



The Newsletter of  
AIChE's Fuels and  
Petrochemicals Division

# Flashpoint

Volume 22, Issue 3

Fall 2010

## The Chair's Corner By Syamal Poddar

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Dear Colleagues,

The summer is over and the fall is setting in. With the advancement of this cycle of time, it is time again for this year's annual meeting. We are getting ready to get organized for this year's annual meeting in Salt Lake City during November 7<sup>th</sup> through 12<sup>th</sup>. As a part of this getting ourselves organized, we are committed to getting the fall edition of our news letter, Flashpoint, published and available to all of you on our web site. To maintain our tradition, therefore, time has come again to formally communicate with you through this edition of Flashpoint.

I would like to start my message with the concluding remarks I made in my previous message included in the summer issue of Flashpoint. We started our year with five specific objectives. These are: 1) enhance the quality of technical papers and not necessarily increase the number; 2) welcome participation of young professionals in an active role in technical programming and presentations, as well their participation in our committee meetings; 3) enhance inter- and intra-divisional communication to minimize duplication of voluntary effort and to create synergy; 4) create more alignment of our divisional effort with the objective of our Institute at the national level; and last but not the least 5) continue to attract more members to our Institute and to our division by persistently working on improving our value proposition to our professional colleagues in academia and industry. I am pleased to report to you that with the help of my executive committee, we are maintaining our focus to make advancement in all five objectives. My special thanks to all of you who are directly involved in chartering the path towards advancement of all these objectives.

I believe being chemical engineers at this juncture, we have the best opportunity to positively impact society at large by finding solutions to the multifaceted challenges that our society at large is faced with. Among a multitude of others, the most important ones are 1) supplying and managing clean water via advanced purification and recycling processes and technologies, and 2) meeting the ever-increasing energy demand in environmentally safe and sustainable ways. In this context, as you may be aware of, the Institute at its national level has rolled out an initiative, Center for Energy Initiative (CEI); and all its divisions, including ours, are actively involved. Please get engaged and make your professional contributions in this important initiative.

In conclusion, I would like to mention that through a long and enduring process, with help from our dedicated volunteers Freeman Self and Dennis Griffith and active engagement of one of our new directors, Jayce Mathews, we have successfully acquired the IP rights of the Refining Principles and Practices CD. This document as a PDF will be available very soon on our web site for the members-only section. I believe this document will be of use to current and future engineers and technologists engaged in petroleum refining industries.

In conclusion of my message, I extend my open invitation to all of our members: please help your division's executive team to better serve you. In that process, please do not hesitate to contact me or any of the executive committee members with any thoughts and ideas to improve our activities and performance. I look forward to seeing some of you at least at this year's national annual meeting in Salt Lake City. Once again, thank you for giving me the opportunity to continue serving you.

**Deadline for Submittal of Papers for the 2011 Spring Annual Meeting in Chicago is November 1st, 2010. Please submit today at <http://aiche.confex.com/aiche/s11/cfp.cgi>**

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## Fuels and Petrochemicals Programming Update By Tim Olsen

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The Fuels & Petrochemicals Division (F&PD) is looking forward to the upcoming Annual Meeting at the Salt Palace Convention Center in Salt Lake City, UT from November 7<sup>th</sup> through the 12<sup>th</sup>, 2010. In addition, plan for the 2011 Spring Meeting at the Hyatt Regency Chicago in Chicago, IL from March 13<sup>th</sup> through the 17<sup>th</sup>, 2011. Please join us at these events to learn more about current and future challenges along with the ideas and solutions that impact and shape the fuels and petrochemicals industries.

### Annual 2010 Meeting, November 7-12 in Salt Lake City, UT

The sessions are driven more from an academic focus, so the presentation material includes non-traditional refining. I encourage people to learn more about how these technologies are advancing and how they will integrate with traditional fuels refining. I look forward to seeing you in Salt Lake City.

The F&PD programming can be found online at <http://aiche.confex.com/aiche/2010/webprogram/16.html>.

The F&PD will also present at the workshops during the AIChE Student National Meeting on Saturday the 6<sup>th</sup> before the Annual meeting. The presentation topic will be "Interviewing in the Energy Sector: Careers in Traditional and Alternative Fuels".

### Spring 2011 Meeting, March 13-17 in Chicago

The "Call for Papers" is open (<http://aiche.confex.com/aiche/s11/cfp.cqi>) and will close November 1st (earlier than in past years).

