was chosen to receive one of the Science Coach grants for 2016-2017. ACS Science Coaches are chemistry professionals who share their expertise and enthusiasm for science with an elementary, middle, or high school teacher over the course of one school year. They enhance science education, and secure a \$500 donation for the school where they volunteer.

Attention High School Chemistry Teachers

The East Texas Section of the American Chemical Society is offering a limited number of grants to High School Chemistry teachers in our area. We have two different grant programs:

1. High School Chemistry Program that will fund up to \$500 for materials, chemicals or other resources for a chemistry-related project.
2. Chemistry Professional Meeting Support Program that will fund up to \$500 for meeting registration or housing at a professional meeting sponsored by a chemical society, or by a science-related society.

To receive the support applications (electronic format only) please contact Dr. Bruce Hathaway (BruceHathaway@letu.edu) the grants program committee chair.

2016 Section Officers

Chair	Bruce Hathaway	BruceHathaway@letu.edu
Chair-elect	Mike Sheets	mike.sheets@texarkanacollege.edu
Treasurer	Paul Zhang	pzhang@ana-lab.com
Secretary	Mike Sheets	mike.sheets@texarkanacollege.edu
Councilor	Mike Sheets	mike.sheets@texarkanacollege.edu
Alt. Councilor	Philip Verhalen	philip.verhalen@gmail.com
Webmarm	Kristin Butterworth	kmb681@gmail.com

Section Website: <http://easttexasacs.sites.acs.org>

Call for Awards Nominations for SWRM 2016

Nominations for Southwest Regional Awards to be presented at SWRM 2016 are now being accepted. The awards (October 1 nomination deadline) available for presentation at SWRM 2016 are:

- ACS Division of Chemical Education Southwest Region Award for Excellence in High School Teaching
- E. Ann Nalley Regional Award for Volunteer Service to the American Chemical Society
- Southwest Regional ACS Award
- NEW!!!! Student Presentation Scholarship Awards

Full descriptions of each award, including eligibility rules, selection criteria, and nomination forms, are available on the SWRM 2016 Awards Page.

Nominations for Excellence in High School Teaching, Volunteer Service, and Southwest Regional awards should be submitted to the SWRM 2016 Awards Chair, Mamie Moy by October 1.

Nominations for Student Presentation Scholarship Awards should be submitted to Ruth Hathaway by October 1.

SWRM 2016 website: <http://scsb.utmb.edu/swrm-2016/>

Upcoming ACS Webinars

Systems Thinking To Re-imagine Chemistry Education and Practice

Thursday, September 8, 2016 @ 2-3pm ET

<https://www.acs.org/content/acs/en/acs-webinars/popular-chemistry/rethink.html>

How can one more completely embrace systems thinking and connect their work as a chemist or chemistry educator with local and global systems and multiple unfolding global challenges? Join Peter Mahaffy of The King's Centre for Visualization in Science and Alain Krief of the International Organization for Chemical Sciences in Development as they explore their premise that the practice and overarching mission of chemistry need a major overhaul to be fit for purpose in the 21st Century and beyond.

Unveiling the Mysteries Behind HPLC and GC Resolution: From Theory to Practice in 30 minutes

Thursday, September 15, 2016 @ 2-3pm ET

<https://www.acs.org/content/acs/en/acs-webinars/professional-development/chromatography.html>

High performance liquid chromatography, (HPLC) and Gas chromatography (GC) work by separating complex mixtures into individual compounds. Join Lee Polite as he explains these

variables in detail, and more importantly, how to adjust them. At the end of this webinar, YOU will be in charge of your separation!

Chemistry of Longevity: Rapamycin's Secret Past and Potential for a Longer Life

Thursday, September 22, 2016 @ 2-3pm ET

<https://www.acs.org/content/acs/en/acs-webinars/popular-chemistry/longevity.html>

Does the fountain of youth exist? The FDA approved drug, rapamycin has been found to delay aging and increase the lifespan of diverse laboratory organisms, including yeast, nematodes, fruit flies, and mice. Join Bethany of Chemical & Engineering News as she discusses the history and lore of rapamycin as well as Matt Kaeberlein of the University of Washington as he discusses the translational applications and studies aimed at determining whether these benefits can be obtained outside of the laboratory.

Failure: Why Science Is So Successful

Thursday, October 13, 2016 @ 2-3pm ET

<https://www.acs.org/content/acs/en/acs-webinars/popular-chemistry/failure.html>

Science since Galileo has been a remarkably successful method for understanding the universe. One reason for this is the particular way in which Science uses failure to progress. Join best selling author Stuart Firestein of Columbia University for a discussion on how science is an iterative process in which revision is a victory and failure is critical to its continued success.

