



## UPCOMING EVENTS

### Mark Your Calendars!

#### Polymer Technology Industrial Consortium-PTIC/Fall Meeting

April 19<sup>th</sup> - 20<sup>th</sup>, 2018  
College Station, TX  
Texas A&M University

#### Scratch Behavior of Polymers Consortium-SCRATCH

Wednesday, May 9<sup>th</sup>, 2018  
Noon—4:30pm  
After the ANTEC Conference-Orlando, FL



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PTC News &  
SPE Student Chapter

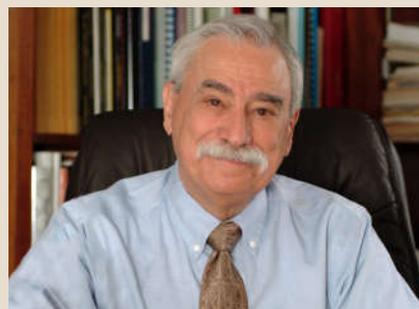


*For more than 60 years, including 41 at Texas A&M, Dr. Abraham Clearfield has led the way in areas ranging from solid-state inorganic chemistry to structural chemistry to crystallography.*

#### Texas A&M Chemistry Hosted Symposium for Abraham Clearfield Symposium on Nov. 9th

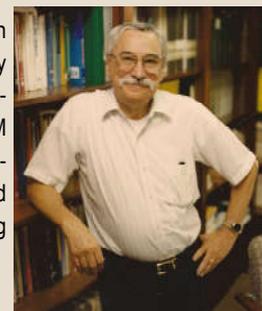
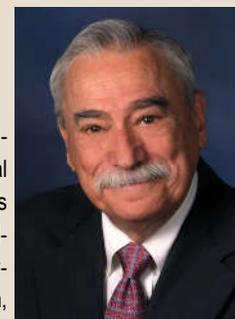
For more than 60 years, Clearfield has been a luminary in the field of materials science, achieving global renown for his research achievements as well as his teaching and mentoring contributions. He is considered one of the foremost experts in the field of layered phosphonates, a field he founded. In addition, his studies on synthesis and structure of layered ion exchangers have broadened many areas of chemistry related to coordination compounds, layered compounds with phosphonic acids and phosphonates, crystallography, porous materials and, most recently, nuclear waste and radionuclides.

Clearfield, a distinguished professor of chemistry since 2007, originally joined the Texas A&M faculty in 1976 -- four years after his Temple University classmate Dr. F. Albert Cotton had come to Texas A&M from MIT. Both were recruited to by legendary department head Dr. Arthur E. Martell as part of his ongoing effort to expand and enhance Texas A&M chemistry programs and prestige.



"Abe Clearfield has played a major role in the Department of Chemistry for many years," said Dr. David H. Russell, professor and former head of Texas A&M Chemistry from 2006 to 2014. "His research and scholarship have contributed greatly to the research and teaching mission of Texas A&M University."

Full story: [goo.gl/tZLfQ6](http://goo.gl/tZLfQ6)



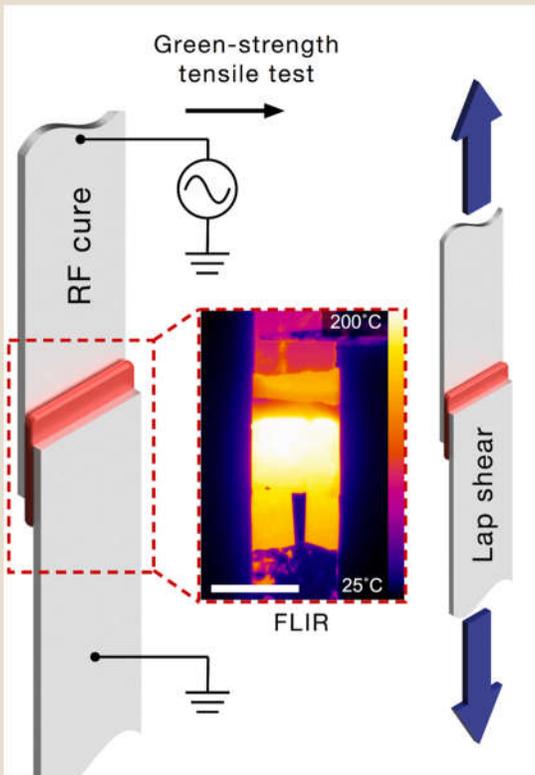
**POLYMER TECHNOLOGY CENTER**  
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**“Using Nanotubes to Rapidly Cure Thermosets”**  
**Associate Professor Micah Green**  
**Chemical Engineering**

