The Newsletter of AIChE's Fuels & Petrochemicals Division

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Summer 2012

Flashpoint

Inside this Issue

The Chair's Corner

Tim Olsen

I want to acknowledge all the members of the Fuels and Petrochemical Division (F&PD) on the outstanding, collaborative effort, which made the 2012 Spring Meeting in Houston a great success. Attendance for the meeting exceeded 2,500 people. I believe the high attendance is a sign of the times, with challenges for chemical engineers that want to learn from other colleague's success stories. F&PD contributed significantly to the technical sessions — hosting over 150 presentations, plus the F&PD Welcome Session, Gas Utilization Luncheon Keynote, and co-sponsoring the Spring Meeting Keynote Address.

Today's innovation and thought leadership from chemical engineers is key to solving today's and tomorrow's global energy demands. U.S. oil production is at its highest in 14 years, topping 6 million barrels per day. Importing and exporting of raw oil and gas, and fuels and petrochemicals are becoming more important in this global market. Everyone hears about the increase in U.S. natural gas production, but did you know what impact this has on the petrochemical industry? Ethane crackers in the U.S. are now being considered, indicating confidence in local natural gas supply. A few years ago, the U.S. considered building LNG import terminals, but today the thought is for LNG export terminals. These are some of the challenges the F&PD is sharing at AIChE events along with collaboration from industry, academia, and government.

During my term as F&PD Chair, I have created committees with F&PD members to take on challenges within our own organization to ensure strength, diversity and longevity. I would like to see our members get more active and involved with the organization.

* *Scholarship committee* – Provide scholarships for college and high school students

* *Analyze membership committee* – Better understand younger professional needs and to get them more involved with the organization

* *Communications and promotions committee* – Better communicate the great work that this organization is doing and get more people involved as active members

* *Analyze budget and funds allocation committee* – Review funding to ensure the efficient use of membership dues

* *Review F&PD Officers manual committee* – It has been four years since the last review of the officers manual, so it is time to review and update it as needed

* *Awards committee* – Nominate and determine award winners

I look forward to seeing F&PD members at the 2012 AIChE Annual Meeting (Pittsburgh, PA, Oct. 28 – Nov. 2) or the 2013 AIChE Spring Meeting (San Antonio, TX, Apr. 28 – May 2). Feel free to contact me at chair@aiche-fpd.org.

Investing in the Future: Fuels and Petrochemicals Scholarship Winners

The Fuels and Petrochemicals Division is pleased to sponsor scholarships to exemplary high school seniors who plan on studying engineering or science. F&PD is committed to introducing high school students to careers in Fuels & Petrochemicals through its programs, helping to fuel the industry's need for top talent in the future. See who this year's winners are in the box below. Congratulations to all of the award winners!

To get to know these high school students a little bit better, F&PD's First Vice Chair, Lori McDowell, did a little probing into the students' academic and personal life. Find out some interesting facts about these extraordinary students.

Q: What University will you be attending?

John: Penn State University (University Park) – Schreyer Honors College

Marshall: Cornell University

Jayci: Texas A&M University

Jake: Rice University

Hunter: Texas A&M University

Q: What are you planning to major in?

John: I will be majoring in chemical engineering.

Marshall: Engineering, but undecided on my exact major

Jayci: My planned major is chemical engineering, but I hope to attain an MBA one day.

Jake: I will be majoring in chemical engineering.

Hunter: I will be majoring in chemical engineering.

Q: What was your favorite subject in high school?

John: Chemistry or Calc… Yes, I admit it, I'm a nerd. But aren't we all?

Marshall: Physics

Jayci: My favorite subject is a tie between Calculus BC and Physics B. I had amazing teachers who made the two most rigorous courses offered at my school the most entertaining, enjoyable and rewarding.

Jake: I enjoyed many subjects, including Biology AP and Spanish Literature AP. However, my absolute favorite subject was Calculus BC.

Hunter: Chemistry was my favorite subject.

