SPE SOUTHERN CALIFORNIA

The SPE Press

www.socalspe.org March 2017

The Southern California Section of the Society of Plastics Engineers
Local information on resources and education available to plastics professionals

"WONDERS OF PLASTICS" AWARDS NIGHT AND PLASTICS EDUCATION EVENT

Date: Tuesday March 14, 2017

NHRA Museum
1101 McKinley Ave.,
Pomona, CA
(909) 622-2133

Check in at 5:30 PM

Museum Walkthrough, Dinner, Speaker and Awards 6:00 -8:00 PM.

Register Now!

Join us in celebrating High School Scholars who represent the future of our nation. These students have participated in the SPE sponsored "Wonders of Plastics" Essay Contest and also join us in visiting the National Hot Rod Association Museum. The event will consist of time to walk around the museum, dinner (tailored to students), a speaker on Careers in Science, Engineering, Plastics and Manufacturing and Awards.

NHRA Motorsports Museum

The Wally Parks NHRA Motorsports Museum, presented by the Automobile Club of Southern California, long a dream of NHRA founder Wally Parks, opened to the public April 4, 1998, after years of planning and months of hard work cataloging and arranging the exhibit. Housed in a 28,500-square-foot building on the edge of the historic Los Angeles County Fairplex, the Wally Parks NHRA Motorsports Museum's mission is to celebrate the impact of motorsports on our culture. We collect, preserve, exhibit and interpret the vehicles, stories, and artifacts that represent our affection for, and the influence of, automotive speed and style in all its forms. We are the place to view and learn about hot rods, customs, racecars and speed records, and the West Coast's role as the historic center for their past and present development.

The Museum features an impressive array of vintage and historical racing vehicles –- nearly 50 at the Grand Opening, and significantly grown to date-- along with photographs, trophies, helmets and driving uniforms, artifacts, paintings, and other memorabilia chronicling more than 60 years of American motorsports. A newly renovated gift shop offers a wide variety of souvenir items, books and apparel.

The Museum's "Chrisman, Brinker Gallery of Speed" officially opened to guests in mid-2014 show-casing the expression of true American Hot Rodding with life sculptures and interactive displays.

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NHRA Motorsports Education - Passion and Drive Fueled by Education

The Wally Parks NHRA Motorsports Museum provides an exciting educational experience for all visitors that step foot into the Museum. Through our exhibits, interactive displays, seminars and events, the museum is able to provide an understanding of the automobile, particularly motorsports, and how it has evolved in American culture. We offer unique guided tours and lesson plans for various age groups. Please contact the Museum at (909) 622-2575 or email, themuseum@nhra.com.

Speaker:
"My Path to a Career in Science, Engineering and Plastics"
Clinton Stark

Clinton Stark graduated from Cal Poly Pomona University in June of 2016. His path included majoring in Engineering as well as Internships in Industry by which he was able to fund his own way through college. Upon graduation with a Manufacturing Engineering degree he obtained a full time position with industry leader Prestige Mold where he currently works.

Mr. Stark will provide a realistic assessment of what it takes for a student to succeed in engineering, largely perseverance, hard work and a decent ability in math (B grades at high school level). In addition, he will describe his internships by which he paid for school and what his activities are in his career as a plastics engineer.

January Dinner Meeting

Advances in Silicone Technology for Medical Applications

Our monthly dinner meeting was held once again at the Jagerhaus in Anaheim on the 19th of January and we couldn't have been happier with the turnout. Individuals from all over Southern California in the plastics industry were in attendance to hear Pradnya Parulekar from NuSil speak. Pradnya is very well versed in all things plastics and silicone, as was proof by her educational and informative presentation. Pradnya touched on array of different aspects of silicone, ranging from the highest levels of purity one can expect to the quality systems control such markets as medical and aerospace. SPE would like to greatly thank Pradnya and the NuSil team for putting together a remarkable presentation and making another dinner meeting a smashing success.

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PRESIDENT'S MESSAGE

I can't believe we've almost gone through the first quarter of this year. The business outlook is looking up with the Dow Jones is trading over 20,400 points and the rest of the year is looking optimistic.