Chemistry of Life: Instantly Treating Wounds with Hemostatic Gel

Thursday, November 3, 2016 @ 2-3pm ET

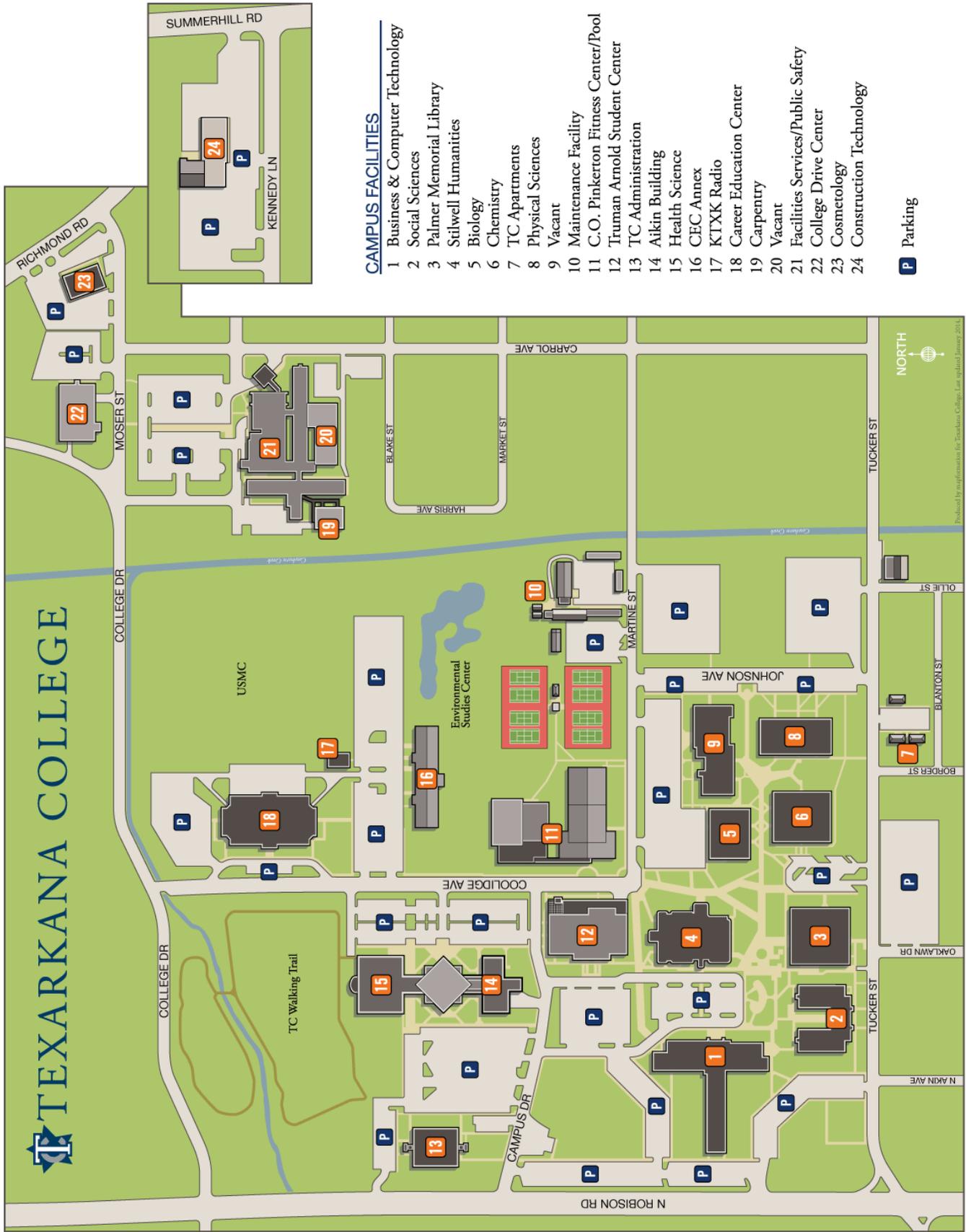
<https://www.acs.org/content/acs/en/acs-webinars/technology-innovation/hemostatic.html>

In emergencies, quickly dressing a wound can be critical and even lifesaving. Join Joe Landolina of Suneris, Inc. as he shares the progress being made with hemostatic gel that can stop bleeding in seconds rather than minutes using traditional closures. He will also highlight the potential impact of this technology to multiple diverse industries.

About ACS Webinars™

ACS Webinars™ is a free, weekly online event serving to connect ACS members and scientific professionals with subject matter experts and global thought leaders in chemical sciences, management, and business. The ACS Webinars are divided into several series that address topics of interest to the chemical and scientific community; these series include careers, business and innovation, professional growth, joy of science, extreme chemistry, entrepreneurial initiative, green chemistry, and more. Each webinar is 60 minutes in length, comprising a short presentation followed by Q&A with the speaker. The live webinars are held on Thursdays from 2-3pm ET. Recordings of the webinars are available online and upcoming events are posted at <http://acswebinars.org/>.

TEXARKANA COLLEGE



CAMPUS FACILITIES

- 1 Business & Computer Technology
- 2 Social Sciences
- 3 Palmer Memorial Library
- 4 Stilwell Humanities
- 5 Biology
- 6 Chemistry
- 7 TC Apartments
- 8 Physical Sciences
- 9 Vacant
- 10 Maintenance Facility
- 11 C.O. Pinkerton Fitness Center/Pool
- 12 Truman Arnold Student Center
- 13 TC Administration
- 14 Aikin Building
- 15 Health Science
- 16 CEC Annex
- 17 KTXK Radio
- 18 Career Education Center
- 19 Carpentry
- 20 Vacant
- 21 Facilities Services/Public Safety
- 22 College Drive Center
- 23 Cosmetology
- 24 Construction Technology

P Parking