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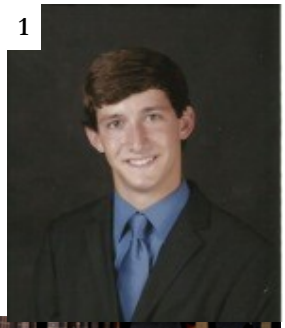

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First Place- $1000 award

John Connolly, Riverview High School, Oakmont, PA (photo 1)

Second Place - $500 award

Elizabeth Conkey, Ridgeview High School, Orange Park, FL (no photo available)

Marshall Mucasey, St. John's School, Bellaire, TX (photo 2)

Third Place - $250 award

Jayci Blake, Boerne High School, Boerne, TX (photo 3)

Jake Hassell, Cypress Falls High School, Houston, TX (photo 4)

Hunter Reagan, Glenda Dawson High School, Pearland, TX (photo 5)

Investing in the Future: Fuels and Petrochemicals Scholarship Winners

Q: Do you have any pets?

John: One cat named Sparkles (my brother named her)

Marshall: A dog, a bird and a turtle.

Jayci: I have two golden retrievers, Birdie and Dixie, and two cats.

Jake: Two dogs: – A golden retriever (Fred) and chocolate lab (Duke).

Hunter: A yellow Labrador and two fat cats.

Q: Favorite book?

John: Hitchhiker's Guide to the Galaxy or Forest Gump – I enjoy reading comedy's from

before the 1990s.

Marshall: One Flew Over the Cuckoo's Nest

Jayci: J.M. Barrie's Peter Pan is my go to read, it always reminds me to stay a kid at heart.

Jake: The Hound of the Baskervilles by Sir Arthur Conan Doyle.

Hunter: Ender's Game

Q: Favorite movie?

Marshall: Shrek

Jayci: It's so hard to choose just one, but I suppose The Princess Bride stands above the rest.

Jake: Scott Pilgrim vs. The World

Hunter: Zombieland

Q: Favorite hobby?

John: I really enjoy playing and listening to music. I participate in the Concert, Marching, and Jazz Bands as well as having a lead in the Spring Musical now for 3 years.

Marshall: Playing electric bass in my band.

Jayci: I love to dance, especially country-western swing, two-step, and swing variations.

Jake: Playing the Magic the Gathering card game.

Hunter: Running

Q: Who is your hero or who inspired you the most?

John: My entire family. They are always there to get me back on my feet and keep me going. I am also inspired by Lt. Commander Ryan Sears of the Navy. He gave me some of the most insightful advice I've ever received in my life and for that I'm forever grateful.

Marshall: My big brother, Evan who is an aerospace engineer.

Jayci: My mother has been my role model; she's the strong, independent, fair, wise, loving, genuine, witty leader I hope to grow into. She has been supportive of everything I do and the best life coach a daughter could ask for.

Jake: My Mother. Despite the hurdles she has faced in her life, including battling cancer, she has always taken extra measures to assure the closeness and unity of our family and that my brothers and I have everything we need to be successful in life.

Hunter: My parents and my Chemistry teacher. She previously worked as a Chemical Engineer and is an awesome teacher.

Q: Any advice for other high school students?

John: Throw yourself into work. If you do it long enough it stops being tedious and becomes something you might even begin to enjoy.

Marshall: Challenge yourself with some of the toughest classes at your school, but still take the time to explore other areas that might interest you.

Jayci: Of course it's important to study hard and do well in class, but remember to just stop and enjoy the moment every once in a while — like your last Homecoming Parade or your last pep rally — you're only in high school once.

Jake: Yes. Budget your time well. Post assignments, extracurricular and work commitments to your calendar well in advance and check your calendar frequently.

Hunter: Join an academic team such as UIL Science. The competition makes studying fun.

Q: What are you looking forward to the most in college?

John: Meeting new people and expanding my horizons to encompass the larger world that I seldom get the opportunity to do in a small school.

Marshall: I look forward to the huge change from high school life and an entirely new environment in a beautiful part of the country.

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Investing in the Future: Fuels and Petrochemicals Scholarship Winners (cont'd)

Jayci: I am extremely excited about being a part of the Aggie family, Gig 'Em!, but also having the opportunity to do research with and learn from professors at the top of their fields.

