

# TPM&F

## Thermoplastic Materials & Foams Division

A divisional newsletter of the Society of Plastics Engineers



Volume 2

2011

February Issue

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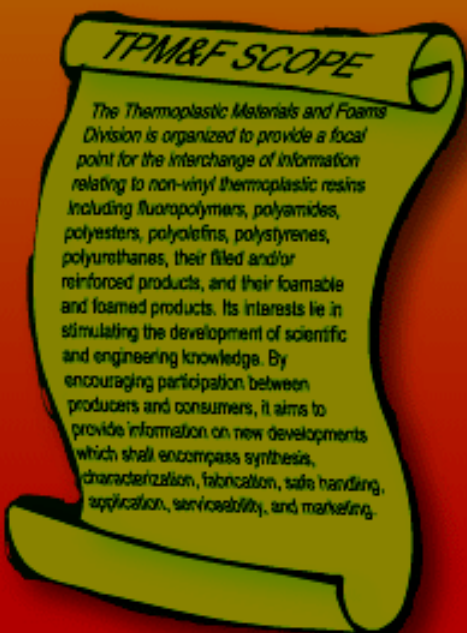
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### CHAIRMAN'S MESSAGE

Happy New Year!



Another year has passed and the Thermoplastic Materials & Foams Division has been hard at work. The next big event for TPM&F is the 2011 International Polyolefins Conference and FlexPackCon being held from Sunday, February 27 to Wednesday, March 2, 2011 at the Hilton North Hotel in Houston, Texas, USA.

Several sessions of technical talks has been pulled together by the many co-sponsors of this event; Andy Chatterjee and Donna Davis have compiled an excellent program for two sessions titled *"Polyolefins in Non-Woven Fiber Applications"* and *"Processing and Applications of Polyolefins"*. Please visit the SPE website to view the conference program and schedule.

The next TPM&F Board of Directors meeting will be held at the Polyolefins TopCon on Monday, February 28, 2011 from 7:30 to 10:00 PM CST. The meeting is open to all interested members and may be attended in person or by phone. For phone call-in information, please e-mail Kelvin Okamoto at [kto4spe@mac.com](mailto:kto4spe@mac.com). I am also please to say that for the first time in a long time, interest in working with the division and the Board of Directors is high; presently, more individuals have expressed interest in the Board than open seats are available. If you are interested in serving on the Board but have not expressed it, please e-mail Ray Shute at [rshute@cortechfoams.com](mailto:rshute@cortechfoams.com). Ray will keep a list of all interested parties and have you placed on the ballot for the Board of Director's election that will be held in April this year.

The FOAMS® 2010 TopCon in Seattle was a smashing success. Thank you to all the TPM&F members and Pacific Northwest Section members for the diligent effort to pull this off. There were 120 attendees of the conference itself, with another 30 attendees of the FOAMS® Tutorial held prior to the conference. N.S. Ramesh, Hani Naguib and Chul Park did an exceptional job teaching once again. The conference had a net of over \$32,000 that will be split between the Pacific Northwest section, TPM&F and SPE headquarters. The \$11,000+ for TPM&F will go to educational programs for members and to student activities including scholarships.

With some of the revenue from the TopCons, TPM&F is bringing a new educational opportunity to its members through webinar series operated by SPE. A three-part series on

# BOARD OF DIRECTORS

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## Camilo Cano (2013)

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foam was held prior to the FOAMS® TopCon and was attended by 33 members for all three sessions with additional members attending individual sessions. A four-part series on polyolefins is just starting as this newsletter is being issued; this series leads into the PO TopCon mentioned above.

Lastly, TPM&F now has a LinkedIn subgroup to the SPE group. Please join the group if you have not done so to participate in and start discussions of interest to TPM&F members.

