First Quarter 2016
NEWSLETTER

PTC
POLYMER TECHNOLOGY CENTER
TEXAS A&M ENGINEERING EXPERIMENT STATION

Phone: (979) 458-0918 Website: http://ptc.tamu.edu

TEXAS A&M UNIVERSITY

Mark Your Calendars for PTC'S upcoming events:

* SCRATCH Consortium = TBA
* PTIC Consortium = April 7th-8th, 2016 at Texas A&M University, College Station, TX
* APPEAL Consortium = April 6th, 2016 at Texas A&M University, College Station, TX

Inside the Newsletter...

CONTACT INFO:

Polymer Technology Center
Texas A&M University, 3003 TAMU
College Station, TX 77843-3003
Website: http://ptc.tamu.edu

Dr. Hung-Jue Sue
PTC Director
E-mail: hjsue@tamu.edu
Phone: 979-845-5024

Isabel Cantu
E-mail: icantu@tamu.edu
Phone: 979-458-0918

SCRATCH Behavior of Polymers Consortium Meeting
October 7, 2015 Troy, MI

The 30th Scratch Behavior Consortium Meeting was held in Troy, Michigan on October 7, 2015. The most current and upcoming research projects were discussed with leading industry sponsors. The advances made in the FEM of polymeric coatings and soft polymers were presented, as well as a new methodology for evaluating light marring (non-scratch) damage. This new mar-evaluation methodology was well-received, and will be assessed for robustness this year with cooperation from our corporate sponsors.

Attendees for the SCRATCH meeting were:

* 3M
* Advanced Composites, Inc.
* Fiat Chrysler Automobiles
* FORD
* GM
* KANEKA
* MytexPolymers
* Nissan
* Sabic
* Yanfeng

Polymer Technology Industry Consortium, Oct 22-23, 2015

The PTIC held a dinner and research poster competition on October 22nd. A total of 12 submissions from a diverse range of polymer topics were presented. The following morning, technical presentations were given by Drs. Y. Elabd, S. Sukhishvili, M. Green, D. Bergbreiter, and A. Muliana. In the afternoon, the TAMU student chapter president of the local Society of Plastics Engineers, J. Summerhill, discussed their activities and introduced J. Suriboot, a graduate student who gave a short presentation related to polynorbornene synthesis. Next, Prof. T. Creasy discussed a grant proposal related to a Fibers and Textiles Manufacturing Institute.

After the full PTIC meeting, a steering team consisting of key PTC industrial members was convened with the goal of gathering input for the future direction of the PTC and polymer science at TAMU.

Attendees for the PTIC meeting were:

* Agilent
* Asahi Kasei, Japan
* Baker Hughes
* Brave Spear LLC
* Consultant
* The Dow Chemical Company
* ExxonMobil
* Flint Hills Resources, LP
* Inteplast Group, LTD.
* SOHMIUMe
* Society of Plastics Engineers, SPE
* Toyo Ink Mfg. America LLC
* Westlake Chemical

Mohammad Naraghi
Dept. of Aerospace Engineering

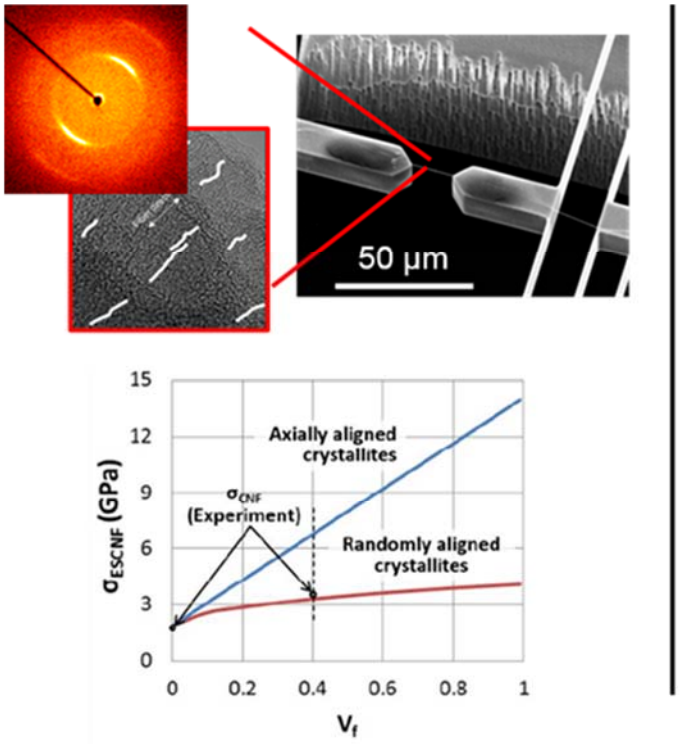
"High Performance Coils and Yarns of Polymeric Piezoelectric Nanofibers"