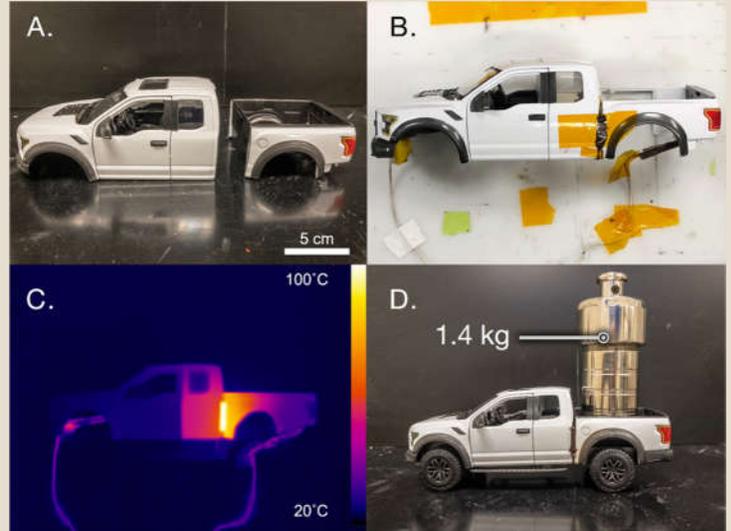
The Green group has previously shown that carbon nanotube-loaded polymer composites can be rapidly heated using microwave exposure due to the unusual dielectric properties of the nanotubes. This technique can be used as a means to weld 3D-printed filament traces together, allowing for high-strength 3D-printed parts. (This is now being commercialized by Essentium Materials, LLC, in College Station, Texas.)

Recent experiments show that rapid heating is also possible for nanotube-loaded plastics at lower, safer frequencies, far below the microwave frequency range. This allows for open-air application of RF fields to nanotube-loaded materials. This thermal response is useful for a wide range of practical applications in the plastics processing industry. One example is shown below, where two metallic parts can be joined by nanotube-loaded thermosets, and this adhesive can be rapidly cured by the application of an RF field, where the metallic parts themselves act as an electrodes. An industrial example would be the rapid joining of automotive parts, as shown in the model truck example.



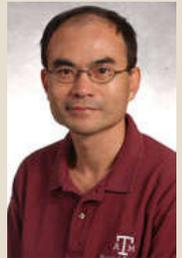
Lap shear strength sample geometry showing the RF applicator technique, and the thermal profile recorded with a FLIR thermal camera.

Dr. Green’s “Using Nanotubes to Rapidly Cure Thermosets” continue



A model truck (A) was bisected by cutting the truck bed off. (B) The truck and bed interface was filled with CNT loaded Betamate™ epoxy and connected to the RF source. (C) The interface containing the epoxy rapidly heated and the temperature was monitored with the FLIR camera. (D) The finished, welded truck was able to support weight (1.4 kg) in the truck bed.

**“Better Tools for Measuring Mar Damage”**  
**Professor Hung-Jue Sue**  
**Dept. of Materials Science & Engineering**



Professor Hung-Jue Sue  
 Department of Materials Science and Engineering

Visible mar damage on plastics and other soft materials is subtle and therefore can be difficult to measure. Testing is critical for developing improved materials. In conjunction with our work related to measuring scratch damage, we have been working to improve our process so that it gives quantitative, reproducible assessment of mar. A key part of this process is to prepare an image of marred surfaces under carefully controlled conditions. We have developed the “black box” shown on the left, which allows for the angles between the sample and the camera as well as the sample to a lamp to be varied in a reproducible way. We have used this black box to quantify mar damage on both white and clear films with good results. A publication describing our work is in progress.



### Dr. Jodie Lutkenhaus selected as Kavli Frontiers of Science Fellow and named ACS Rising Star



In September Dr. Jodie Lutkenhaus, associate professor and holder of the William and Ruth Neely Faculty Fellowship in the Artie McFerrin Department of Chemical Engineering at Texas A&M University, delivered a lecture at the Japanese-American-German Frontiers of Science Symposium in Bad Neuenahr, Germany.

Later in the month, Lutkenhaus received a tremendous honor from the American Chemical Society (ACS). She was named a Women Chemists Committee (WCC) Rising Star. According to the ACS, the WCC Rising Star Award recognizes women scientists "approaching mid-level careers who have demonstrated outstanding promise for contributions to their respective fields." Along with the award, all of the winners are invited to present at a symposium in their honor.