Sincerely,

*Kelvin T. Okamoto*

Kelvin T Okamoto

*Chairman, Thermoplastics Materials & Foams Division, SPE*

## NEXT BOARD MEETING:

FEBRUARY 28, 2011

The meeting will be held on Monday February 28, 2011 at 8:30 - 11:00 PM EST/7:30 - 10:00 PM CST and will be held after the PO TopCon Reception at Hilton North Hotel, Houston, TX.



All members are invited to attend.

For those attending the Board Meeting please R.S.V.P. to [Kto4SPE@mac.com](mailto:Kto4SPE@mac.com)

## MEET YOUR BOARD MEMBERS

### KELVIN T. OKAMOTO



Kelvin T. Okamoto is the present Chair for the Thermoplastic Materials & Foams Division and he has been on the Board of Directors for twelve years. Board positions that Kelvin has had include Newsletter Editor, Technical Program Chairperson and Foams TopCon Chairperson and Vice-Chairperson; he has been active in SPE for 23 years.

Kelvin is presently Senior Vice President of Research & Development for Cereplast.

Kelvin has previously worked for Solo Cup, TaylorMade Golf, Trexel, Pactiv, Himont and GE Plastics with technical expertise in bioplastics, foams, polyolefins and engineering thermoplastics. Kelvin has a BS in Chemistry from Stanford University and a PhD from Cornell University and is also a Registered Patent Agent.

### PARIMAL (PERRY) VADHAR



Perry Vadhar joined Sealed Air Corporation in Duncan, SC, in January 1995. Currently, he is a Project Leader in Technology & Innovation -- Global Materials Platform Group. He has also worked as a Senior Research Engineer at ITW Technology Centre in Glenview, IL, from 1985 to 1994.

He has 24+ years of experience in product and process development of consumer, medical and industrial packaging. His work includes research projects from concept

through commercialization. Major areas of expertise include polymer formulation, polymer processing, orientation, printing and laminating of plastic films. He has also supported development projects for various Sealed Air locations in Asia. In addition, Perry is an inventor or co-inventor of ten US granted patents.

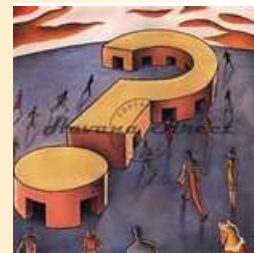
He received his M.S. in Polymer Engineering from the University of Akron and his B.S. in Chemical Engineering from the City University of New York and a B.S. in Chemistry from Sardar Patel University in India. Perry currently serves on the TPM&F Division as an Education Chair. Elected as Chairman for the Division, he will assume this new role beginning June 2011.

Perry's past SPE contributions include Best Paper Chairman for the TPM&F Division, Program Chairman for FOAMS® (2005), Polymer Modifiers and Additives RETEC® (1992) and Recycling RETEC® (1989). He also served as Technical Program Chairman for the local Chicago Section of SPE from 1991 to 1994.

## EDUCATION CHAIR REPORT - FIVE PART WEBINAR

### NEW WEBINAR SERIES ON POLYOLEFINS

By: Perry Vadhar  
Education Chair



The TPM&F Division plans to co-host another webinar series starting in Jan. 2011. This new five-part webinar series will cover the major types of Polyolefins. The speakers will cover from fundamentals to new applications of various types of Polyolefins. The webinar series is planned prior to the Polyolefins 2011 Conference in Houston, TX. Hence, the participants can achieve maximum benefit from the webinar series prior to attending this conference.

Thanks to Donna Davis for identifying dynamic and well known speakers from the major Polyolefin resin and film producers. On behalf of the TPM&F Division, I would like to extend our gratitude to the speakers who have volunteered their time for educating their fellow members. I also want to thank Michael Reedy, Theresa Healy, and Elizabeth Reagan for their contributions in planning out the series. The list of topics and dates for the webinar series is shown below.

Part 1, January 18, 2011

#### INTRODUCTION TO THE DIVERSE WORLD OF POLYETHYLENES

Dr. Andrew Peacock, Development Associate, Tredegar Film Products.