Our SoCal section is hard at work implementing many of the goals we set out last year at our planning session. There are several exciting upcoming events in the next several months: we will host the Education Night on March 14th at the NHRA museum to recognize the winners of the "Wonder of Plastics" essay contest and the Tech Dinner at Jagerhaus Restaurant on April 20th with a topic on 3D Printing. This year we have the ANTEC 2017 to be held at the Hilton Anaheim on May 8th, 9th, 10th. As you know, this is the largest and most respected technical conference in the plastics industry, so we invite you to attend this conference.

Attendance at our dinner meetings is continuing to hold strong and we are always looking at ways to increase participation through thoughtful and dynamic dinner presentations. If you have ideas or suggestions for upcoming presentations please contact us. We want to make sure we are providing programs that are of interest to our members.

There are two other big events that our Section held annually and they are approaching. The Golf Outing is on June 22nd at the Sierra LaVern Country Club and the Western Plastic Trade Fair on August 17th at the Phoenix Club in Anaheim. Planning for these two big events is currently underway. Stay tuned for more details to come.

We look forward to seeing you at one of our many upcoming events.

Tuan Dao
President, SoCal SPE
(714) 692-9492

Why Join SPE?

Whether you're a plastics scientist or engineer, a business owner, marketing/sales expert, or any other professional in plastics, SPE membership can help you advance your knowledge and your career. The information you need to increase efficiency and productivity, develop your career, and add to your company's bottom line is literally right at your fingertips.

The Society of Plastics Engineers is home to nearly 20,000 plastics professionals in more than 70 countries around the world. SPE is the "go to" resource for plastics technical information.

Each Month, we will explore one of the six key benefits of becoming SPE.

- Plastics InSight – A customized to your need Weekly Newsletter
- SPE Material database – Access "Tons" of material in the world of Plastics
- Registration Discounts – on over 4o conferences and local meetings and events
- Plastics Engineering Magazine – Free subscription to leading
- SPE Online Technical Library -
- ***Education Cost Assistance through SPE Foundation***
- The Chain – Where Plastics Professionals connect and get answers

Last month, we explored key benefit of being a member – a free subscription to Plastics Engineering magazine.

This month we will talk about another key benefit of being a member – Education Cost Assistance through SPE Foundation.

The SPE Foundation funds programs and projects that support the education of plastics and polymers worldwide.

Scholarships

The SPE Foundation offers numerous scholarships to students who have demonstrated or expressed an interest in the plastics industry. They must be majoring in or taking courses that would be beneficial to a career in the plastics industry. This would include, but is not limited to, plastics engineering, polymer science, chemistry, physics, chemical engineering, mechanical engineering, and industrial engineering. All applicants must be in good standing with their colleges. Financial need is considered for most scholarships.

More Information

Grants

Through educational grants programs, the SPE Foundation strives to provide students of all ages with the means to explore the science and technology of plastics and polymers, and for programs/projects at educational institutions that will benefit the members of the Society of Plastics Engineers, the plastics industry, and/or the general public.

Check it out for yourself: http://www.plasticsengineering.org/

TECH TIPS

How Proper Gating Help Improve Molded Parts - *By Tuan Dao*

In this article we discuss the non – automatic gates. Many parts can be designed for gating with automatic runner separation. Others, however cannot. Or, for any of several reasons, the molders may choose not to separate the runner automatically. In fact, it may be very desirable to keep the parts on the runner as an aid to part separation and collection by individual cavity. Isolation of parts from a faulty cavity can thus be made easier. There are automatic means of separating parts by cavity presently on the market, but the volume of parts may not justify the extra cost of this kind of equipment.

In cases where parts are to remain on the runner for degating outside the molding machine, choice of a round, half round or some form of rectangular parting line gate should be made. This choice is usually based on the different way that a gate can affect part properties, part dimensions and ease of molding. Unfortunately, a gate is often chosen because it's easier to machine than another type of gate, even though the other gate might offer better molding performance. With modern forms of machining available, such as electro-discharge machining (EDM), this is penny-pinching in the wrong place.

