

News



The Society of Plastics Engineers

ENGINEERING PROPERTIES & STRUCTURE DIVISION

November 2006



ANTEC 2007

May 6-10

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EPSDIV Recognizes Best Paper from ANTEC 2005



EPSDIV President Michael Read (seen at far right) and TCP Chair Sadhan Jan (second from left) congratulate the recipients of EPSDIV's Best Paper Award from ANTEC 2005. Smita B. Boob (second from right) and Montgomery T. Shaw (far left) were recognized for their paper *Effect of Electric Field on Alignment Behavior and Conductivity of Composite Membranes*. The abstract is reprinted

Effect of Electric Field on Alignment Behavior and Conductivity of Composite Membranes

Smita B. Boob and Montgomery T. Shaw, Polymer Program and Department of Chemical Engineering, of Material Sciences, University of Connecticut

ABSTRACT

Composite membranes of sulfonated crosslinked polystyrene particles have been made by aligning the particles under an electric field in a crosslinked poly(dimethyl siloxane). Following a procedure described by Oren et al. (2004). The purpose of this work, however, was to investigate the effects of electric field amplitude and frequency on alignment behavior. As expected the particles aligned only by application of a certain minimum electric field for a given frequency. Impedance measurements indicated

that the unaligned membranes showed capacitive behavior up to 8 wt % particles, which transformed to conductive behavior on alignment.

**Best Student Paper,
ANTEC 2006, see page 4**

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Changing of the Guard



(Seen left) Hoang T. Pham, EPSDIV Past Chair, welcomes Michael Read to his new role as Chairperson. Read is a longtime member of the Engineering Properties and Structure Division. See page 5 for an introduction to EPSDIV's new Chair.

Chairperson's Report

Our membership shows steady growth

In the past few years, the Engineering Properties and Structures Division of the Society of Plastics Engineers has had to adapt to the changes to our society and our industry.

We continue to ask questions of our members on how our organization may be more valuable as part of their professional careers. I would like to take this opportunity to reflect on our key accomplishments in the past year and discuss some key initiatives for the upcoming fiscal year.

Education and Training

The primary charter and our largest effort have always been to provide education and training to our members and the plastics industry. We strive to be the preferred division for the dissemination of new technologies and training programs to our members and communities. We also try to maintain a balance between early stage

academic research and applied industrial research. Our efforts are reflected well in our successes as we hosted and co-hosted nine technical sessions at ANTEC 2006. We also attempted to target emerging technologies by recruiting several key-note speakers into our ANTEC program. This achievement was accomplished through the contributions of our EPSDIV members and our TPC committee that was led by Professor Brian Grady from the University of Oklahoma.

Membership

Another significant objective is to expand and grow our division as a way to illustrate the importance of the technology that we bring to the plastics and rubber industries. Indeed, our membership has been growing at an annual rate of 2% for the last two years. We continue to work closely using the initiatives of the national or-

ganization to encourage our members to participate in current membership programs such as the Action Increases Membership (A.I.M.) program. We also wish to thank the current EPSDIV Membership committee led by Dr. Rajen Patel of The Dow Chemical Company.

Recognition

As our charter calls, we emphasize the importance of recognizing our members for their technical contributions and motivating young scientists in the field of polymers in general and structures and properties in specific. This year our organization was proud to sponsor Dr. Murali Rajagopalan and Dr. Krishna Venkataswamy for the Fellow of the Society award. Each year we sponsor members for Fellow of the Society and Honored Service Member awards. Please contact any board member if you know someone who should be considered for these prestigious awards.

We also recognize that the growth of our division and of the Society depends greatly on recognizing young scientists and outstanding research. Thus, the EPSDIV continues to sponsor the John O'Toole Award for best student paper and a separate award for best technical paper at ANTEC.

I would like to thank all the members of the Board of Directors for 2005-2006, and especially Dr. Hoang Pham for leading the division last year during its many successes and for his contribution to the ANTEC 2007 technical program. To our board members who are moving on, we want to express our appreciation for their volunteer efforts. On behalf of EPSDIV, I like to thank Steve Jackson for his contributions as a board member.

As EPSDIV moves forward in 2006-2007, we will be focusing on our core capabilities, which are education, training, growth and recognition. We will strive to strengthen our

Continued on page 3

Big Changes for ANTEC 2007, SPE partners with Plastics News



Don Witenhafer

SPE is partnering with Plastics News to combine their Plastics Encounter Show with ANTEC this May.

For those of you who are not familiar with Plastics Encounter it is a regional show that is much smaller but similar to NPE in nature. This year, Plastics News will not hold regional shows but will instead focus on a national show to be run in conjunction with ANTEC.

This should result in some signifi-

cant changes to ANTEC:

- First, we should expect increased industrially focused attendance.
- We should also have a much larger show floor with substantially more attendance and displays that are not normally seen at ANTEC.

