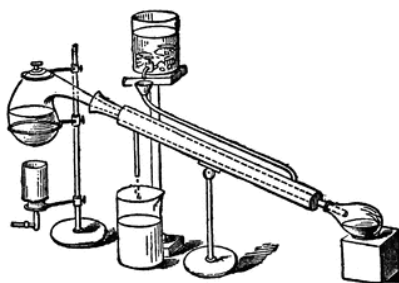




# ***SOUTHWEST RETORT***



**SIXTY-NINTH YEAR**

**FEBRUARY 2017**

*Published for the advancement of  
Chemists, Chemical Engineers  
and Chemistry in this area*

published by

The Dallas-Fort Worth Section, with the cooperation of five other local sections of the American Chemical Society in the Southwest Region.

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# EMPLOYMENT CLEARING HOUSE

Job applicants should send name, email, and phone, along with type of position and geographical area desired; employers may contact job applicants directly. If you have an opening, send your list-Deadlines are the 7<sup>th</sup> of each month. ing, including contact info for your company, to [retort@acsdfw.org](mailto:retort@acsdfw.org).

## JENKEM TECHNOLOGY

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JenKem Technology Co. Ltd. has a current opening for a Quality Manager position for GMP manufacturing of polyethylene glycol polymers in Tianjin, China. The ideal candidate must have:

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**Working knowledge of US GMP ICH Q7A** Quality Management systems, preferably acquired in the pharmaceutical industry

**Proven leadership skills** in a quality management position

**Advanced degree** in Analytical Chemistry or related field.

Interested candidates should submit a cover letter including salary expectations; and an updated resume at email: [hr@jenkemusa.com](mailto:hr@jenkemusa.com).

##### **Project Manager, GMP Manufacturing**

Location: Beijing or Tianjin

General Manager, GMP Manufacturing Plant

Location: Tianjin

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**Provide leadership** to facilitate problem solving and decision making. Recommend solutions for addressing project related problems.

**Maintain direct involvement** with other departments within JenKem Technology to help develop specifications,

provide information required for analytical methods, contribute information for GMP related documentation such as investigations, batch records and reports and translate contract requirements for JenKem Technology departments.

**Advanced degree** in Chemistry, Chemical Engineering, or a scientific related field of study. Knowledge of organic, polymer and analytical chemistry.

**Previous working knowledge of cGMP** manufacturing in the US or Europe, preferably polymer-related or pharmaceutical manufacturing.

**Outstanding demonstrated interpersonal skills** in English and Mandarin (Chinese) a must (both written and oral)

**Proven aptitude for project management tools.** Proficiency using project management tools to oversee all elements of project lifecycle including scheduling/planning, meeting coordination, tracking of costs and deliverables, reporting to stakeholders, and risk mitigation. Project Management Certification a plus.

**Computer and software skills** including MS Office Suite programs, Internet, email systems required.

**Proven multi-tasking skills** able to handle multiple projects simultaneously within a GMP environment; ability to motivate teams, work within aggressive timelines collaboratively with cross-functional departments

**Demonstrated ability** to work as a strong contributor in a team environment on complex projects.

**Required skills** include strong communication, leadership, decision-making, organizational and analytical skills. A candidate must be able to maintain customer focus, handle difficult discussions, build consensus, work independently and prioritize multiple tasks and adjust quickly, as needed. The ideal candidate must be willing to pursue tasks that may be required for projects but are not clearly defined within this job description.