Part 2, January 25, 2011

#### ETHYLENE-BASED PLASTOMERS AND ELASTOMERS

Dr. Rajen Patel, Associate Fellow, Dow Chemical Co.

Part 3, February 1, 2011

#### INTRODUCTION TO POLYPROPYLENE

Dr. Gabriele Mei, Director of R&D Manufacturing Platforms at Lyondell/Basell.

Part 4, February 8, 2011

#### PROPYLENE-BASED ELASTOMERS

Dr. Sudhin Datta, Senior Research Associate, Exxon/Mobil

Part 5, February 15, 2011,

#### EPDM - PAST, PRESENT, AND FUTURE.

Dr. P.S. Ravishankar, Senior Staff Engineer, Exxon/Mobil

Registration fees for SPE members is \$297 and for non-members is \$450. Please note that you can have multiple persons join at your work in the webinar series; however, only one person will be able to login to the website.



For more information and registration, please use the following hyperlink:

<http://www.4spe.org/events/webinars/polyolefins-5-part-webinar-series>



## BEST PAPER FOAMS®2010

### Long Term Performance of Insulating Foams

by Stephane Costeuz, Chau V. Vo and Lawrence S. Hood

*The paper's conclusions are below.*

The use of a polystyrene copolymer to replace polystyrene homopolymer for XPS insulation boards was key to maintain or exceed the foam performance of Dow STYROFOAM™ products after the North American mandated change of blowing agent away from HCFCs.

HFC-134a is the most attractive among commercially available foaming agents; however, its solubility in PS is insufficient to achieve low density and thermal performance. High HFC-134a levels in PS lead to high open cell content. Addition of HFC-152a or HFC-32 as co-blowing agents does not provide the adequate longterm R-value performance due to rapid diffusion out of the foam. Thus the combination of HFC-134a and CO<sub>2</sub> offers advantageous long-term thermal insulation performance.

The most significant change is the conversion from PS homopolymer to a copolymer (PS-co-AN), which enabled higher HFC-134a concentration, but also high H<sub>2</sub>O concentration. As a result, formulations based on PS-co-AN/HFC-134a/CO<sub>2</sub>/H<sub>2</sub>O offer outstanding insulation performance, and have the flexibility to address the needs of a product mix with various thickness or strength requirements.

## BEST PAPER ANTEC™2010



Dr. James Lee (left) receiving the award for Best Paper ANTEC™ from Lukas Stirnemann, Best Paper Chairman.

The best paper award for ANTEC™2010 goes to Cailian Zhang, Bin Zhu, Thomas Danil, Yong Min, L. James Lee (Ohio State University) for Extrusion Foaming of Polystyrene/Activated Carbon/Carbon Nanoparticles Using Carbon Dioxide/Water Blowing Agent .

*Submitted by Sal Monte*

## POLYOLEFINS 2011 INTERNATIONAL CONFERENCE REPORT

By: Ananda Chatterjee  
Liaison with PO Committee

For the PO 2011 Conference (*to be held in Houston during February 27 - March 2, 2011*), the TPM&F Division has organized two sessions as a partner in the PO conference.



Donna Davis has developed a session on "Polyolefins in Nonwoven Fiber Applications". The six speakers in this session will be from North Carolina State University (2 papers), Kenrich Petrochemical, Polyone, Elmarco and

Smith, Johnson and Associates. This session will be held on March 1 (Tuesday) in the morning.

Ananda Chatterjee has organized a session on "Processing and Applications of Polyolefins". The seven papers in this session will be presented by Coperion Corporation, Davis-Standard, Xaloy Inc, Enercon Industries, BBS Corporation and Texas A&M University (2 papers). This session will be held on March 1 in the afternoon.