Dr. Mohammad Naraghi is an assistant professor in the department of Aerospace Engineering, affiliated with the Material Science and Engineering department. His research is mainly on nanoscale material processing and characterization, aimed at developing materials with unprecedented properties such as high strength and toughness and different types of multifunctionalities. His research covers a wide span on the Technology Readiness Level (TRL), from unraveling the processing-microstructure-property relationships of polymer-based nanomaterials in the fundamental levels to scalable production of polymeric nanomaterials, associated with high TRLs.

Dr. Naraghi is the founder and director of the "Multifunctional Nanomaterials Lab". Current highlights of his lab include the establishment of the structure-property relationships in carbon nanofibers (CNFs). This effort is sponsored the Airforce Office of Scientific Research. The objective is to introduce the potentials of CNFs as an alternative to carbon fibers for structural light-weighting. This "down-sizing" of carbon fibers is aimed at eliminating a structural defect in carbon microfibers known as skin-core inhomogeneity, a characteristic of PAN-based carbon fibers. The lab's continuum based models predict that by eliminated skin-core inhomogeneity, CNFs may reach strength as high as 14-20 GPa, more than twice the strength of carbon fibers, depending on the size of the turbostratic domains.

Another highlight of research in the Multifunctional Nanomaterials Lab is the investigation of couplings between matter (mainly polymers) and energy (in the form of electromagnetic radiation), facilitated via nanomaterials, such as CNTs. This effort, sponsored by the National Science Foundation, is intended to develop solvent-free and thus "Green" methods for nanofiber mass production for a host of applications including fluid filtration and nanocomposite reinforcements.

Other aspects of Dr. Naraghi's research include passive and active damping augmentation in nanocomposites by utilizing the surface of nanoparticles (sponsored by the Army Research Lab), and utilization of piezoelectric dipoles in ferroelectric polymers to develop multifunctional strong and tough hierarchical materials (sponsored by the National Science Foundation).



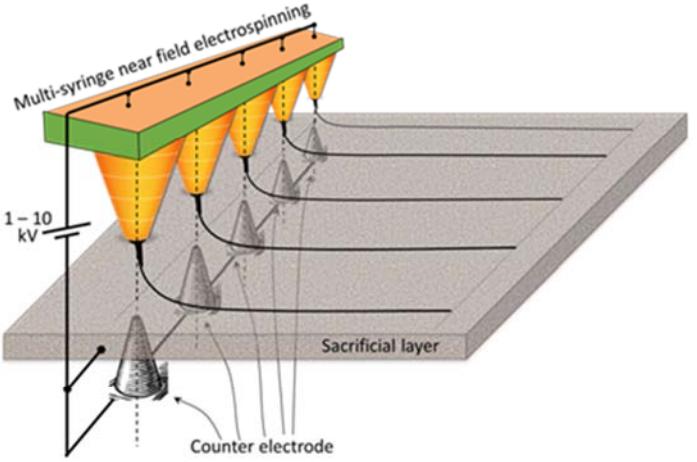
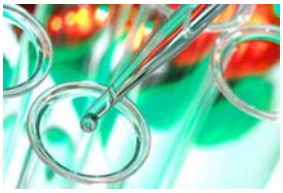


Figure: [Left] CNFs, fabricated by pyrolysis of electrospun nanofibers, are individually subjected to material characterization on custom-designed micromachined devices. [Right] Scalable methods to produce nanofibers are invented and explored in Dr. Naraghi's Multifunctional Nanomaterials Lab.

TEES | PTC
POLYMER TECHNOLOGY CENTER
TEXAS A&M ENGINEERING EXPERIMENT STATION
Phone: (979) 458-0918 Website: http://ptc.tamu.edu

TEXAS A&M UNIVERSITY

Texas A&M Advances to 17th in New NSF Research Rankings



"Research is a vital part of our mission at Texas A&M and The Texas A&M University System," said John Sharp, Chancellor of The Texas A&M University System. "Texas A&M is the largest research university in the Southwest and we anticipate even more explosive growth in the years to come."