**Detail-oriented, dependable,** motivated, ability to work with minimal supervision.

[hr@jenkemusa.com](mailto:hr@jenkemusa.com)

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 Phone / Fax 318-219-9300  
 Email: [arkla@ana-lab.com](mailto:arkla@ana-lab.com)



T104704201

## **Dallas-Fort Worth Section of the ACS Local Section February Meeting**

Join us for our February local section meeting featuring a lecture by Dr. John McIlroy, a forensic chemist with the Drug Enforcement Administration at the South Central Laboratory in Dallas, TX. The evening will include a social hour, dinner, and Dr. McIlroy's talk: "China White, Spice, Bath Salts, and N-Bombs: Designer Drugs in America"

**Date: Friday, February 24, 2017**

**Location: The University of Dallas, Haggard University Center,  
2900 Haggard Circle**

Meeting Schedule: (6-9pm)

6 pm– Social Hour (light appetizers and drinks)

7 pm– Dinner (menu tbd)

7:45 pm– Local Section Announcements

8 pm– Dr. McIlroy's talk

**RSVP Deadline: MONDAY, February 20 (5pm)**

**\*Everyone MUST RSVP to attend\***

Visit <http://dfw.sites.acs.org/> to register.

## ***FIFTY YEARS AGO IN THE SOUTHWEST RETORT***

The February ACS tour speakers will be **Dr. John F. Baxter** of the University of Florida and **Dr. Raymond B. Seymour** of the University of Houston. Dr. Baxter's topic will be "The Science Explosion and Television Teaching," while Dr. Seymour will talk on "Modern Polymer Science."

At Stephen F. Austin State College a contract was signed last August for the construction of a \$4.6 million dollar science building to house biology, physics, geology, and math. The present building, which houses both chemistry and biology, will be renovated and used solely by the chemistry department. Austin College faculty who attended the fall Welch Conference on polymer research were **Dr. Jacob A. Seaton** and **Dr. Elbert L. Griffin**. On Dec. 15 **Dr. John L. Margrave** of Rice gave an ACS sponsored lecture on "High Temperature Fluorine Chemistry."

In the Dallas-Ft. Worth ACS Section, **Dr. R. W. Higgins** of Texas Woman's University has received a three year Welch grant for "<sup>13</sup>C Labeled Cyclohexenes, Alkylcyclohexenes, and Specific Diacetylenes for Mass Spectral Studies." **Dr. Murray G. Sturrock** received a two year Welch grant to study "The Ozonation of Aromatic Compounds in the Presence of Water." At TCU **Dr. William H. Watson** received a \$45,000 Welch grant. **Dr. William B. Smith** served on an evaluating panel for NSF Postdoctoral Fellowships on Jan. 19-20 in Washington,

D.C. **Dr. Smith** also gave seminars at Austin College and Midwestern University. **Dr. H. C. Kelly** gave a seminar on "Amineborane Oxidations" at Rice.

The new officers for the DFW ACS Section are as follows: Chair, **Dr. John Banewicz**; Chair-Elect, **Norman E. Foster**; Secretary, **John Fitch**; Treasurer, **Dr. Morton E. Prager**; Councilors, **Dr. Robert W. Higgins**, **Dr. Harold H. Jeskey**.

In San Antonio at Trinity University **Dr. W. A. McGavock** has been given a \$12,000 renewal of his Welch grant, bringing his Welch grant total to \$60,000 over five years. Faculty member **Dale Clyde** was granted his Ph.D. from Iowa State University last November.

Award winners from the Southeastern Texas (Houston) ACS Section last year were **Dr. John L. Margrave**, who won the ACS Award in Inorganic Chemistry, and **Dr. Richard B. Turner**, who won the ACS Southwest Regional Award. Both honorees are faculty members at Rice.

At Texas A&M University **Dr. Frank J. Smentowski** gave a seminar Jan. 4 on "Temperature Dependent Electron Spin Resonance Studies" at Rice University.