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# TPM&F BOARD MEETING MINUTES

## SEPTEMBER 29, 2010, SEATTLE, WA

*In Attendance:* Kelvin Okamoto, Theresa Healy, Michael Reedy, Eric Teoh, Ray Shute, Charlie Pratt, Vipin Kumar, Max Wingert, Miguel Rodriguez-Perez, Camilo Cano, Xiaoxi Wang, , Lukas Stirnemann, Sal Monte, Chul Park, Natarajan S Ramesh, and Ajit J. Ranade.

*Joining by Teleconference:* Perry Vadhar, Wen Pao Wu, Ashutosh Sharma, Ananda Chatterjee, Donna Davis, and Scott Lambert

**Chair Report – Kelvin Okamoto.** Thank you to everyone making this committee a success. TPM&F has now introduced webinars to provide value to our members as well as added education. The paperwork for the pinnacle award will be due at the end of the year. Kelvin thanked Scott Lambert for the excellent newsletter.

**Minutes from last BOD Meeting.** Vote was passed to accept the minutes to be approved as published from last meeting.

**Treasurer's Report – Max Wingert.** Max will be working closely with Wen Wu on the transition of treasurer. Wen sent in his report which states that the division finance is healthy. There was a net surplus for FY2010 of \$3,590. We increased our savings from last year by about \$3,000.00. Max will assume the Division Treasurer position officially on 7/1/10.

**Education Chair Report – Perry Vadhar.** We have been working on a 3-part webinar series that started on August 5th (*Michael Reedy & Theresa Healy-part 1, Hani Naguib was part 2, and Chul Park was part 3*). We charged \$150.00 for all three webinars. Attendance was good at 35+ people signed up. We are now planning webinars for January and will continue in the Fall. Donna Davis is working on the 5-part series in mid January right before the Polyolefins as this will be the topic. Our division contributed \$25 per participant from the Education Fund. The SPE HQ reduced the fee by an additional \$25. For the webinar series, we are planning to contribute \$25 per participant. The cost of the series will be \$197 for all five presentations. We will have access to replay these webinars for our members. A question was asked if we should offer these webinar recordings as a perk for new members. We can also advertise this in our newsletter. Kelvin also mentioned that he can set up a private site to allow access if needed.

♦Motion was passed to allow the TPM&F to contribute \$25 per person for the webinars.

A suggestion was made to get some feedback on these webinars. Elizabeth Reagan may have a survey for attendees.

♦A motion was passed to provide an evaluation form for these attendees to fill out.

**FOAMS® 2010 Report – Kelvin Okamoto:** We have about 100 people pre-registered and a few walk-ins signed up so far so we should be in line with last year. We have 5 gold sponsors including a coffee-break and 5 exhibitors. The hotel accommodations have been great. Thank you to Eric Teoh and the Pacific Northwest section for all their work with this conference and for working with the hotel.

**Future FOAMS® Topcon – Kelvin Okamoto.** Next year the conference looks like it will be in NJ. It is proposed to have it in NJ every 3 years. The following year (2012) we are looking at Europe. We are also suggesting that the Chair be affiliated with the territory of the conference. An option for 2013 would be Canada.

♦A motion was amended to have the conference in NJ next year until the Palisades Section is prepared. Ray suggested a questionnaire be posted on the website to see if there is support for it. A proposal was made that FOAMS® should be an international foams conference every 3 years.

♦A motion was passed that for 2012, the committee should consider Europe as a location for FOAMS®.

**TPC Report – Miguel Rodriguez.** The conference has about 16 talks (*3 plenary*). It is broken down into 60% by Academia and 40% by industry. It seems 40% is from Europe. There were 30 signed up for the Tutorial and this drove about 25 new attendees to the conference.

❖Donna Davis suggested that we could create a 2-page trifold brochure paper that summarizes the conference from last year in a pdf format.

❖Kelvin mentioned that the proceeding and papers/abstracts will be on the website and all will have access to it for 6 months. This will be free to SPE and TPM&F members. USBs are being given to the attendees.