It will also result in some scheduling changes that you should take into account when making your travel plans.

- First, the Recognition Banquet will be on Sunday evening instead of Wednesday as has been traditional.
- The opening reception will be moved to Monday evening and be a Welcoming Reception for the Plastics Encounter show which will open on Tuesday, Wednesday, and Thursday.
- Because the Plastics Encounter show will be open on Thursday, ANTEC

will be scheduling technical papers for Thursday instead of ending on Wednesday as in the past.

All in all I think this will truly be a win-win situation for both shows and should make both shows more successful, useful, and profitable.

My congratulations to the SPE staff for making this possible. Please remember to book your hotel through the conference system because SPE gets credit for such bookings to help defray our costs. Hopefully the Plastics Encounter people will do the same.

I want to thank Brian Grady for agreeing to proxy for me at the upcoming Council Meeting in Pittsburgh. My nephew is getting married on that date.

Don Witenhafer, Councilor

Continued from page 2

reach to the communities through TOPCON 2006 and through strong participation at SPE ANTEC.

We want to continue our momentum by sponsoring a TOPCON program every other year. These specialized programs permit us to bring together the latest research to members on a regional basis. Furthermore, our membership committee continues to work with our national organization to highlight the value of our organization to its members.

Thank you for the opportunity to work in support this organization. I look forward to meeting many of you during our technical programs this year and in future years, and as always we ask you, the membership, to please contact any of the board members and provide your feedback on current or future programs in support of the divisions goals.

— *Michael Read, Chairperson*

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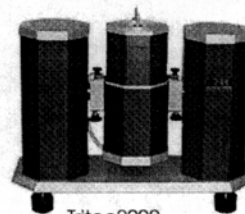
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ANTEC 2006 Program Review

—Michael Read, Chairperson

Our ANTEC 2006 program consisted of approximately 60 oral and poster contributions, roughly two-thirds of what appeared last year. There was a substantial drop in contributions society-wide as well. The drop in presentations was attributed to the difference in the attraction of the site (Boston vs. Charlotte).

There were a total of nine sessions in seven topic areas (Polymer Nanocomposites (3 sessions), Films and Fibers, Determination of Polymer Properties, New Trends in Engineering Polymers, Modeling of Polymer Properties, Surface Properties of Polymers, Polymer

Morphology and Properties.

We also supplemented our program last year with six invited keynote speakers. Our goal is to invite speakers to highlight new technology in our area or researchers' contributions to the society. A list of last year's speakers is provided below. Please contact any member of our technical program committee if you have recommendations for future topics or speakers.

- Steve Michelson, N.C. State, *Vibrating Your Way to Morphology Determination*.
- Ramanan Krishnamoorti, University of Houston, *Multifunctional Polymer - Silicate Nanocomposites*.

- Al Pocius, 3M, *Surface Preparation of Polymers for Enhanced Adhesion*.

- John Torkelson, Northwestern University, *Nanoconfinement and Nanocomposite Effects on Polymer Tg and Physical Aging*.

- Chul Park, University of Toronto, *Development of Foamable Grades of TPO/TPV*.

Hongbing Lu, Oklahoma State University, *Measurements of Viscoelastic Functions of Polymers Using Nanoinindentation*.

Approximately five per cent of submitted EPSDIV papers were rejected, while about 75% of abstracts resulted in a submitted paper. A total of four papers were recommended by the TPC chair for consideration for the Best Paper Award.

We look forward to our technical program for ANTEC 2007. Please contact our current TPC Chairperson, Hoang Pham, if you have any questions or comments.

Best Student Paper at ANTEC 2006



Each year, the Engineering Properties & Structure Division sponsors the John O'Toole Award which recognizes the Best Student Paper at ANTEC. Winners receive a plaque and a \$1000 check. Mihir Patel, right, accepts the award from EPSDIV's Sadhan Jan on behalf of his coauthors for their paper, *Flash Prevention Due to Skin Solidification*. The abstract is reprinted below.

Flash Prevention Due to Skin Solidification

Kalan Shah, Mihir Patel and Sonny Nguyen. University of Massachusetts Lowell

ABSTRACT

The purpose of this paper is to investigate the role of skin solidification in preventing flash during injection molding of amorphous and semi-crystalline resins. In conventional injection molding, polymer melt is injected into a comparatively cold mold, resulting in the development of a solidified layer. A null hypothesis of this paper is that the development of a solidified layer reduces the exerted clamp tonnage on the machine and may even prevent the formation

of flash under high pressures resulting in improved part quality. A set of Design of Experiment was implemented with control factors including barrel temperature, mold coolant temperature, pack pressure and delay time; the characterized responses included part weight, part thickness, and flash length. The results indicated that the addition of a delay time between the injection and packing stages eliminated flashing in this application.

Thank You ANTEC Sponsors



The Engineering Properties & Structure Division thanks the above companies for their support for our participation in ANTEC 2006. Thank you!

