

SPE THE SPECIALIST

September
2009

Volume 37

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Society of Plastic Engineers Upper-Midwest Section

Invite You to a Very Special Event *Getting Physical with Physical Properties*

TUESDAY OCTOBER 6, 2009 • 9:00 AM - 3:00 PM

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REGISTRATION ON PAGE 11

Ever wonder how the data on a specification sheet was created and what it means? Is there an easier way to measure a particular physical property? This is your chance to answer those questions and more by attending our MegaTech presentation on physical properties. **Pre-Registration is required.**

MEGATECH AGENDA

9:00 am	Introduction
9:15 am	First Principles of Thermal Analysis
9:45 am	First Principles of Mechanical Testing
10:15 am	First Principles of Moisture
10:30 am	First Principles of Rheology
11:00 am	Hands-On Workshops in the Lab #1 Mechanical Testing Rheology Measurement Thermal Analysis Moisture Analysis
12:00 pm	Enjoy a box lunch with your colleagues
1:00 pm	Hands-On Workshops in the Lab #2
1:30 pm	Hands-On Workshops in the Lab #3
2:00 pm	Hands-On Workshops in the Lab #4
2:30 pm	Importance of Physical Property Measurements to the Andersen  - Special Guest Mike Deaner
3:00 pm	Closing Remarks

Tours of Aspen, and a review of case studies will be available after the program for those interested.

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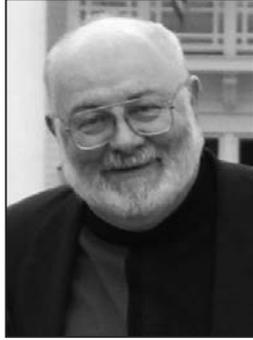
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President's Remarks

Dick Bopp

Thanks to the graciousness of Dan Mishek and the VistaTek organizers of Manufacturing in Minnesota, a one-day MinniTek Symposium on Low Volume Production, held at the North Oaks Country Club on August 18, I was given the opportunity to present an overview of the SPE along with an invitation to all assembled to join the Upper Midwest Section of the Society. (Please note Dan's MinniTek review later in this issue.) The meeting space was filled to capacity to hear invited speakers and panelists present a shared vision of a fundamental change in prototyping from making one or two mockups to manufacturing fully functional low volume production units. Moreover, they noted that "low volume" can mean up to 60,000 units produced.



Dan captured the moment in his introduction when he used the term, "excitement," to describe what was happening in his industry. Because indeed you could feel electricity in the room from start to finish. Of course, having the Honorable Gov. Tim Pawlenty on hand to give a keynote address outlining his plans for retaining small business in Minnesota didn't dampen the mood one bit. But, beyond the governor's well-received address, the spirit of the MinniTek was marked by a series of revelations on what is now possible with low volume production technology, e.g., Direct Digital Manufacturing (DDM), advances in CNC machining and VistaTek's progress with rapid tooling.

OK, but how does this all relate to the Society of Plastics Engineers? It relates because the MinniTek is an excellent example of a grass roots effort demonstrating how the SPE—year in and year out—helps keep us current with rapidly developing technology and business advances in our ever changing field. Other examples would include SPE's GPEC (Global Plastics Environmental Conference), annually held TopCons for Thermoforming, Foams, Vinyl, etc. and, of course, the Annual Technical Conference (ANTEC) and EuroTEC. Added to this list of teaching vehicles are SPE's technical journals and an impressive catalogue of seminars and webinars.

Continued on Page 9



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WELCOME TO OUR NEW MEMBERS

Dan Mishek, Membership Chairman
Email: Dan@vistatek.com • Phone: (651) 653-0400



Dan Mishek

Meet the newest members of SPE below. I am excited about the diversity of the newest batch of members. Again, we are looking for active members to help grow the local chapter. Use your membership to network, gain education, gain employment or just to hang out with people that have similar interests as you do. There are so many things that you can get involved with. I look forward to personally meeting you at an event.

Maybe at the Golf Event on September 15th – see you there!

<u>NEW MEMBER</u>	<u>AFFILIATION</u>	<u>LOCATION</u>	<u>NEW MEMBER</u>	<u>AFFILIATION</u>	<u>LOCATION</u>
Michael Wilder	—————	Minneapolis	E Ziegler	Andersen Corp.	Bayport
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Ken Khang	Boston Scientific	Minneapolis	Zachery Johnson	—————	North Branch
Carlos Lopez	U OF M	Minneapolis	Jason Lubs	General Mills	Golden Valley
Tim Wylie	—————	Hopkins	Terry Collier	—————	St. Paul
Mark Wollschlager	Greatbatch Medical	Minneapolis	Jie Song	U of M	Minneapolis
Leo Twaha	—————	Minneapolis	Kelly Edgington	Boston Scientific	Edina
Steve Garden	—————	Saint Paul	Colin Maus	Donatelle	New Brighton
James Orrock	Stratasys	Eden Prairie			
Jason McNulty	—————	Stillwater			

SPOTLIGHT ON THE BOARD

Dick Bopp, President

For this issue of *The SPEcialist* it is my pleasure to present to you, **Dr. Domasius Nwubunma**, our past section president for 2005 – 2007 and now serving on our board as Past President.