**Councilor's Report – Ashu Sharma.** Ashu mentioned that he will be taking up a new job in technology located in Kansas. He said last week Ken Braney gave a presentation on the SPE's plan for the future and how we can retain members from 2010 to 2011. It looks like there was a membership growth of 450 from 7/09 to 7/10.

**Elections – Vipin Kumar.** Election results are in, and none of the candidates that were e-mailed were elected. Both Hani Naguib and N.S. Ramesh are encouraged to run again. Ashu Sharma did not win, but also is encouraged to run again for the Chair Counsel. Jim Griffin was elected President Elect.

**Outstanding Achievement Award – Vipin Kumar.** Walter Shrenk won last year. We need to select the candidate by the end of this year for 2011. Vipin will e-mail members the application form. The Committee consists of 5 people: Michael Reedy, Ray Shute, Max Wingert, and Hank Shirmer. We need to receive the nominations by 11/16 and we can put it in the ANTEC™ program.

**HMS Fellows Nomination Chair Report – Donna Davis.** A few candidates are chosen but Donna requested a champion for the application. N.S. Ramesh volunteered to champion this one. There was a motion passed for 4 nominations. Donna will send new applications. 10/28 is the deadline. If you want to see the HSM criteria, it is on the website.

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**PO 2011 – Andy Chatterjee.** The Polyolefins Conference will be held in February in Houston again. TPM&F will have 2-sessions/Donna will be focusing on Non-Wovens and Andy will handle the Processing & Applications of Polyolefins. If you are interested in presenting a paper, let Andy or Donna know. The Deadline to request to present a paper is 11/1, abstract due on 12/1, and written paper and Powerpoint is due on 12/15. The Polyolefin site is restructured. They are looking for papers on sustainability and bioplastics. We need to check to see if the webinar series will account for driving attendees to the conference.

**ANTEC™ 2011:**

**TPC Report – Hani Naguib.** Hani is going to try to get this report out. TPM&F will have 3-4 sessions (2-Polyolefins/2-Foams). Looking for quality over quantity.

**Student Activities – Perry Vadhar.** ANTEC™ 2011-Perry will follow up with Steve Driscoll of Lowell for TPM&F support for student travel or for other activities at ANTEC™2011. Our Division can also show support for Student Reception from the Education Fund. TPM&F has approved providing \$2000 for platinum sponsorship.

**ANTEC™ 2010-Best Paper Review-Lukas Stirnemann:** Lukas mentioned that he has a staff now to listen to and rate the best papers for the FOAMS® 2010 Conference. They had picked the best 5 papers and they are to rate those 5. Lukas will send the paper criteria out again.

**Communications Chair Report – Michael Reedy & Theresa Healy.**

TPM&F is now a sub-group of the SPE on LinkedIn. Theresa encourages all board members to join the group and take part in discussions.

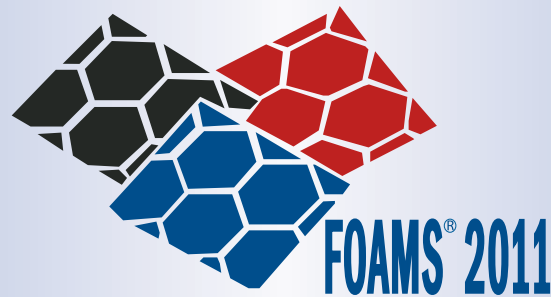
**Newsletter Report – Scott Lambert.** We need an editor for the newsletter to follow Scott for next year and train with him. Xiaoxi Wang volunteered that he would take that role on as editor.

**Membership Chair Report – Camilo Cano:** Kelvin will set up a call with Camilo to train him on this new position. Need to work with Tricia to show the tools to manage membership. Camilo will follow up with the new members on the benefits. There is also a Linked-In site called "SPE Leaders & Volunteers". This is a more focused group.

**International Activities Chair Report – Masahiro Ohshima.** If anyone has any international activities, please compile it and send it to Masahiro Ohshima.