Jake: Being able to focus on the courses that interest me the most and having some flexibility to create my own schedule. I am also looking forward to meeting others who are passionate about engineering and math.

Hunter: I'm looking forward to college and more challenges. Thank you for the scholarship!

Q: Anything else you'd like to tell us about yourself?

John: If I've learned anything, the benefits of working hard are worth reaping. Work hard and success will come.

Marshall: I enjoy biking, rock climbing, camping and hiking. I will be returning to Alaska for the third time this summer to do all of that.

Jayci: I want to travel the world and explore other cultures so that one day I may be able to work overseas.

Jake: I have been working towards the goal of attending Rice University since I was in the 7th grade. I have been very careful in my high school course selections to ensure that I would be well prepared and qualified for both engineering and acceptance into Rice. I feel honored, grateful and blessed that I have achieved this long-time goal.

Speakers Corner Being Rejuvenated

By Syamal Poddar, Chair, Speakers Corner

The Speaker's Corner consists of a select group of leading experts and outstanding communicators who are willing to volunteer their time to make presentation as an invited speaker at various AIChE meetings and conferences including AIChE local section meetings and student chapter meetings. The specific purposes are to:

* Enhance visibility and relevance of AIChE to the industry we serve
* Have a platform available to subject experts (speakers) to impact and thereby increase membership

Currently, there are close to 100 speakers with about two-thirds of them being AIChE Fellows, and with a good split between academicians vs. people from industry. The most recent list of speakers is available at http://apps.aiche.org/speakerscorner/.

Recently, AIChE has embarked an initiative to rejuvenate this effort by making some enhancements:

* More visible & Accessible spot on the Web
* Encourage existing members to update their profile
* Seek for new Members (within and outside)
* Go Global
* More interaction with Local Sections
* Have the speaker's availability schedule known to Local Sections via linkage to their respective profile
* Bring awareness to members by Speakers Corner by effective communication with Local Sections, Student Chapters as well as various Divisions and Forums

Many of you will be receiving a letter from me either to update your profile and topics of your interest or to invite you to join if you are not already on the Speakers Corner's list and you would like to be a volunteer speaker. The topic of your choosing could broadly be classified under two groups of topics: 1) related to your subject of expertise and current interest and 2) related to the relevance and importance of AIChE and its valuable role in society.

If you are willing to volunteer your time and talents to AIChE in this way, please send an email to speakerscorner@aiche.org. Any suggestions or ideas to improve or any other comments or questions, please contact me, Syamal Poddar, Chair of the Speakers Corner, at associates.poddar@gmail.com or 713-494-3050.

Fuels and Petrochemicals Programming Update

AIChE Annual Meeting, October 28 - November 2, 2012

David L. Lawrence Convention Center, Westin Hotel, and Omni William Penn Hotel, Pittsburgh, PA

Focusing primarily on R&D, the Annual Meeting is the premier educational forum for chemical engineers interested in innovation and professional growth. It's a great opportunity to learn more about cutting-edge research done at universities, government labs, as well as industry. This year, the Fuels & Petrochemicals Division (F&PD) program offers 35 sponsored and co-sponsored sessions on critical topics such as: biomass pyrolysis; catalytic biomass conversion to chemicals; catalytic biomass refining; and alternative fuels and enabling technologies. To view the entire F&PD program, go to https://aiche.confex.com/aiche/2012/webprogram/16.html.

The Annual Meeting plenary is an event not to be missed. Taking place on Monday, October 29 from 12:30pm-3:30pm in the Spirit of Pittsburgh Ballroom A in the Convention Center, the plenary features:

***Charles McConnell**, Assistant Secretary for Fossil Energy, U.S. Department of Energy (DOE)*—CO_2 Capture, Utilization and Storage, and Natural Gas/Oil Recovery: Harnessing Scientific Development and Business Principles to Achieve Fossil Energy Sustainability

***David Porges**, Chief Executive Officer, EQT Corporation*—Comparative Advantage -- North American Manufacturing and the Shale Gas Century

***Greg Babe**, Chief Executive Officer, Orbital Engineering*—Chemistry and Energy: Fortifying Our Historic Links

***Aris Candris**, Senior Advisor & Member of Westinghouse Electric Company Board of Directors*—Nuclear Energy: Is there a future after Fukushima?