FACTORS AFFECTING GATE FREEZE TIME

• Round and half round gates have a built in disadvantage, in that, if gate size must be increased to cavity filling, the gate thickness must also be increased. This results in an increase in the time required to freeze the gate which in turn may lengthen the cycle if the screw cannot be retracted before the gate is frozen. On the other hand, most rectangular gates can be enlarged for improved flow simply by widening the gate. If the gate thickness is kept the same, the freeze-off time will remain essentially the same.

• Gate thickness is not the only factor that controls gate freeze time. How fast the heat is taken from the resin located within the gate land also determines freeze time. Anything that speeds or slows this heat removal will change gate freeze time. For example, as long as resin continues to flow through the gate, bringing heat with it, the gate does not freeze. With some resins, such as acrylic resin, the slow fill may be used to keep the gate open and promote the packing of thick parts. With other resins, however – glass reinforced nylons and crystalline thermoplastics – the slow fill can seldom be used. This is because the resin in the cavity freezes quickly and if cavity pressure is not applied quickly enough, surface blemishes such as wrinkles, pits, orange peels, etc. will occur. Slightly slower fill may be helpful in these resins if venting is a problem. In some cases, the slower fill may help improve toughness.

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• Length of the gate land also has an effect on gate freeze time. If the land is short as usually recommended), the heat from the part and runner on either side of the gate may keep it open much longer than a gate of the same thickness but with a longer land length. A shorter land is desirable, because it is necessary to keep the gate open to
permit pressure to pack – out a thick part. Sometimes adding a "bulge" or enlargement of the runner just before the gate will maintain a little extra heat in the gate area and keep the gate open long enough for adequate pack – out.
• Mold temperature is another factor in controlling gate freezing time. Thus, if the cooling water temperatures or the overall cycle is changed, the screw forward time may need to be adjusted to insure that the gate is frozen before screw retraction.

SEVERAL TYPES OF GATES

Figure 1:

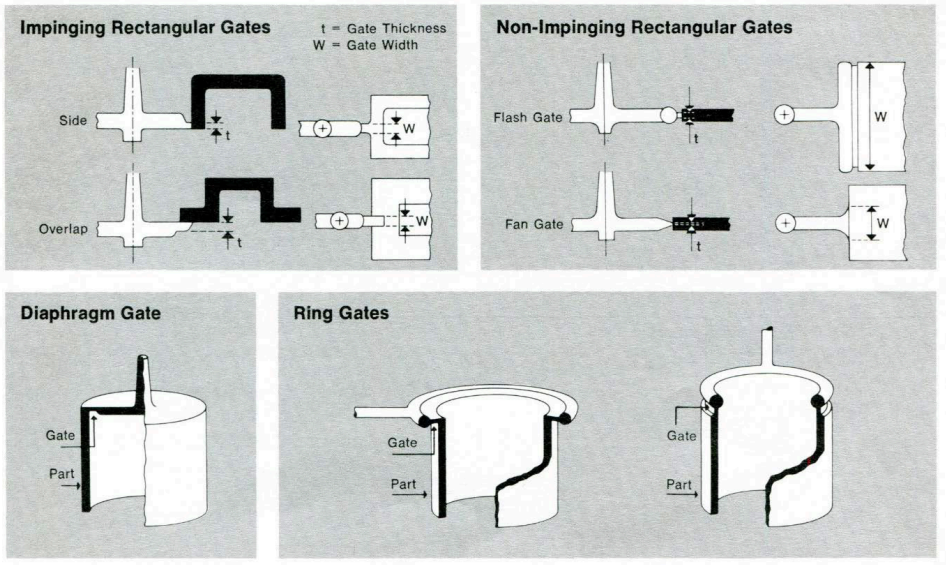

Figure 1: Various Types of Gates

As shown in Figure 1, rectangular or "slit" gates can take many forms, from simple square gates to flash and ring gates. Of these, the impinging type is preferable, since the resin flow strikes the cavity wall or a core before it can jet across the part and cause a blemish.