Full story: [goo.gl/zDPKrM](http://goo.gl/zDPKrM)

### Castaneda to receive award at CORROSION 2018 conference



The National Association of Corrosion Engineers (NACE) has selected Dr. Homero Castaneda to receive the 2018 Herbert H. Uhlig Award. The award recognizes outstanding young educators in postsecondary corrosion education who have effectively excited their students through outstanding and innovative teaching in corrosion engineering.

Full story: [goo.gl/NM4sQn](http://goo.gl/NM4sQn)

### Taking control of future careers: National Association of Corrosion Engineers established at Texas A&M



With nearly 40 sections worldwide, the National Association of Corrosion Engineers (NACE) now has a home at Texas A&M University. The idea came to light when students working with faculty members in the Department of Materials Science and Engineering began meeting on a regular basis.

"The research groups working with Dr. Homero Castaneda and Dr. Raymundo Case met weekly to discuss technical corrosion research and developments," said Arash Shadravan, president and founder and graduate student in materials science and engineering. "We also attended the 2017 NACE annual meeting which motivated us to start a chapter of this organization on our campus."

Full story: [goo.gl/JEHE16](http://goo.gl/JEHE16)

### Stefano Tagliaferri Visiting Student from Naples, Italy



Hi! I am Stefano, a Materials Science and Engineering student. I came to Texas A&M for a 3-month internship in September 2017, right after completing my Bachelor's Degree. During my stay I had the opportunity to contribute to high quality scientific research and to work in a stimulating multicultural environment.

My internship focused on the production of composite nanofibers. I used the electrospinning technique to synthesize copper oxide/carbon nanotube fibers, and characterized their morphology with optical and electron microscopy. Copper oxide composite fibers show promising application in optoelectronic devices. Improving their surface morphology is a key factor to obtain high optoelectronic performances, necessary in applications.

This internship gave me the possibility to bridge the gap between undergraduate education and real scientific research. Not only did I learn new lab techniques and how scientific research works, but I also had a wonderful social experience. Working with skilled people from different cultures helped me to improve my critical thinking and to broaden my horizons. I would like to thank Dr. Sue and his group for this invaluable experience.

### Polymer Technology Industrial Consortium (PTIC)

OCTOBER 19TH-20TH, 2017

MAJOR	PLACED	Students Name	Student Poster Title
MSEN	1st	Cong Liu	"Epoxy Nanocomposite containing Zeolitic Imidazolate Framework-8"
AERO	2nd	Yijun Chen	"Porous fibers as the host for encapsulation and tunable release of functional material"
MSEN	3rd	Farhad Daneshvar Fatah	"Fabrication of CuO nanofibers through electrospinning"



Left—right: Yijun Chen, AERO, Dr. Hung-Jue Sue, Professor and PTC Director; Cong Liu, MSEN; missing from photo is Farhad Daneshvar Fatah, MSEN

## PTC Faculty Members

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Meet the TAMU SPE student chapter officers for 2017-18 and their contact information, should questions arise.



President	Mohammed Haque	myhaque123@tamu.edu
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On October 20th, 2017 the South Texas Section—Society of Plastic Engineers scholarship recipients were recognized at the Polymer Technology Industrial Consortium meeting. Representing SPE was Dr. David Hansen.

#### SPE Scholarship recipients

1. Mohammed Haque, CHEN was the recipient of the Dale Walker memorial scholarship
2. Jongbok Lee, CHEM was the recipient of the Henry Kahn memorial scholarship



Left—right: Mohammed Haque, CHEM, Dr. David Hansen, SPE Liason; and Jongbok Lee, CHEM



On October 20th, 2017 the Kaneka Scholarship recipients were recognized at the Polymer Technology Industrial Consortium meeting. Representing Kaneka was Vice President Steve Skarke.



Left—right: Stefano Tagliaferri, MSEN; Wei Hu, CHEM; Yue Song, CHEM; Thomas Malinski, CHEM; Mr. Steve Skarke, Kaneka representative, Tianyu Yuan, MSEN; Elizabeth Ann Joseph, CHEM; and Shuoran Du, MEEN

## Polymer Specialty Certificate Updates

Students that have applied for the Polymer Specialty Certificate	<b>69</b>
Students that have received the Polymer Specialty Certificate	<b>50</b>

For more information, please visit: <http://ptc.tamu.edu/polymer-specialty-certificate/>

### Have Questions?

[Dr. Hung-Jue Sue](#)

[Isabel Cantu](#)

PTC Director

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**POLYMER TECHNOLOGY CENTER**

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