**Compiled by E. Thomas Strom**



## **Save the Date!**

### **American Institute of Chemical Engineers**

**February's AIChE-Dallas section meeting**

**Bill Carroll**

**former President of the ACS**

**will speak on**

**PVC Recycling**

**Date: Tuesday, February 28th, 2017**

**Location: Two Guys From Italy Restaurant**

**11637 Webb Chapel Rd.**

**Dallas, TX 75229**

### **Schedule**

**6:30 PM Networking Time and Menu Browsing**

**7:00 PM Dinner**

**7:45 PM Section General Meeting**

**8:00 PM Professional Development Talk**

**9:00 PM Adjournment**

**There are no fees for attending the meeting. Your cost will only be the cost of your meal (~\$15) and that of any guests that you may bring with you (the Section would pick up, within certain limits, the dinner cost of any Chemical Engineering Student that comes to the meeting).**

**Abstract link: <http://www.billcarroll.org/acs-tour-speaker.html>**

**A brief bio: <http://www.billcarroll.org/about.html>**



## Peacock colors inspire greener way to dye clothes

### **Multiple Colors Output on Voile through 3D Colloidal Crystals with Robust Mechanical Properties**

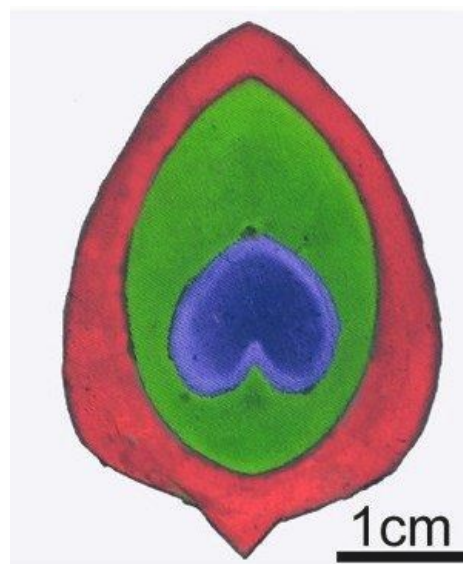
*ACS Applied Materials & Interfaces*

“Fast fashion” might be cheap, but its high environmental cost from dyes polluting the water near factories has been well documented. To help stem the tide of dyes from entering streams and rivers, scientists report in the journal *ACS Applied Materials & Interfaces* a nonpolluting method to color textiles using 3-D colloidal crystals.

Dyes and pigments are chemical colors that produce their visual effect by selectively absorbing and reflecting specific wavelengths of visible light. Structural or physical colors — such as those of opals, peacock feathers and butterfly wings — result from light-modifying micro- and nanostructures. Bingtao Tang and colleagues wanted to find a way to color voile textiles with structural colors without creating a stream of waste.

The researchers developed a simple, two-step process for transferring 3-D colloidal crystals, a structural color material, to voile fabrics. Their “dye” included polystyrene nanoparticles for color, polyacrylate for mechanical stability, carbon black to enhance color saturation and water. Testing showed the method could produce the full spectrum of colors, which remained

bright even after washing. In addition, the team said that the technique did not produce contaminants that could pollute nearby water.



Peacock feathers, opals and butterfly wings have inspired a new way to color voile fabrics without the pollutants of traditional dyes.

Credit: American Chemical Society

The authors acknowledge funding from the National Natural Science Foundation of China, the Fundamental Research Funds for the Central Universities (China), and Dalian University’s Program for Innovative Research Team, Program for Liaoning Excellent Talents and Program for New Century Excellent Talents.

# Dallas-Fort Worth Section of the American Chemical Society 50<sup>th</sup> Annual Meeting-in-Miniature



**Saturday, April 29**

All graduate and undergraduate students are invited to submit abstracts for a 10-12 minute oral presentation, allowing 3-5 minutes for questions. Email your ACS-style abstract to [b.janesko@tcu.edu](mailto:b.janesko@tcu.edu) with the subject line "Meeting in Miniature Abstract Submission" by Friday, March 31.