Some of the wide rectangular gates can be deceiving. One might think that the full width of the gate would be active during part filling. But the gate is beyond a certain thickness, flow will be higher right at the runner and less at the outer edges of the gate. This can cause a local overpacking in the part at the center of the gate.

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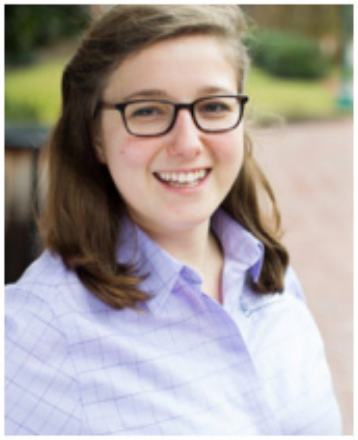
By using a thin gate in a ring gate system such as shown in Figure 1, the length of fill down the part may be nearly equal all around the tube. If the gate thickness must be increased, nonuniform fill may cause local packing in a line down the part near the runner entrance. This is likely to produce a banana – shaped part because the shrinkage is less nearest the gate where the highest pressure is.

Tuan Dao: Formerly with DuPont Polymers. He is a technical consultant with Polymer Engineering Group and currently teaching Plastics Engineering at the University of California-San Diego, Extension.

MEMBERSHIP SPOTLIGHT

The Southern California Section of SPE is pleased to highlight Laura Hinds as our March Member of the Month! Laura has become very active within SPE's Next Generation Advisory Board. NGAB is a group of young professionals from all facets of the plastics industry with a goal to support the young professional and student members of SPE. Laura will have a crucial role in executing NGAB's Plastics Race at this upcoming ANTEC!
We are excited to see Laura becoming more involved within the society. Please read more about Laura below.



Q: Where are you from?
A: Knoxville, TN. I moved to SoCal in 2015.
Q: What college did you attend? What was your major?
A: University of Tennessee/ Materials Science & Eng.
Q: What company do you work for? What is your position?
A: Techmer PM / Technical Service Engineer
Q: Why did you pursue a career into Plastics?
A: I wanted to be an engineer to work on solving problems. I studied materials science because I liked chemistry and physics combined. Plastics are exciting materials to me because there are constantly new materials and process innovations.
Q: What do you find most interesting about the Plastics Industry?
A: I really enjoy understanding how things are actually made, and I am always learning something new. Since working in plastics, I walk down the grocery store or department store aisle and see things differently, in terms of where they came from!
Q: Why do you feel it is important to be a member of SPE?
A: Getting involved with SPE, especially early in my career, is a way to plug in to the local community. I am connected to opportunity and resources to further my own knowledge, so I can better do my job!

In this new section of our Newsletter, all SPE members are and their employers are welcome to post Position Wanted or Seeking Employment three times per calendar year at no cost. All Newsletter advertisers are also welcome to post advertisement six times per calendar year.

Help Wanted
New Injection Molding start up and Technical Service Representative

BORCHE NORTH AMERICA

Send your resume to: borchusa@gmail.com

Position Wanted:

M.S. Materials Science & Engineering Graduate, University of Texas.
Seeking employment which contributes to my long-term career growth involving materials like polymers and opportunity to work on challenging projects.
Have industry experience of working with the latest developments in testing and characterization methods used for analysis of materials;
Trained on the working of injection molding, compression molding, extrusion

| 404-647-3532 | 4sakri@gmail.com | www.linkedin.com/in/shambhavisakri

EDUCATION

The College of the Extended University, Cal Poly, Pomona
Product Design & Tooling for Injection Molding

Description

This combined course is designed for toolmakers, apprentices, technicians, product designers, process engineers and other plastics personnel desiring to acquire basic knowledge of product design and tooling technology. This course provides an overview of the design process for injection molded plastics parts. The emphasis is on concurrent engineering practices, which leads to elimination of barriers between various engineering groups, toolmaker and manufacturer. The student will learn about the importance of proper material selection, part design fundamentals, manufacturing (moldability) considerations, design for assembly, tooling considerations, rapid prototyping techniques and testing.