Other programming that may be of interest include: Topical D: Advanced Fossil Energy Technology Development Through Integrated Computation and Experimentation, as well as a co-located joint AIChE-A&WMA workshop covering "Shale Oil & Gas Exploration &Production—Water Challenges & Opportunities. For more information about the workshop, click here.

AIChE Regional Process Technology Conference, Oct. 4-5, 2012

South Shore Harbour Conference Center, League City, TX

Registration is now open for the Fourth Annual AIChE Regional Process Technology Conference (RPTC), which will be held October 4-5, 2012. In previous years, we have held the conference on Galveston Island, but this year we are bringing it to the mainland at South Shore Harbour Conference Center, on the shores of Clear Lake, to make it easier for commuting attendees to get to.

The goal of the conference is to provide an easily accessible, high-quality technical program for chemical engineers in the Greater Houston area, focused on issues that are relevant to local industries. Here are some of the important elements for this year's conference:

- The topics covered include: advances in chemical technologies; distillation and separation; thermodynamics and process simulation; process safety; reaction engineering/catalysis; energy efficiency; and refining.
- Our keynote speaker this year is Jim Griffin, Director of Operations at Dianal America and Chairman of The East Harris County Manufacturing Association. Jim has a unique perspective on industry in the Greater Houston area, and he will be giving a presentation titled "Industry and Economics: A Community's Perspective."
- This year, in response to growing interest among area chemical engineers, we are adding a track on Upstream Oil & Gas.
- We are continuing two popular special sessions from last year — the Young Professionals track and the Professional Ethics seminar .
- Our exhibition will run in parallel with the technical sessions. This provides an opportunity to meet and learn from a variety of technology providers.

There will also be two separate ticketed events - the conference dinner on Thursday evening, October 4, and the post-conference mixer (sponsored by the South Texas Section Young Professionals) on Friday evening, October 5.

The conference website contains additional information, including the preliminary program, as well as how to register for the conference: www.aiche.org/conferences/2012Regional/rptc.aspx. Please contact rptc12@aiche.org if you have questions. We look forward to seeing you at the conference!

Washington Internship for Students of Engineering (WISE)

Grid-Scale Energy Storage — Addressing the Regulatory and Policy Barriers

Anita Luong
The Johns Hopkins University

Through the collaborative efforts of several professional engineering societies, WISE has become one of the premier Washington internship programs. The program's goal is to groom future leaders of the engineering profession who are aware of and can contribute to the important intersection of science, technology and public policy. F&PD has graciously supported the WISE program for many years. This year, F&PD invested in three engineering students. Here is the executive summary of the work done by one of the three students.

Energy storage technology has the potential to revolutionize power grid operations. Energy storage has the unique ability to transport electricity through time. This capability, to dispense previously generated energy, can dramatically increase the efficiency of the grid and enhance the potential of renewable energy generation by complementing its intermittency. Energy storage can be the key to many of the operational issues faced by the grid, including challenges associated with increasing renewable energy generation, grid reliability, and grid security. In particular, wind energy generation does not match electricity demand patterns, which presents an issue that could easily be solved by energy storage technologies.

Widespread deployment of energy storage technologies will also lead to a number of additional benefits. These include increased wind capacity, lowered energy costs, reduced electricity system emissions, reduced dependence on fossil fuels, increased reliability and robustness of the electric power system, opportunity for domestic economic development, and spurring of spin-off technologies for niche applications.

Considering these benefits, there has been a considerable effort directed towards the development of energy storage technologies in legislation and science research. The American Recovery and Reinvestment Act provided a surge of government research funding for energy technology, including energy storage. In response to this, the private sector invested more than three times this amount towards the effort. Additionally, many energy-related government agencies have energy storage-designated research efforts.