#### REQUIRED ABSTRACT DETAILS:

- Title of presentation
- Underline presenting author and put \* next to advisor
- List department and university
- Division (analytical, biochemistry, inorganic, organic, physical etc.)
- Email address of presenting author
- Category (undergraduate or graduate)
- Paragraph to include motivation, methods, results, conclusions (no more than 200 words)

## Program Details

Department of Chemistry & Biochemistry  
Texas Christian University

8 - 8:30  
8:30 - 10  
10 - 10:15  
10:15 - 11:45  
11:45 - 1:15  
1:15 - 3:30  
3:30 - 4:30  
4:30

Check-in  
1<sup>st</sup> Session presentations  
Morning break  
2<sup>nd</sup> Session Presentations  
Lunch  
3<sup>rd</sup> Session presentations  
Tours and Reception  
Awards Ceremony

Multiple awards will be given to top presentations for each session.  
Registration is free. Register here: <http://ow.ly/opp430863rx>



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## And Another Thing...

**By Denise Merkle, PhD**

First world problems attacked again. The serfs didn't rise up and burn the hayricks, nor did the cistern spring a leak. It was worse! My cell phone's charging cord morphed into an inert cable. No longer a conduit for electrons, it became a mere tether - high-dollar spaghetti fit only for anchoring electronics to the wall outlet. That its loss of effectiveness had no impact on its usefulness as a toe-snagger added insult to injury. All this prompted the anguished query: How did we exist without cell phones?

Yes, generations of explorers set off across uncharted territory without ever seeing family again, let alone writing to them. Yes, in the mid-1800s, Pony Express-toted letters took only two weeks to traverse the US, and almost immediately thereafter telegrams took almost no time to travel from NYC to CA.<sup>1</sup> Telegraphs were not instantaneous connections between parties, however. Although modern for their time, these indirect methods were expensive and onerous, the set-up was dangerous, and the Pony Express required the care and feeding of horses. Horses, though not anywhere near as electronic as smart phones, are a lot more effort than wandering to the nearest iconic icon store and telling a very smart person that one's cable is kaput.

Telephones<sup>2</sup> fixed the horses and telegram delivery issues and yielded more direct links between Persons A and Persons B, but - anyone remember long distance? Speaking in code to shorten call duration? Coordinating what would be said by everyone who was standing around the phone? Stretching the curly cord until it was totally straight, yet still being within earshot of others? Being forbidden to make or take phone calls at work? Not knowing for hours or days about happenings in one's life? Even with voice, communication was often inconvenient. But oh, the cellular telephone.<sup>3</sup> How did we function?

These days, what formerly was Oooo- and Aaah-worthy is now incomprehensibly static and ridiculously out-of-date. Instantaneous connections are expected, which is why it's so painful when an uncharged phone blocks access to schedules, videos, conversations, directions to the local iconic icon establishment, information from family and friends, experimental results, the A/C repair tech, the mechanic investigating that odd sound - everything! Everything!

First World problems. Then again, it's healthy to unplug. Really, it is.

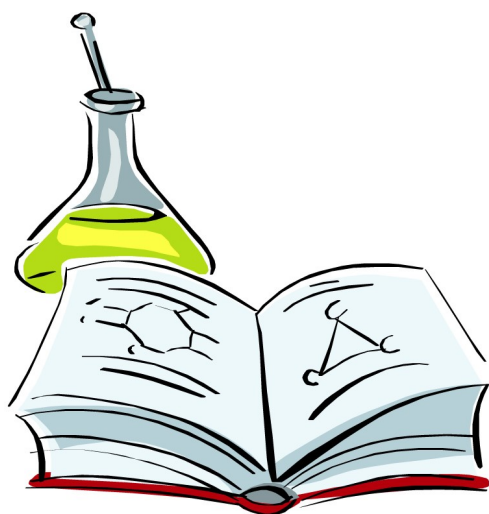
I wouldn't actually know, though - The spare charger was in my briefcase.