Full story: goo.gl/EwmrcU

Texas A&M Ranks Third Nationally for Students Studying Abroad

Texas A&M University ranks as one of the nation's top three institutions of higher learning in the number of students receiving academic credit for their study, research, intern, or volunteer experiences abroad, according to the 2015 Open Doors Report on International Educational Exchange.

Full story: http://goo.gl/wPfVxM

Left to right: Shin Hye Ahn, CHEM; Yi-Yun Tsao, CHEM; Charles Sweeney, CHEM and Professor Hung-Jue Sue, PTC Director

PTIC Student Poster Competition

Thanks to all the students that took part in the PTIC student poster event. For those that did not place, please remember that there will be another opportunity to participate in the Spring. This was a very successful event.

PTC would like to congratulate these students for being the recipients of the PTIC poster competition.

Polymer Technology Industrial Consortium

October 22-23, 2015

	Student's Name	Student's Poster Title
1	Charles Sweeney	"Microwave Induced Welding of Carbon Nanotube-Thermoplastic Interfaces for Enhanced Mechanical Strength of 3D Printed Parts"
2	Yi-Yun Tsao	"Deoxyribonucleic Acid as a Model for the Design of Functional, Degradable Polymers"
3	Shin Hye Ahn	"The New, Solid, Stoichiometric, and Soluble Oxidizing Agents [R3PO·H2O2]2 and R3PO·(HOO)2CMe2 (R = aryl, alkyl)"

CONGRATULATIONS

TEES PTC POLYMER TECHNOLOGY CENTER TEXAS A&M ENGINEERING EXPERIMENT STATION Phone: 979-458-0918 Website: http://ptc.tamu.edu

Reddy Elected to Prestigious National Academy of Engineering

Dr. J.N. Reddy, professor in the Department of Mechanical Engineering at Texas A&M University, was inducted into the National Academy of Engineering (NAE) during a ceremony Sunday (Oct. 4th) in Washington, D.C. Reddy, who is a Distinguished Professor, Regents Professor and holder of the Oscar S. Wyatt Endowed Chair, was recognized for his contributions to composite structures and engineering education.

Full story: goo.gl/3BkJkb

Lutkenhaus a Finalist in 2015 WTN Awards

Dr. Jodie Lutkenhaus, William and Ruth Neely Faculty Fellow and associate professor in the Artie McFerrin Department of Chemical Engineering at Texas A&M University, is a finalist in the energy category of the 2015 World Technology Network Awards.

"I am honored to be a finalist," said Lutkenhaus. "It is exciting to stand among such groundbreaking individuals."

Full story: goo.gl/Y3dKd6

Grunlan Awarded Royal Academy of Engineering Fellowship

Dr. Melissa Grunlan, associate professor in the Department of Biomedical Engineering at Texas A&M University, has been awarded the Royal Academy of Engineering Distinguished Visiting Fellowship.

Her laboratory focuses on developing new polymeric biomaterials for medical devices and regenerative therapies. She has produced coatings, hydrogels, elastomers and porous foams from "hybrid" systems based on combining inorganic and organic polymers. He projects include the development of self-cleaning membranes for implanted biosensors, clot-resistant coatings for blood-contacting devices and scaffolds for bone repair and for the regeneration of osteochondral interfaces.

Full story: goo.gl/gRv0yw

Liang Selected North American Editor for "Surface Topography: Metrology and Properties Journal"

Dr. Hong Liang, professor in the Department of Mechanical Engineering at Texas A&M University, has been selected to serve on the executive editorial board as the North American regional editor for the Institute of Physics' (IOP), *Surface Topography: Metrology and Properties Journal* (STMP).

As the North American editor for the journal, Liang will provide leadership to the North American regional editorial board members for STMP, as well as encourage scientists from the United States and Canada to submit papers to the journal.