However, as with the integration of any novel technology, the deployment of energy storage systems faces many barriers – most significant of which is cost-competitiveness. Directly linked to this barrier is the challenge of regulatory uncertainty surrounding grid-scale energy storage deployment. Many of the regulatory issues trace back to the present structure of the electric power industry. Energy storage participates limitedly on the electric power system, serving needs that are very narrow, engaging in only one energy market. Potential roles of energy storage on the power grid are not clearly defined, there is no standard system for assigning value to energy storage services, and there are dissenting opinions on allowing single energy storage systems to participate in multiple energy markets.

In response to the regulatory confusion, the Federal Energy Regulatory Commission has issued several inquiries for comments on the topic from industry stakeholders. The variety of opinions and suggestions regarding energy storage are presented in Docket AD10-13.

Taking the many opinions into consideration, the following recommendations are presented in order to facilitate the development and deployment of energy storage technologies onto the power grid.

1. Define the role that energy storage can play in each of the energy markets: generation, transmission, and distribution.

2. Develop a capacity rating system, to be used to value services provided by all grid-scale energy storage systems.

3. Develop regulations that will allow single energy storage systems to supplement multiple components of the power grid.

4. Pursue continued or increased funding for energy storage technology research, development, and deployment.

Energy storage is beginning to show considerable potential for grid-scale deployment. Many energy storage technologies are seeing fast-paced grid-scale market deployment because of the infrastructural and economic benefits of these systems. In light of this, several things should be kept in mind. Firstly, regulation should work to facilitate, not hinder, the development and deployment of energy storage technologies, but not at the expense of creating distorted and unfair energy markets. And secondly, a focus should be placed on developing a demand and knowledge center for energy storage domestically. Not only will this attract manufacturers to stay domestic, it will also ensure that the United States of America remain a world leader in energy technology. The many tangible benefits of energy storage make it a worthwhile and valuable investment of our time and efforts.

Click here to read the entire paper

Note from the Editor — Reading Habits

Recently, I've rediscovered the fun of going to my local library and taking out books. I must admit that I have quite eclectic taste in books. Sometimes, I'm in the mood for classics. Recently, I finished reading Edith Wharton's The House of Mirth and John Steinbeck's Grapes of Wrath. Both completely absorbing, but extremely depressing. So, for something a little cheerier, I usually start reading a bit of non-fiction. In particular, I like to read about the history of science. Right now, I'm in the middle of reading Experiment Eleven—Dark Secrets Behind the Discovery of a Wonder Drug. I find it fascinating to understand the human elements behind a great discovery. The competition to discover, to be great, to be famous. Once I'm done reading this book, I'm looking forward to reading Sam Kean's The Violinist's Thumb, which is the history of genetic science. I'm a big fan of Kean's after reading his other book, The Disappearing Spoon, which is all about the history of the periodic table. Who knew that the periodic table could be so full of scandal and intrigue? If you have a reading list you want to share, please feel free to email me at communications@aiche-fpd.org.

Calendar of Events

2012 Annual Safety in Ammonia Plants And Related Facilities Symposium
Hyatt Regency Chicago * Chicago, IL
September 9–13, 2012

AIChE Regional Process Technology Conference
South Shore Harbor Resort * League City, TX
October 4-5, 2012

2012 Annual Meeting
Pittsburgh Convention Center * Pittsburgh, PA
October 28 - November 2, 2012

AIChE / A&WMA Joint Workshop: Shale Oil & Gas E&P – Water Challenges & Opportunities
Omni William Penn Hotel * Pittsburgh, PA
November 1 –2, 2012

Flashpoint is Now Accepting Advertising

Flashpoint, The Newsletter of the Fuels and Petrochemicals Division, is published three (3) times per year. It is distributed electronically to our membership and other interested parties (nearly 1,500 people, mostly chemical engineering professionals) in March (prior to the Spring AIChE Meeting), July and October (prior to the Fall AIChE Meeting) and it is also posted on F&PD's website. Contact communications@aiche.org if interested.

F&PD is now on the professional networking website, LinkedIn. To connect with other professionals and expand your professional network, please connect with us on LinkedIn at http://www.linkedin.com/in/aichefpd.

Ad Size/# of Issues	Quarter Page	Half Page	Full Page
1	$75	$125	$200
3 (full year)	$200	$300	$500

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