1) <https://www.nps.gov/poex/learn/historyculture/index.htm>

2) [http://www.americaslibrary.gov/jb/recon/jb\\_recon\\_telephone\\_3.html](http://www.americaslibrary.gov/jb/recon/jb_recon_telephone_3.html)

3) <http://bebusinessed.com/history/history-cell-phones/>

FYI - Allegedly, the average family spends nearly \$1000/year on phone charger cords. <http://blog.bunited.com/blog/2015/09/10/consumers-spend-960year-on-cell-phone-charger-cords/>



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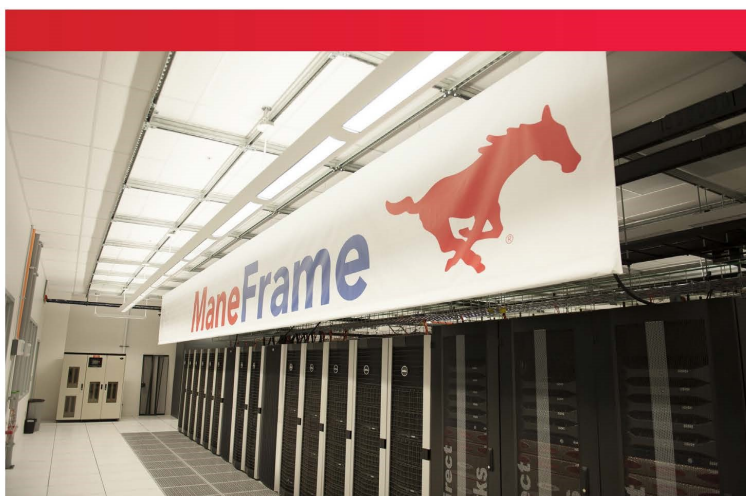
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Course topics include molecular modeling and computer assisted drug design; training in QM/MM methods; Hartree-Fock Theory; Density Functional Theory; Electron Correlation Methods; Statistical Thermodynamics; and much more!

Want to learn more? Check out [smu.edu/CATCO](http://smu.edu/CATCO) or contact [dcremer@smu.edu](mailto:dcremer@smu.edu) or [ekraka@smu.edu](mailto:ekraka@smu.edu).

### *Why come to SMU?*

- Experience a unique tailor-made educational program with discipline-specific curriculum and state-of-the-art courses
- Participate in a vivid research program stretching from software development and coding to simulation of homogeneous and enzyme catalysis, and everything in between.
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- Master computational tools to carry out world-class research in a high-performance computer environment
- Receive individual mentorship from a close community
- Utilize SMU's High Performance Computing Center ("ManeFrame")

## Corralling stink bugs could lead to better wine

### **Influence of Winemaking Processing Steps on the Amounts of (*E*)-2-Decenal and Tridecane as Off-Odorants Caused by Brown Marmorated Stink Bug (*Halyomorpha halys*)**

*Journal of Agricultural and Food Chemistry*

To wine makers, stink bugs are more than a nuisance. These tiny pests can hitch rides on grapes going through the wine making process, releasing stress compounds that can foul the smell and taste of the finished product. Now, in a study published in the *Journal of Agricultural and Food Chemistry*, scientists report the threshold of stink bugs per grape cluster that will impact the integrity of the wine.

In vineyards, brown marmorated stink bugs feed on grapes, reducing their yield and quality. And because they are small and blend in, the insects hitchhike on the grapes and wind up in the winery, giving off stress compounds that sometimes affecting the quality of the wine and juice. Pesticides used in the vineyard are not completely effective, so attention is being focused on ways to reduce the presence of the insects in wineries post-harvest. To find out exactly how grape processing impacts the release of stink bug stress

compounds and how this affects wine, Elizabeth Tomasino and colleagues took a closer look.

The researchers placed varying numbers of live or dead stink bugs on grapes and measured the release of insect stress compounds as wine was produced from the fruits. They found that pressing was a key step in the release of two of the most common stress compounds — tridecane, which is odorless, and (*E*)-2-decenal, which produces an undesirable musty-like,

coriander or cilantro aroma. Interestingly, white wine was contaminated less often than red. The researchers suggest that this is because these two wines are pressed at different points in the wine-

making process. The team concludes that if winemakers could limit stink bugs to no more than three per grape cluster, the levels of tridecane and (*E*)-2-decenal in wine would be below the consumer rejection threshold.