**BOD Nominating Chair Report – Ray Shute.** We now have a full board. We currently have 23 members (4 new potential members). The elections will take place about a month after the Polyolefins before the ANTEC™. We need to take the member number to 21 members. There are 15+ chairs.

Meeting adjourned at about 8:00PM PDT.



**SEPTEMBER 14-15, 2011**

SPONSORED BY THE TPM&F DIVISION  
AND  
THE SPE PALASADES-NJ SECTION  
OF THE SOCIETY OF PLASTICS ENGINEERS

**LOCATION: RENAISSANCE HOTEL, ISELIN, NJ**

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**Sponsorship Chair:** Theresa Healy  
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**Tutorial Chair:** Chul Park  
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**Student Paper Chair:** Max Wingert  
[wingert.m@pg.com](mailto:wingert.m@pg.com), Procter & Gamble

**Best Paper Award:** Lukas Stirnemann  
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**Treasurer:** Joe Groder  
[plastiguru@aol.com](mailto:plastiguru@aol.com) Consultant

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**FOAMS® 2011 TUTORIAL  
SEPTEMBER 12-13, 2011**

# SPE INTERNATIONAL POLYOLEFINS® CONFERENCE AND FLEXPACKCON®



## CONFERENCES

**FEBRUARY 27 - MARCH 2, 2011**

**HILTON NORTH HOTEL  
HOUSTON, TEXAS USA**

When the South Texas section of the Society of Plastics Engineers, together with SPE's FlexPackCon® conference, host Polyolefins 2011 next month in Houston, new technologies will be on display from all over the world. Polyolefin developments include high isotacticity PP from China, the first process for thermoplastic nano fibers from the Czech Republic, and the first in situ dispersion of nanoparticles from the U.S.

Zhanhu Guo, assistant professor of chemical engineering, and a team from Lamar University in Beaumont, Texas, with Luyi Sun, assistant professor of chemistry, and a team from Texas State University-San Marcos will present *"Magnetic Polypropylene Nanocomposites: Rheological, Electrical, Magnetic and Thermal Properties"* for the first time. The two teams collaborated for over a year on a molecular approach to growing nanoparticles inside a polymer matrix like PP instead of melt compounding. Their initial work uses iron and iron oxide nanoparticles, but the technology reportedly applies to other nanoparticles as well. They use heat treatment to decompose metal precursors into metal nanoparticles, which are then encased in polymer, so that they cannot agglomerate. Guo and Sun say that this is the first time nano materials have been dispersed in situ. Dispersing nanoparticles by melt compounding is very difficult and nanoparticles tend to recombine when the material is melted again. Growing nanoparticles inside the polymer matrix disperses them more evenly, and they stay dispersed. The researchers also discovered changes in physical properties like 115 degrees C higher HDT along with magnetic properties. The teams are looking for industrial partners to develop commercial applications for the technology.

Stanislav Petrik, director of business development at Elmarco s.r.o. in the Czech Republic, will introduce *"Olefinic Nanofibers for Filtration and Other Applications."* Elmarco, which has a U.S. office in Morrisville, N.C., has presented its unusual *"Nanospider"* equipment previously at fiber, filtration, and new material research conferences in the U.S., but not to the plastics industry. Potential applications for nano fibers include filtration and reinforcements for compounding, extrusion and molding of composites. Reportedly the only commercial nano fiber process, Nanospider can make plastic nano fibers 0.030 to 0.500 micrometers in diameter depending upon material, compared to 0.9 micrometers for melt blown or spun micro fibers or 80 micrometers for a human hair.