Domasius is a native of Nigeria and received an B.S. with honors in chemical engineering from the University of Lagos. He emigrated to the U.S. in 1993 to pursue a Master's degree in polymer engineering at the University of Akron. He obtained his MS degree in 1996. Following his MS degree, he obtained his Ph.D. in polymer engineering from that institution in 1999.

After serving as a post-doctoral fellow, Domasius left Akron for the Twin Cities in

2000 to accept a position as Senior Research Engineer in the Science Research and Organic Materials Research Technology Centers at 3M in St. Paul. In 2004 he was named Research Specialist in the Safety, Security and Protection Services Business Laboratory. He is currently developing a consulting business.



Domasius Nwubunma

Domasius first joined SPE as a student member while at the University of Akron and became a regular member following his Ph.D. How did he become involved with the Upper Midwest Section? In his own words:

"I credit Dave Erickson with [getting] me involved in SPE Upper Midwest

Continued on Page 9

Local Section's Steinwall, Inc. wins INTERNATIONAL INNOVATIVE DESIGN

During the National Plastics Expo (NPE) in Chicago, Steinwall was among 41 other companies worldwide to compete for the honor of being judged one of the best in the plastics' industry. Steinwall won for their contribution to the John Deere Seed Tube project.

The part looks surprisingly simple; yet a simple part design sometimes involves creativity and a complex mold design. The project objective was to design a one-piece molded tube given existing exterior part geometry; the current design was a clam-shell tube. The tube is used for dispensing seed into the ground and the clam-shell parting lines caused seeds to bounce resulting in variability in ground placement.

The design was achieved in three steps; first, design the curved core, then design the cooling, and finally determine the sequencing of the mold. And, this design needed to accommodate high annual volumes requiring the process to be extremely robust and repeatable.

Step One: The core needed to be both straight and curved; therefore, a double-acting slide was necessary to allow for the straight portion of the core to eject first and then a swing arm was required to allow the core to clear the cavity steel when ejecting.

Shutting off the swing-arm core also presented unique design challenges. Since the core moves on an arc, the shut off point involved dynamic analysis to guarantee proper alignment. Without proper alignment, core damage could result increasing flash at the end of the tube. This flash was undesirable as it would also cause the seed to bounce.

Step Two: Cooling the curved-core that was moving on a double-acting hydraulic slide with a swing-arm was extremely challenging! The challenge was machining ¼ inch water lines into an 18 inch curved core while maintaining steel strength. After several false attempts, the solution was to machine the water lines first in flat stock and then machine the curve.

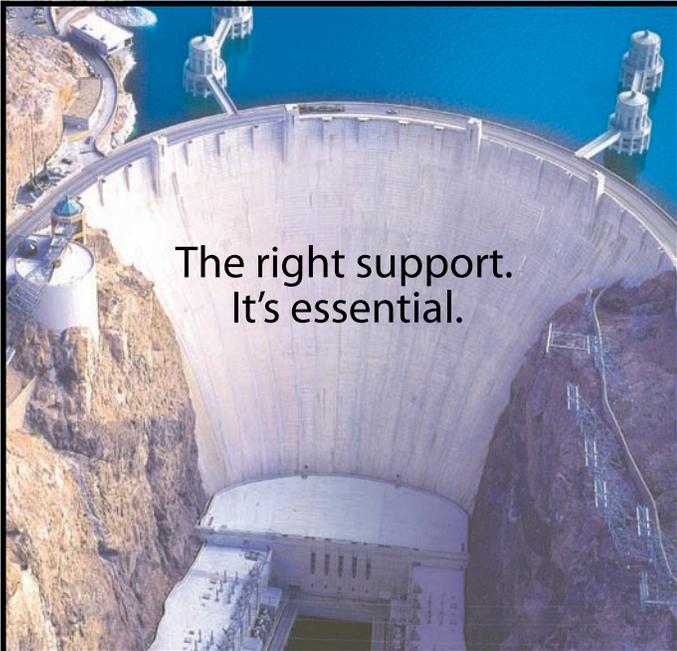
Step Three: Final sequencing of the tool operation is very involved and took this form:

Mold Open	Mold Close
Lock Pin open	Ejection retract
Hydraulic slide out	Mold close
Hydraulic swing-arm open	Hydraulic swing-arm close
Mold open	Hydraulic slide in
Ejection Forward	Lock Pin closed

The timing of the sequencing above is crucial to producing acceptable parts. Several proximity switches were installed to increase the robustness of the operation.