The authors acknowledge funding from the [National Institute of Food and Agriculture, U.S. Department of Agriculture](#) and the [U.S. Department of Agriculture, Northwest Center for Small Fruits Research](#).



# Around the Area

## UT-Arlington

An NIH grant of \$326,000 was recently given to faculty member **Dr. Kayunta Johnson-Winters** for “Mechanistic Studies on F420-Dependent Glucose-6-Phosphate Dehydrogenase from Mycobacteria Tuberculosis.” The grant goes through 2019.

A symposium organized for the San Diego ACS meeting last March by **E. Thomas Strom** on “The Posthumous Nobel Prize in Chemistry. Correcting the Errors and Oversights of the Nobel Prize Committee” recently received unique recognition. The symposium was covered by writer **Stu Borman** in a long article in an April issue of *Chemical and Engineering News*(C&EN). The symposium article was recently voted as one of the ten most popular articles published in C&EN in 2016.

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# 2017 Chemistry Olympiad Reminder

The 2017 Chemistry Olympiad preliminary examinations will take place on

Date: **Saturday, March 4, 2017**

Two locations: **The University of North Texas and the University of Texas at Arlington.**

The National Examination will be conducted on Saturday, April 22, 2017 at the University of Texas at Arlington for those selected for advancement.

Registration form is now available!

Chemistry Olympiad Coordinators

Dr. Kathleen Holley

[kholley@yahoo.com](mailto:kholley@yahoo.com)

**CLICK HERE FOR  
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AND INFORMATION**

## POSITION WANTED

Name: Kiara Fairman

Email: [kiarafairman@gmail.com](mailto:kiarafairman@gmail.com)

Phone: 702-610-5909

Type of Position: Teaching (High School or College); Laboratory/Quality Control Scientist; R&D Scientist; Formulations Scientist; Regulatory Affairs; Pharmaceutical Sales; Pharmaceutical Industry Entry Level; or Pharmacy Intern (Sterile Compounding Certified).

Part-Time, PRN, 2nd and 3rd Shift

Geographical Area: Tarrant County

If you need additional information please let me know.

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Contact:

[chuckhawes@yahoo.com](mailto:chuckhawes@yahoo.com)



## Using *E. coli* to detect hormone disruptors

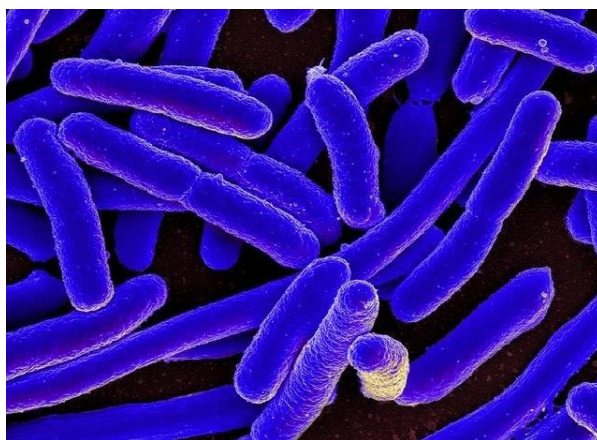
### Quantifying Hormone Disruptors with an Engineered Bacterial Biosensor

*ACS Central Science*

Endocrine disrupting chemicals (EDCs) have been implicated in the development of obesity, diabetes and cancer and are found in a wide array of products including pesticides, plastics and pharmaceuticals. EDCs are potentially harmful, even at low concentrations, equal in some cases to mere milligrams dissolved in a swimming pool full of water. Now researchers report in *ACS Central Science* that they can quickly detect environmentally relevant concentrations of EDCs using engineered *E. coli* bacteria.

