

News



The Society of Plastics Engineers

ENGINEERING PROPERTIES
& STRUCTURE DIVISION

September 2005



ANTEC 2006
Charlotte, North Carolina
May 7-14, 2006

Call for papers

The deadline for abstract submission is **October 14, 2005**.

December 2, 2005 is the deadline for paper submission. And, the submission site is now live!

For information visit, www.4spe.org/conf/antec06/submissions.php. See story on page 7.

Five top reasons to deliver a paper at ANTEC 2006

1. Establish yourself as a leader in your technical area.
2. Reach your customers with your company's message.
3. Gain stature and visibility within your organization and field.
4. Round out your professional credentials.
5. Develop and refine your presentation skills.

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EPSDIV past president recognized at ANTEC 2005

Dr. Shriram Bagrodia, EPSDIV Past Chair, received the SPE's Fred O. Conley Award at ANTEC 2005.

The Engineering/Technology Award (Fred O. Conley Award) honors outstanding contributions in plastics engineering and/or technology.

Dr. Bagrodia, a Research Associate with Eastman Chemical Company, has more than 20 years of industrial experience in the plastics industry. His broad research interests are focused on structure-property relationships in polymeric materials.

He is a prolific inventor and has 51 U.S. patents issued to date. Dr. Bagrodia invented synthetic fibers capable of spontaneously transporting aqueous fluids along the axial direction. The theoretical framework for this invention was based on considerations of thermodynamic principles of free energy. This novel discovery



Dr. Shriram Bagrodia was the recipient of SPE's Engineering/Technology Award.

resulted in several patents and has potential for major industrial applications in disposable hygiene products.

Another areas of active research for Dr. Bagrodia has been in the field of high barrier packaging solutions.

Continued on page 4

TOPCON highlights display technologies

—Submitted by Yueh-Lin (Lynn) Loo
EPSDIV will be holding a TOPCON at the University of Akron on October 23-24, 2006 entitled Recent Advances in Organic and Polymer Display Technology.

Emphasis will be on organic and polymer light emitting diodes. Recent advances in the field and major challenges that remain for commercializa-

tion will be addressed.

The conference will consist of four half-day sessions, with an invited talk leading-off each session.

Each of these sessions will focus on a different aspect of organic and polymer display technologies: we will have one session on materials considerations and design rules for electri-

Continued on page 4

Past initiatives bring today's success



Hoang Pham,
Chairperson 2005-2006

Dear EPSDIV members:

In the past few years, the Division of Engineering Properties and Structures of the Society of Plastics Engineers has had many fruitful initiatives. These initiatives have been the seed that gives the harvest we are gathering today.

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, training a priority

The primary charter and our forefront effort have always been to provide education and training to our members and the plastics industry. We strive to be a dependable venue for channeling new technologies and raining programs to our members and communities.

Our efforts are reflected well in our successes as we hosted and co-hosted 15 technical sessions at ANTEC 2005 with or members having contributed

Membership in EPSDIV has been growing at an annual rate of 2 per cent for the last two years.

over 900 technical papers. This achievement was accomplished through the contributions of our EPSDIV members and our TPC committee that was led by **Professor Jana Sadhan** from the University of Akron.

Membership growth

Another significant objective is to expand and grow our division as a way to illustrate the importance of the technology we bring to the plastics and rubber industries. Indeed, our membership has been growing at an annual rate of 2 per cent or the last two years.

The growth is a culmination of the membership drive initiated by the Executive Committee and by the EPSDIV Membership Committee which is led by **Dr. Dick Bopp** of Natureswork Inc.

Recognition

As our charter calls, we emphasize the importance of recognizing our members for their technical contributions and motivating your scientists in the field of polymers in general and structures and properties in specific.

Examples of such recognition include: **Professor Garth Wilkes** and **Professor Joshua Otaigbe** elected to SPE Fellows; **Professor Charles Beatty** and **Dr. Richard Cowell** elected to Honored Service Member.

We also recognize that the growth of our division and of the Society depends greatly on young scientists. Thus, the EPSDIV has the Peter O'Toole award for best student paper at ANTEC. This year the recipient of this award is **Matthew Jackson** of Penn State, Erie.

I would also like to thank all the members of the Board of Directors for 2004-20005, and especially **Dr. Shriram Bragodia** for leading the

ANTEC sponsors make EPSDIV sessions possible



A sincere thank you goes to the above companies for participating in this year's ANTEC Corporate Sponsorship Program. Their contributions helped EPSDIV maintain a high level of quality for our Boston ANTEC program, and will support future technical exchanges and education initiatives.

efforts that brought us the wonderful successes. To our board members who are moving on, we like to express our appreciation. So, on behalf of the EPSDIV Division, I thank **Drs. Eric Moskala, Don Duvall and James Klein** for their contributions as board members.