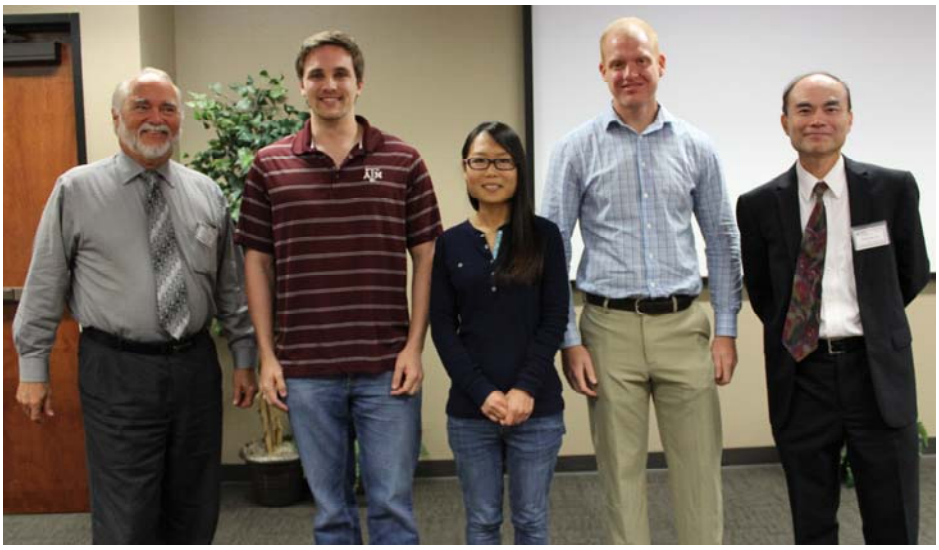
Full story: http://goo.gl/cIsRhk

PTC Faculty Members

Name	E-mail Address	Office #
Mustafa Akbulut	makbulut@tamu.edu	979-847-8766
Perla Balbuena	balbuena@tamu.edu	979-845-3375
Dave Bergbreiter	bergbreiter@tamu.edu	979-845-3437
Janet Bluemel	bluemel@tamu.edu	979-845-7749
Tahir Cagin	cagin@che.tamu.edu	979-862-1449
Elena Castell-Perez	ecastell@tamu.edu	979-862-7645
Zheng D Cheng	zcheng@tamu.edu	979-845-3413
Abraham Clearfield	a-clearfield@tamu.edu	979-845-2936
Terry Creasy	tcreasy@tamu.edu	979-458-0118
Donald Darensbourg	d-darensbourg@tamu.edu	979-845-5417
Yossef Elabd	elabd@tamu.edu	979-845-7506
Lei Fang	fang@chem.tamu.edu	979-845-3186
Carmen Gomes	carmen@tamu.edu	979-845-2455
Micah Green	micah.green@tamu.edu	979-862-1588
Melissa A. Grunlan	mgrunlan@tamu.edu	979-845-2406
Wayne Hung	hung@tamu.edu	979-845-4989
Helen Liang	hliang@tamu.edu	979-862-2623
Jodie Lutkenhaus	jodie.lutkenhaus@tamu.edu	979-845-3361
Anastasia Muliana	amuliana@tamu.edu	979-458-3579
Mohammad Naraghi	naraghi@aero.tamu.edu	979-862-3323
K.R. Rajagopal	krajagopal@tamu.edu	979-862-4552
J.N. Reddy	jnreddy@tamu.edu	979-862-2417
Hung-Jue Sue	hjsue@tamu.edu	979-845-5024
Steve Suh	ssuh@tamu.edu	979-845-1417
Svetlana A. Sukhishvili	svetlana@tamu.edu	979-458-9840
Jyhwen Wang	jwang@tamu.edu	979-845-4903
John Whitcomb	whit@aero.tamu.edu	979-845-4006
Karen L. Wooley	wooley@tamu.edu	979-845-4077

SPE South Texas section

PTC would like to congratulate the following SPE and Kaneka Fall scholarship recipients.



Left to right: Dr. David Hansen, SPE Liason; Kevin Wackler, CHEM; YanYan Wang, CHEM; Joseph Baker, CHEM and Professor Hung-Jue Sue, PTC Director

kaneka

Left to right: Masahiro Miyamoto, Kaneka representative; Jingwei Fan, CHEM; Farhad Daneshvar, MSEN; Xun Xe, CHEM; missing from picture is Megan Nicholson, BIMS; Michela Puopolo, MSEN visiting scholar and Professor Hung-Jue Sue, PTC Director

CONGRATULATIONS

Polymer Specialty Certificate Updates

Students that have applied for the Polymer Specialty Certificate	45
Students that have received the Polymer Specialty Certificate	31

For more information, please visit: http://ptc.tamu.edu/certificate.html

TEES | PTC
POLYMER TECHNOLOGY CENTER
TEXAS A&M ENGINEERING EXPERIMENT STATION
Phone: (979) 458-0918 Website: http://ptc.tamu.edu

PTC Newsletter prepared by: Isabel Cantu
Edited by: Zachary Thornburg, James Chrisman & Megan Nicholson

Q-1 2016