The patented (U.S. Pat. # 7585437) process uses a drum like high voltage electrode (30-120 kV), partially submerged in liquid to blow nano fibers out of a thin film of liquid, rather than off a wire or capillary, so there are no nozzles, needles or spinnerets to clog or need cleaning. The technology was initially developed and commercialized to spin polymeric fibers from solution in acid, solvent or water. Elmarco has offered production lines with 5-foot-long electro-spinning electrodes since 2005 for nylon 6, PVA (polyvinylalcohol) and polyurethane and biopolymers like gelatin and cellulose. Elmarco's latest development is a lab line for melt-blown thermoplastic nano fibers like P.P. Elmarco has also designed, but not yet commercialized, commercial scale equipment for thermoplastic nano fibers. Competing methods under development to make nano fibers include *"fine hole"* melt blown and *"islets in the sea"* melt blown under water, but both reportedly make nano fibers with greater diameter variation than Elmarco's method and aren't yet available on a commercial scale.

Information on the International Polyolefins® 2011 Conference and SPE FlexPackCon® 2011 is available at <http://www.spe-stx.org/conference.php>, or by calling Lesley Kyle - +1 203-740-5452.

Conference registration is now open. <http://stores.homestead.com/SPESouthTexasSection/StoreFront.bok>





Ashutosh H. Sharma

This summary is intended to help you review the highlights of the Council Meeting held in Southbury, Connecticut, on September 25, 2010. Some highlights from the report are:

**Elections:**

Council elected the following individuals as Society officers for the 2011-2012 terms, which begins at ANTEC™ 2011:  
President-elect - James Griffing  
Senior Vice President - Jon Ratzlaff  
Vice President - Vijay Boolani

In addition to these formal offices, each year Council also elects a Chair for the Council Committee of the Whole. Dick Cameron will hold this position for the 2011-2012 year.

**Budget:**

The major Council action was the approval of the 2011 calendar-year budget. A full write-up on the budget was distributed to Councilors and to all Section and Division Board members in preparation for this meeting. The budget that was approved calls for gross income of \$3,794,000, direct expenses of \$1,865,500, and a net income of \$313,030. Council approved the budget unchanged from the original presentation.

**Committee Meetings:**

Twelve committees met prior to the Council meetings. The following Committee/Officer Reports were given at the Council meeting:

**Sections Committee Report**

Councilor Rich Bradley, Chair of the Sections Committee, reported on the activities of the Committee. Multiple Section memberships, succession of Section Presidents, best practices and an update on the European Sections were topics.

**Divisions Committee Report**

Councilor Mark Barger reported on the activities of the Divisions Committee. Succession of Division chairs and minitec outreach were topics.

**Student Activities at ANTEC™ Report**

Councilor Steve McCarthy, Chair of the Committee, gave an update on the committee's activities. The topic of who has the responsibility for the formation and dissolution of Student Chapters was discussed.

**Communications Committee Report**

Monika Verheij, Chair of the Communications Committee, gave a report on the Communications Excellence Award and updated guidelines.

**Strategic Planning Committee Report**

Lance Neward, Chair of the Strategic Planning Committee presented an update on the committee's activities. Three sub-committees have been formed: Structural Development, Financial Factors and Leadership 2020. Slides are available on the Extranet.

**Council Committee-of-the-Whole**

Dale Grove, Chair of the Committee, conducted the meeting prior to the formal Council Meeting. Items discussed at this meeting were the proposed Proxy bylaw change and the Council Fall Survey results.

The Candidates for the upcoming elections were given five minutes each to make a presentation to the committee.

Meeting Schedule and Locations for 2011/2012 and Plans for 2011-2012 Operating Plan

President-elect Russell Broome went through the meeting schedule for 2011-2012 noting that the Fall Council meeting in 2011 will be held in conjunction with EUROTEC in Barcelona. Mr. Broome's 2011-2012 operating plan is focused on continuing the three- year plan created by Past President Andersen and President Braney.

**PRESENTATIONS**

Adam Hall and Dick Cameron of the Pittsburgh Section presented a check to the SPE Foundation in the amount of \$5,000.

The next Council meeting will be a Virtual Council Meeting on February 11, 2011.

*Ashutosh H. Sharma*

TPM&F Councilor

COUNCILOR'S  
CORNER