Meet the Chairperson

— *By Michael Read*

Welcome to another planning year with the Engineering Properties and Structure Division. Thank you for your support in our election cycle as I begin this year's role within the Division as Chairperson.

I look forward to this year as we continue to increase the Division's outreach to our membership to include active participation with sections and other divisions on topical conferences in addition to our program at the national ANTEC.

We recognize that we must promote topical conferences that cover the current needs of our members in locations convenient to a large number of our supporting institutions.

Let me provide you some of my background information, current career activities, and interests to put things in perspective.

I completed both my undergraduate and graduate work in Chemical Engineering at Virginia Tech. I enjoyed the multidisciplinary polymer materials program at Virginia Tech, and this provided a broad background in several technologies that helped in my transition to industry. I have worked for Dow Chemical and its subsidiaries for 20 years in a number of roles in R&D, new product development, and manufacturing.

Like many members of our industry, I did not practice my university specialties for long after joining Dow. I have been active in a number of technologies including rheological characterization of polymers, die design, coextrusion fundamentals, color technology, biopolymers, film and blow molding fabrication, reaction engineering, nanocomposites, and pharmaceutical sciences. I have constantly become involved and learned new technologies to develop my own career in Dow and to keep up with our changing industry.



INTRODUCING ENGINEERING PROPERTIES & STRUCTURE DIVISION BOARD OF DIRECTORS FOR 2006-2007: (Seen left to right) Don Witenhafer, Councilor; Michael Read, President/Chairperson; Stephen Driscoll, Secretary; and Emmett Crawford, Treasurer. For a complete list of the EPSPDIV Board, see page 9.

I have been an active member of the Society of Plastics Engineers throughout my industrial career. I am very fortunate that Dow has supported my interests in our professional society.

My first leadership role was within the Blow Molding Division as TPC chair. I continued within this division to help sponsor a topical conference and serve as Secretary for the division. When I changed roles within Dow, I moved to the Engineering Properties and Structure Division. I first became involved with the technical program committee and then with the officer roles. Throughout this time I have maintained my affiliation with the Ex-

trusion Division as a constant source of ideas for new process technology.

I strongly support our division's move to focus on topical conferences and networking with other divisions and sections. We should always be aware of new technologies either to leverage into our own technology area or as we transition into a new area as part of our personal growth.

Please contact any of our board members to help us understand what are the new topics that we should emphasize or how we can adapt our programs to meet the changing needs of the membership. Thank you for the opportunity to serve, and I look forward to a great year.

Membership Update

The following numbers show EPSPDIV membership for 2005 to 2006.

2005	Primary	Secondary	2006	Primary	Secondary
January	890	406	January	900	405
February	891	418	February	913	415
March	887	420	March	923	436
April	912	437	April	953	451
June	920	446	May	938	456
July	854	381	June	926	476
August	869	388	July	870	456
September	880	389			
October	883	398			
November	892	402			
December	890	400			

Percent increase in membership
year over year = 1.9%

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ANTEC 2007 TPC REPORT

The ANTEC presentations will occur from Monday through Thursday morning, May 6 - 10, 2007. There will be 810 total 30 minute presentation slots for the whole conference. Based on this and 2006 numbers, the amount of sessions will stay the same.

We currently have ten topicals in our call for papers. The TPC committee is issuing a call for papers so we will have good representation for ANTEC 2007. There will also be a poster session either on Monday or Tuesday.

This year the welcome banquet will be held on Monday night. The TPC business luncheon is currently scheduled for Tuesday at lunch time.

Further details will be forthcoming.

We need help to make EPSDIV's TCP presentations a success:

- Volunteers are needed for paper reviews. Contact Hoang Pham at: Hoang.Pham@dow.com
 - Forward a list of names that the Board can recommend as invited speakers for each topic.
- (There is no guarantee we will have all slots open)

—Hoang Pham,
ANTEC 2007 TPC

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Engineering Properties & Structure Division

TREASURER'S REPORT

Submitted by Emmett Crawford, EPSDIV Treasurer 2005-2006

Balance as of April 1, 2006 (cash, checking, savings, investments)	\$	31183.37	EXPENSES		
INCOME		ACTUAL	Board Meetings and ANTEC Reception	\$	2523.35
Interest		373.01	Newsletter Production		535.00
ANTEC Sponsorship		5000.00	ANTEC Awards		1000.00
SPE Rebate		1419.56	Councilor and BOD Travel		946.36
TOTAL INCOME	\$	6792.57	Office		21.60
			TOPCON		375.00
			ANTEC Expenditures (Signs)		311.00
			TOTAL EXPENSES	\$	5712.31
			CASH FLOW	\$	1080.26
			ENDING BALANCE AS OF		
			AUGUST, 2006	\$	32263.63

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ANTEC 2007 online at
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Deadline is December 4.

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