Detecting EDCs can be tough because the classification is based on their activity — disrupting hormone function — instead of their structures. Thus the term encompasses a broad spectrum of chemicals and often, health risks arise from aggregate exposure to several different species. Because many EDCs act on the same hormone receptors on a cell's surface, researchers have been developing tests that detect the compounds based on their ability to interfere with hormones. But these methods currently take days to produce a result or involve many complicated and expensive steps. Here, Matthew Francis and colleagues overcame these challenges by using *E. coli* in their device.

Non-toxic, dead *E. coli* cells display an estrogen receptor on the surface of the researchers' portable sensor. A protein on the sensor surface recognizes the EDC-*E. coli* complex, producing an electronic read-out in minutes. The inexpensive device can determine the concentration of many known EDCs individually and overall concentrations as mixtures. They tested the detection in water and in complex solutions like baby formula. It also can detect EDCs released into liquid from a plastic baby bottle following microwave heating. The team notes that their test is suitable for use in the field and can be modified to test for other types of chemicals that act on human receptors.



The authors acknowledge funding from the HoundLabs, the National Science Foundation and the Beckman Foundation.

## Harnessing the energy of fireworks for fuel

### Optimization of a High Energy Ti-Al-B Nanopowder Fuel

#### *Energy & Fuels*

The world relies heavily on gasoline and other hydrocarbons to power its cars and trucks. In search of an alternative fuel type, some researchers are turning to the stuff of fireworks and explosives: metal powders. And now one team is reporting a method to produce a metal nanopowder fuel with high energy content that is stable in air and doesn't go boom until ignited. Their study appears in the ACS journal *Energy & Fuels*.

Hydrocarbon fuels are liquid at room temperature, are simple to store, and their energy can be used easily in cars and trucks. Metal powders, which can contain large amounts of energy, have long been used as a fuel in explosives, propellants and pyrotechnics. It might seem counterintuitive to develop them as a fuel for vehicles, but some researchers have proposed to do just that. A major challenge is that high-energy metal nanopowder fuels tend to be unstable and ignite on contact with air. Albert Epshteyn and colleagues wanted to find a way to harness and control them, producing a fuel with both high energy content and good air stability.

The researchers developed a method using an ultrasound-mediated chemical

process to combine the metals titanium, aluminum and boron with a sprinkle of hydrogen in a mixed-metal nanopowder fuel. The resulting material was both more stable and had a higher energy content than the standard nano-aluminum fuels. With an energy density of at least 89 kilojoules/milliliter, which is significantly superior to hydrocarbons' 33 kilojoules/milliliter, this new titanium-aluminum-boron nanopowder packs a big punch in a small package.



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# *From the editor*

Before I get started on the marmorated stink bug, don't forget the upcoming DFW Section events: Chemistry Olympiad and the Meeting-in-Miniature.

Now for the stink bugs...it turns out that the Brown Marmorated Stink Bug (abbreviated BMSB by agricultural experts) is an invasive species, first observed in this country around 1998. (Marmorated means having a veined or marbled appearance). Since that time, the BMSB has made great strides in becoming a premier agricultural pest on a wide variety of fruit and vegetables; its sucking mechanism of feeding causes necrotic areas (nasty little brown spots) in the fruit causing it to spoil or make it unsaleable. Now the little beasts are riding grapes into wineries, and contaminating the wine. When the bugs are stressed when the grapes are pressed, stress compounds released are odorless tridecane and (E)-2-decenal, an aldehyde producing a musty aroma, like coriander or cilantro. Here are two links in case you want to know more:

<http://ento.psu.edu/extension/factsheets/brown-marmorated-stink-bug>

[https://en.wikipedia.org/wiki/Brown\\_marmorated\\_stink\\_bug](https://en.wikipedia.org/wiki/Brown_marmorated_stink_bug)

*Best regards,  
Connie*