The article was provided by Steinwall, Inc and for more information, you can go to www.steinwall.com/awards.html

Visit The Upper Midwest Section of SPE's Website
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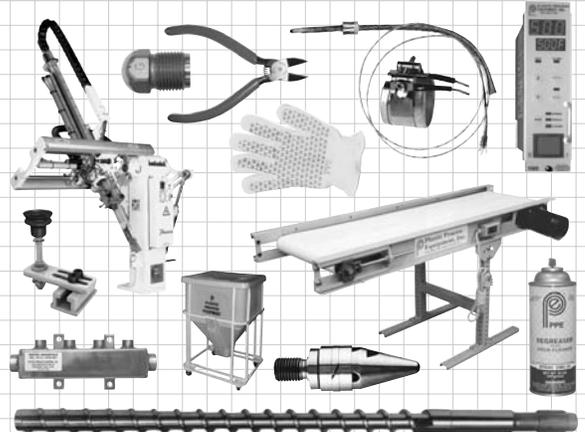


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Upper Midwest Section (S22) Membership

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- FREE membership to your local SPE Section; FREE Division affiliation
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- Professional contacts

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Please contact

Shilpa Manjure, Education Chair – Upper Midwest Section SPE to learn more about the benefits of being a member of SPE and a few easy-steps to form a student chapter:

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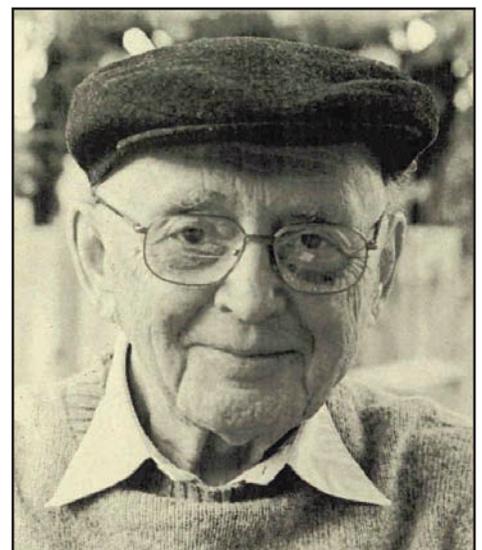
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SPE Past President
Jerome L. Formo

The Society of Plastics Engineers notes with sorrow the passing of Jerome L. Formo of Roseville, Minnesota. Jerry died on April 9, 2009, at the age of 93. He was President of SPE in 1956, and he was the first President of the Upper Midwest Section, which was founded in 1947.



Presidents Remarks, continued from Page 3

Beyond all these educational opportunities, there are equally valuable opportunities for our individual career development at SPE conferences. Specifically, we can present technical papers or posters about our work. We can also develop and, more importantly, demonstrate our leadership skills by participating in the organizing body of a conference, e.g., SPE Division, Section or SIG. Finally, we have the opportunity to develop our professional network through person-to-person interactions with fellow SPE members.

All of this reminds me of some sage advice given to me by a senior scientist very early in my career. He advised that I pay close attention to my “Absolute Career.” I asked what he meant by “Absolute.” He responded by saying that much of what we accomplish in industry can never make it to our résumé due to the legitimate proprietary needs of our employer. In those instances our accomplishments are only known—and therefore “related”—to the “company.” So, as a young professional I should take care to do whatever was necessary to show the breadth, depth and quality of my work beyond the confines of the “company.” Of course, patents and refereed technical journal articles are two great examples. But, often times bureaucratic and technical requirements make them difficult to obtain on a regular basis. He went on to say that participation in professional societies like the SPE was one of the best ways he knew of developing a public record of his professional accomplishments—his Absolute Career.

I agree. ANTEC proceedings are peer reviewed and provide a written example of the quality of our work without the hassle sometimes found authoring journal articles or the proprietary restrictions of internal reports. Presentation of our work at SPE conferences also gives our peers—and potential future employers—a unique and personal look at the depth and breadth of our technical work as well as our oral and written communication skills. Lest anyone think that these opportunities apply only to engineers and scientists, keep in mind that the sales, marketing and regulatory aspects of our industry are also well represented within SPE. Over the years the accumulative effect can become significant. So, when I’m asked if the SPE has been important in my plastics career, I always answer, “Absolutely!”