As EPSDIV moves forward in 2005-2006, we will be focusing on our core capabilities, which are education, training, growth and recognition. We will strive to strengthen our reach to the communities through TOPCON 2006 and through strong participation at SPE ANTEC. Furthermore our membership also has a plan in place to maintain our growth rate.

—Hoang Pham, Chairperson

Division rebates will be reinstated



Don Witenhafer

Editor's Note: Don was not able to be at the meeting because of a death in the family. This report is from Brian Grady, who was at all of the meetings because of his status as Councilor for the Oklahoma City Section.

— Submitted by Dr. Brian Grady for Don Witenhafer (Councilor)

There were some very important happenings at Council this meeting. The most important news is that SPE has now reversed its decline in membership, and is seeing growth, tentatively at least, of around 3% for the second consecutive year.

This increase by no means offsets the approximate 33% loss in membership from 1999-2003; but still it is very encouraging to see what is happening. Consistent with our much more sound financial footing, section and division rebates are coming back. For the first year, i.e. July 2005-June 2006, rebates will be paid under the old formulas.

At Council, we voted, after some debate, for a new rebate structure. Previously, the total amount given in rebates was a fixed percentage of dues paid; now the total rebate amount will be determined every year at Council. The reasoning behind this change is that SPE now has budgetary control of this extremely large budget item; i.e. if hard times come, we can reduce rebates, rather than eliminating them altogether. Alternatively, rebates can be increased if the Council decides it.

A small, but potentially very important policy, is that the total Rebate amount is set simply by a majority of voting Councilors. Finally, we voted to pay our rebates in quarterly installments, rather than once a year. There are five things required to receive rebates, I have not listed them here, but none of them are very complicated.

The other topic that seemed to have the most discussion, although no consensus or action was reached, is the future of ANTEC. Historically, ANTEC has been a large moneymaker for SPE; but last year in Chicago SPE lost \$70,000, primarily because the conference size has decreased in line with SPE membership. ANTEC Boston made a significant amount of money, much more than we lost last year (I know this because I am on an ANTEC subcommittee, this informa-

tion was not available at the time of the Council meeting).

As noted before in this column by Don Witenhafer, there is a move by some in SPE to make ANTEC more industrially oriented. As a division, we want to make sure that nothing happens to make academic members feel unwelcome, for academic members are an integral part of EPSDIV. For now, nothing concrete has happened, but we will continue to watch this closely.

Two other small notes. The Sections did not vote on whether or not to adopt the new Pinnacle award requirements; that is still being discussed in committee. Finally, a new Division has been created, the Flexible Packaging Division, for a total of 24 divisions.

Who Do You Know?

Nominations are open for SPE's Annual Awards honoring outstanding contributions in the field of plastics: International Award, Business Management, Engineering/Technology, Benefit to Society (Hyatt Award), Education, Research, Plastics Product Design/Consumer, and Plastics Product Design/Industrial.

See the SPE website for information and application forms. Deadline for submissions is November 15, 2005.

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Bagrodia receives Fred O. Conley Award

Research in the process-structure-property relationships of polyamide-based nanocomposites resulted in enhanced oxygen barrier materials suitable for packaging oxygen sensitive food products. This technology impacts the packaging of beer, juice and other foods.

Dr. Bagrodia has several patents in the polymer blends area utilizing engineering thermoplastic polymers, which are suitable for engineering applications requiring high temperature stability. He has also published extensively in the field of structure-property relationships in polyisobutyl-

ene based telechelic ionomers, demonstrating that extensive strain-induced crystallization could be induced in an otherwise amorphous polyisobutylene matrix.

As the winner, Dr. Bagrodia receives a \$2,500 honorarium and an award.

Dr. Bagrodia received his B.Tech in Chemical Engineering from the Indian Institute of Technology, his M.S. in Chemical Engineering from Princeton University, and his Ph.D. in Chemical Engineering from Virginia Polytechnic Institute and State University. He is a Fellow of SPE.

EPSDIV Hotline —

Have a question about polymers or EPSDIV?

Call the EPSDIV Hotline 979-238-5920

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TOPCON

cally-active materials, another on the current patterning and processing challenges associated with organic and polymer displays, the remaining two sessions are on organic- and polymer- light emitting diodes.

Tentative invited speakers include Prof. Mary Galvin (University of Delaware), Prof. Tom Jackson (Pennsylvania State University), Dr. Julie Brown (Universal Displays Corporation), and Dr. Henning Sirringhaus (Cambridge Display Technologies). Fourteen slots are allotted for contributed talks.

A poster session will be held during the evening of the first day to foster interactions amongst attendees.

Best Student Paper Award

Each year at ANTEC, EPSDIV presents the John O'Toole Best Student Paper Award. Matthew Jackson of Pennsylvania State University at Erie, PA. received the award this year for the paper *Clay Nanocomposites Incorporated into Biodegradable polymers*. He received a plaque and a check for \$1000. The abstract follows.

ABSTRACT

Nanocomposites based on biodegradable polycaprolactone (PCL) and mica clay organically modified with L-arginine were prepared through solvent blending. Their properties were analyzed with TGA, DSC, and tensile testing.