Design fundamentals discussed are applicable to parts designed for all plastics processing techniques. In the tooling portion the emphasis is on various mold components, mold design principles, cooling, venting, draft considerations, shrinkage, mold polishing, and tool surface enhancement techniques. Topics such as use of simulation software to enhance mold design, how to improve productivity, reduce down time, and lower maintenance costs by optimizing tooling design will be covered in detail.

Course content:

Sales and marketing personnel, engineers, product and tool designers, purchasing managers, plant managers, tool makers, molding supervisors, quality assurance personnel and anyone who wants to acquire basic knowledge of plastics in general and/or take a refresher course on the subject.

Content

Plastics materials and material selection process
Plastics material identification techniques
Concurrent engineering, plastics part design process overview
Manufacturing considerations; design for molding
Basic part design and design related product failures
Rapid tooling and prototyping
Design for assembly and review of assembly techniques
Tooling considerations
Injection molding process
Injection molds (types of mold construction)
Tooling considerations
Mold metallurgy, runners, gates, sprue bushing, sprue pullers
Tour local tool making facility
Mold design and simulation software
Venting, cooling
Draft angles, shrinkage, mold polishing, tool surface enhancement
Hot runner molds and systems

Continued on page 11...

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In addition, students will receive a variety of useful handouts showing how and where to get more detailed information on a variety of plastics related topics.

Date(s)	Saturdays, April 15 and April 22, 2017
Course Time	8:00 a.m.-5:00 p.m.
Location	Cal Poly Pomona, Bronco Student Center
Fee	$375
Special Pricing	A 10% discount is offered on all non-credit courses based on the following:
Course Status	Non-credit
Textbook	None
Syllabus	There is no syllabus available for this course
Instructor	Vishu H. Shah
Course Code	PET 130

Registration by Telephone

Registration by Internet: www.ceu.csupomona.edu

For more information call: College of the Extended University
909-869-2288 or Instructor 909-465-6699

UC San Diego

PLASTIC ENGINEERING – PART DESIGN FOR INJECTION MOLDING
(Course Code AMES-40168) Section ID 123403

University of California – San Diego, Extension.
April 15 – May 20, 2017

Expanding Skills in Plastic Part Design for Injection Molding
Plastics have increased their penetration of engineering applications that push the limits of part design, molding techniques and processing ranges. Plastic parts, often complex and large, are calling for better quality control and dimensional tolerances. Resin families and compositional variations have proliferated. Growth in the plastics industry has led to a constant influx of new people from other technologies who need to begin developing skills in the field of engineering plastics. People working in the industry need a good working knowledge of plastic part design.

Who Should Attend?
The course is primarily for designers, engineers, and technicians directly involved with making parts out of plastics. However, those in related activities ranging from management, purchasing, and quality control can benefit from the course by developing a better appreciation and understanding of the process of designing a plastic product.

Course Content

- Process of product design
- Fundamentals of plastics. Strength of materials, non linear considerations
- Materials selection in product design
- Molding and tooling considerations in part design
- General principles of part design. Short term loads, long term stress exposure
- Creep and relaxation in part design. Understanding safety factors in design.
- Dimensional analysis in part design
- Assembly techniques: design of snap-fit, press-fit, fasteners, ultrasonic, vibration welding, heat staking, adhesive bonding.
- Prototyping

Time/Dates: Saturdays, 9:00 AM-2:00 PM, April15 – May 20, 2017 (6 mtgs)
Location: UC San Diego Extension. University City Center. UCC303
Contact: http://extension.ucsd.edu/ or Tony Babaian tbabaian@ucsd.edu

Instructor: Tuan Dao, MSME. Consultant, Polymer Engineering Group, Inc. Formerly with DuPont Co., Engineering Polymers, has 30+ years experience in part design, mold design and molding techniques.