SPOTLIGHT ON THE BOARD – Continued from Page 8

Section. I had gone to SPE 2005 technical conference and inquired from Trish McKnight (Upper Midwest Section Liaison Officer at the time) about how I can get involved and volunteer for my section. Soon after the conference, Dave contacted me. With his support, I was elected [to] the board and delighted to serve as your president for two years...”

Domasius is a prolific author, having published 11 technical papers and two book chapters. He has also edited two books, Polyolefin Blends and Polyolefin Composites. Moreover, his publications have already been cited by other authors over 150 times...an excellent example of building an Absolute Career! (See the President’s Remarks column in this issue.) In addition to his membership in SPE, Domasius is a member of the American Chemical Society (ACS) and Polymer Processing Society (PPS).

When asked about how he became interested in polymer science and engineering, Domasius replied, “I credit my interest in plastics to my two mentors: my high school chemistry teacher Mr. Arora (an Indian) and my chemical engineering teacher Dr. Olakoje Olabisi (a Nigerian)... I love plastics field so much that I can’t imagine being in any other field.”

Minni Tek - August 18, 2009

Local SPE and the Governor Help Support Manufacturing in Minnesota

The SPE - Upper Midwest Section helped sponsor Minni Tek on August 18, 2009. SPE realizes small businesses and the local manufacturing sector are vital elements to keeping local economies strong, and last week, Minnesota Governor Tim Pawlenty reinforced that message during his keynote address to a crowd of nearly 170 people attending Minni Tek, a half-day, invitation-only event organized by Vista Technologies. The educational event introduced attendees to the new methods and technologies used to manufacture low volume production parts including additive fabrication, milling and aluminum tooling.



During his speech, Gov. Pawlenty noted that the public perception of manufacturing is 20 to 30 years out of date, and praised Minnesota manufacturers for adopting niche and value-added systems to counteract decline in the sector. He also commented on the prevalence of Minnesota growth due largely in part to in-state entrepreneurs who build their businesses locally.

The Governor had a tough act to follow, because Chapter President Richard Bopp had the podium before Governor Pawlenty to discuss the local SPE chapter and all the positives there are to joining. He highlighted the Online Technical Library, technical conferences, opportunities to network and for career development and the Golf Event on September 15, 2009. There were no member applications leftover on the Sponsor Table so we are looking for a great upswing in membership!

Dan Mishek, co-owner of VistaTek and on the SPE Board (Membership Committee), and his grandfather, Ken Wilson, founder of Wilson Tool, introduced the Governor together.



The event was held at North Oaks Golf Club in North Oaks, Minn. Attendees included engineers and purchasers from companies including Medtronic, Lockheed Martin, St. Jude, Toro, 3M and Boston Scientific.

About Minni Tek

Minni Tek strives to increase the awareness of the growing niche of low volume production and its struggles. The intention of this platform is to educate companies of new technologies and the successes that follow. For more information on MinniTek or to download the presentations, please visit www.lowvolumeproduction.com.

The session concluded with an expert panel discussion on the trends of low volume production and the implications these trends have on the Minnesota economy.

Other participating experts at the event included:

- Dr. Art Erdman**, University of Minnesota, event moderator
- Gloria McDonnell**, HLB Tautges Redpath, LTD., presenting on manufacturing and regulations
- Jeff Hanson**, RedEye, presenting on Direct Digital Manufacturing
- Dave Reasor**, Product Development Solutions, Inc., presenting on CNC Machining
- Dan Mishek**, VistaTek, presenting on Rapid Tooling and Injection Molding
- Expert panelists **David Sparks** - Andersen Corporation
- Michael Thorsfeldt** - Clearfield
- Paul Hennen** - Donaldson
- Bill Buenz**, Graco
- Kimberly Stenerson**, Medtronic





Society of Plastic Engineers Upper-Midwest Section
Getting Physical with Physical Properties

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Before September 22nd

\$99.00 per SPE member _____

\$129.00 per Non-member _____

\$60.00 per Student (ID Required) _____

After September 22nd:

\$129.00 per SPE member _____

\$149.00 per Non-member _____

PAYMENT – Visa Master Card American Express Check

CARD #: _____ EXPIRATION DATE: _____

NAME ON CARD: _____ CODE on BACK _____

For payments with a check, the postmark date on the envelope will be used to determine eligibility for the first 100 seats (not the FAXed registration form). Make checks payable to "SPE - Upper Midwest Section" and mail to:

**Sean Mertes
19095 Wells Lane
Jordan, MN 55352**

For questions and further information please contact:

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www.4spe.org

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CALENDAR OF EVENTS

September 10, 2009

NETWORKING HAPPY HOUR -

Alaska Eatery & Glacier Bar, St. Louis Park, MN

September 15, 2009

Upper Midwest Section Golf Outing

Oak Marsh Golf Course in Oakdale

October 6, 2009

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