The addition of the organically modified clay caused an increase in properties, but at large incorporation, properties began to decrease. Samples of 3%, 5% and 10% organically modified clay were compared to pure PCL.



Seen at right, Past chair Dr. Shriram Bogradia receives a plaque for his commitment to EPSDIV. He is congratulated by Dr. Hoang Pnam, Chair 2005-2006.

EPSDIV hosted and co-hosted 18 ? technical sessions at ANTEC 2005 with our members contributing over 900 technical papers.

Make a presentation at ANTEC 2006

—submitted by Brian Grady

ANTEC 2005 in Boston was a great success for ANTEC. There were a total of 18 sessions put on by EPSDIV either by itself or in combination with another division. Many thanks to all of those that contributed to a successful program.

Submission deadlines for ANTEC 2006 are rapidly approaching. The conference will be held May 7-11 in Charlotte N.C.

Tentatively, sessions in the following areas are planned:

- Polymer Nanocomposites,
- Modeling of Polymer Properties,
- Polymer Morphology and Properties,
- Polymer Surface Treatment and Properties,
- Fibers and Films,
- New Trends in Engineering Plastics,
- Characterization of Fibers and Films (joint with Polymer Analysis Division),

- Structures and Properties of Medical Plastics (joint with Medical Plastics).

Proposal to Present submissions are due October 15, while papers are due December 4. All submissions are now on-line at: www.4spe.org/conf/antec06/submissions.php.

For those of you who have not done an ANTEC presentation, I encourage you to do so.

The Proposal to Present is simply a short abstract, while the paper is a couple of page paper. The latter is peer-reviewed; you will be informed of any necessary changes that might need to be made. Other guidelines are on the website.

Please don't hesitate to contact me atbgrady@ou.edu if you have any questions.

The submissions site is now on-line at: www.4spe.org/conf/antec06/submissions.



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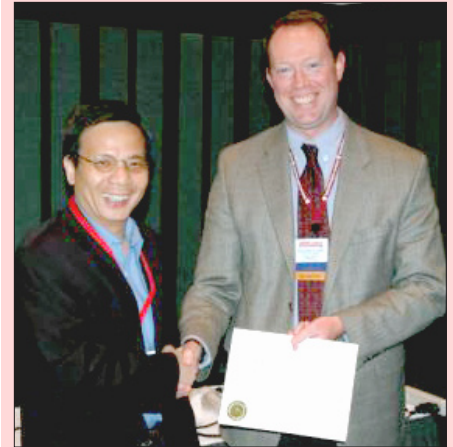
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ANTEC 2005 held May in Boston was a success. More than 2,650 individuals attended the event. Exhibition sales topped those of ANTEC 2004. Many sessions were particularly well attended, including those hosted by Engineering Properties & Structure Divisions as seen in the above photo.

Moving on.... members recognized



Saying goodbye: Richard Clarke, right, was recognized for his long-time association with EPSDIV. Chairperson Hoan Pham is seen at left.



Eric Mosala was also recognized for his contribution to the Engineering Properties and Structure Division.

We are pleased to reprint below an abstract of the presentation of Dr. Eric Baer, who was one of our invited keynote speakers.

Tunable Reflective Polymeric Nanolayered Films

Huiwnen Tai, Anne Hiltner, Eric Bae, Center for Applied Polymer Research (CAPRI) and Department of Macromolecular Science and Engineering Case Western Reserve University, Cleveland OH, and Michael Wiggins, Marie Sandrock, James Shirk, Optical Division United States Naval Research Laboratory Washington D.C.

ABSTRACT

An optical elastomeric system having a nanoscale layered structure was fabricated using a novel contin-

uous coextrusion processing technology. This system was composed of hundreds of alternating layers of two elastomers with different refractive indices. When the layer thickness was on the order of quarter wavelength of visible light, these novel films exhibited reflectivity due to the periodic variation in refractive index (1-D photonic crystal). Nanolayer structure, reflectivity, and its tunability of these films were studied. Results indicated that the wavelength of reflection is tunable and reversible with applied strain. An analytical model was developed that agreed with the experimental data. Potential applications include tunable optical filters and optical strain gauges.



Dr. Eric Baer was a keynote speaker at ANTEC 2005.

SpaceShipOne builder to address ANTEC 2006

Kevin Mikey, Vice President of Program Management for Scaled Composites, the company that built the record-breaking SpaceShipOne space craft, will be a plenary speaker at ANTEC 2006.

SpaceShipOne was the first privately-manned spacecraft to exceed an altitude of 328,000 feet twice within 14 days thus claiming the ten million dollar Ansari X-prize. For more information see www.anteconline.com.

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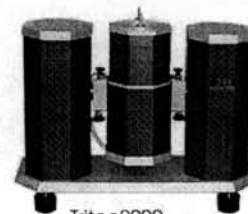
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