ANTEC® Anaheim 2017
Hilton Anaheim
777 Convention Way
Anaheim, California
The Plastics Technology Conference

ANTEC® 2017
the annual plastics technology conference
May 8-10, Anaheim, CA

Featuring Knowledge that Is Current, Relevant and Global.

Connect Classroom Theory with Real World Solutions

ANTEC®, produced by the Society of Plastics Engineers, is the largest, most respected and well known technical conference in the plastics industry.

For over 70 years ANTEC® has successfully expanded from the U.S. into Europe, India and the Middle each with further expansion to global locations in the coming years.

Each event boasts technical and business presentations on new and updated technologies, panels and tutorials, networking events and student functions - all providing attendees with face-to-face interaction with expert representatives from the largest industry segments.

Who Should Attend?

Engineers, R&D Scientists, Technicians, Technical Sales & Support, Academics, Students, Managers, along with anyone involved in the plastics industry.

Who Participated in 2016?

Companies who attended ANTEC® 2016 | Companies who presented at ANTEC® 2016

Submit a Paper Now!

Questions?

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Exhibitor Space Form
2017 Exhibit Floor Plan

For more information contact the **ANTEC® Sales Team**

TOP TEN REASONS TO ATTEND

PLASTICITY FORUM

4.0 From Evolution to Revolution
How Smart Manufacturing is Changing Your World

Women's Networking Breakfast

Keynote Speakers

600+ Technical Talks

Panel Discussions

New Technology & Fellows Forums

PLASTICS for Life™

SPE Awards & 75th Anniversary Gala

The Plastics Race™

Advertise with SoCal SPE

SO Cal SPE Newsletter Ad rates 2016

Ad size	Specs.	Size (inches)	Cost per issue	Yearly (12)
Business Card	Horizontal	2 (h) x 3.5 (w)	$45	$540
Business Card	Vertical	3.5 (w) x 2 (h)	$45	$540
Double	Horizontal	2 (h) x 7 (w)	$90	$1,080
Double	Vertical	7 (w) x 2 (h)	$90	$1,080
Triple	Vertical	2 (w) x 10 (h)	$135	$1,620
Half page	Horizontal	7 (w) x 5 (h)	$150	$1,800
Full Page		7 (w) x 10 (h)	$250	$3,000

Sample issue at www.socalspe.org

Contact: Michael Espinosa: michael@trianglesalesinc.com

SPE Southern California Leadership

SPE Leadership		
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Technical Program Chair: Suhas Kulkarni/Vishu Shah, FIMMTECH/ Consultek	760-525-9053	suhas@fimmtech.com
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House Committee Chair: Skip Humphry, International Plastics Equipment	909-830-7010	intl.plasticsequip@verizon.net
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2016-2017 YEAR CALENDAR www.socalspe.org

SEPTEMBER 2016

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September 15

Evening Technical Meeting

Robots, Collaborative

6:00 PM
Jagerhaus, Anaheim

OCTOBER 2016

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October 20

Plant Tour

6:00 PM
Torrance, CA

NOVEMBER 2016

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November 14

Molding 2016 Workshop

Milacron Tech Center
Irvine

DECEMBER 2016

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December 6

SPE Networking Reception
Featuring Greg LeMond

JANUARY 2017

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January 19

Evening Technical Meeting

Advances in Silicone Technology for Medical Applications

Jagerhaus, Anaheim

FEBRUARY 2017

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February 16

Workshop

Autodesk/Moldflow 2016

TBD
Irvine

MARCH 2017

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March 23

EDUCATION NIGHT 6 PM
TBD
Norwalk

APRIL 2017

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April 20

Evening Technical Meeting

3D printing Update

6:00 PM
Jagerhaus, Anaheim

MAY 2017

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May 8-9-10

SPE ANTEC

Hilton
Anaheim

JUNE 2017

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June 22

Annual Golf Outing

JULY 2017

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Happy 4th!

AUGUST 2017

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August 17

WPP TRADE FAIR

Phoenix Club
Anaheim

*All meetings are held on third Thursday of the month unless otherwise noted