The F&PD programming committee encourages you to participate as a presenter for one of our session tracks (web links listed below). Even if you do not plan to be a presenter, we hope you attend to learn more about industry trends, challenges, ideas, and solutions. I look forward to seeing you in Chicago.

Please consider submitting an abstract within the F&PD programming by November 1st.

Topical 7 on Refinery Processing (21 sessions):

<http://aiche.confex.com/aiche/s11/webprogrampreliminary/T7.html>

Topical 6 on Gas Utilization (18 sessions):

<http://aiche.confex.com/aiche/s11/webprogrampreliminary/T6.html>

Group 16 on Aromatics and Petrochemicals (2 sessions):

<http://aiche.confex.com/aiche/s11/webprogrampreliminary/16.html>

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## 2011 F&PD Scholarship Applications are now being Accepted

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Applications for the 2011 F&PD Scholarship are now being accepted. Scholarships are open to current seniors in high school who plan on pursuing a degree in science or engineering. All applicants must be recommended by an F&PD member. Additional details including the application and application deadlines can be found at AIChE's website and on the F&PD Website at <http://www.aiche-fpd.org/index.cfm?fuseaction=browse&id=4171&pageid=24>

Applications are due to Lori McDowell no later than January 31, 2011. For additional information, email [communications@aiche-fpd.org](mailto:communications@aiche-fpd.org).

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## ***2010 Regional Process Technology Conference in Galveston a Success***

Hundreds of chemical engineers and other professionals in the chemical processing and petrochemical industries attended the Second South Texas Regional Process Technology Conference at the Moody Gardens Hotel in Galveston, TX, on Oct. 7-8. Attendees were greeted with perfect weather and a number of excellent speakers, including Keynote Speaker from Shell, and AIChE President Hank Kohlbrand, recently retired from Dow. Attendees also enjoyed many networking opportunities over lunches and dinners and were able to visit the Exhibits as well. This excellent program left many Chemical engineers in the South Texas Region looking forward to the 2011 Event!

### **Nominations Being Accepted**

Nominations are open for the three F&PD awards that are given at the Spring National Meeting. Details about these awards can be found at:

<http://www.aiche.org/DivisionsForums/ViewAll/FandP.aspx> **Fuels & Petrochemicals Division Awards**. This award recognizes individuals who have made substantial technological contributions to the advancement of the fuels and petrochemicals industries. The award recipient is the speaker at the Division's award dinner, held at the AIChE Spring National Meeting. **Fuels & Petrochemicals Distinguished Service Award**. This award recognizes an individual's outstanding service to the Fuels and Petrochemicals Division. The candidate must have participated extensively in a variety of division activities demonstrating leadership, and have served the division a minimum of five years. Send nominations for both of the above to the F&PD's Past Chair, [past-chair@aiiche-fpd.org](mailto:past-chair@aiiche-fpd.org).

#### **Harry West Student Paper Award**

This Award is presented to the undergraduate student member of AIChE and F&PD who submits the best paper on any subject relevant to fuels, petrochemicals or safety. Papers are not restricted to research topics and may include design case studies and reviews. All papers must describe the student's own original contribution but may be part of a larger project to which the submitter contributed. Papers should be submitted to the awards committee, c/o Professor Mallinson, [mallinson@ou.edu](mailto:mallinson@ou.edu). Deadline for the above awards is November 15, 2010.

**National Engineers Week is right around the corner— February 20-26, 2011**

- **Think of creative ways to engage youngsters in science and engineering**
- **Visit schools and tell the students about the joys of engineering**
- **Share your engineering enthusiasm with your community, church, civic organization**
- **Hug an engineer today!**

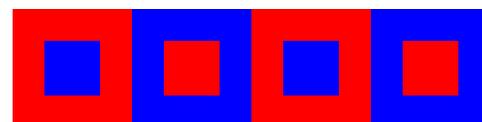
**F&PD is looking for sponsors for events at the Spring and Fall meeting. Events can include coffee breaks, lunches, student receptions, awards and YPAB Events. If interested send email to: [communications@aiiche-fpd.org](mailto:communications@aiiche-fpd.org)**

### ***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 Lori McDowell if interested.

Our current standard advertising rates are:

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



**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>.**

## F&PD Elections –Slate of Candidates

The voting process will soon start for Officers and Director's for F&PDs 2011-2012 Executive Committee. This year, voting will be for the Second-Vice Chair and for three director candidates, Candidate bios, photos and statements will be posted on F&PDs website in the next few weeks, but in the meantime, the slate of candidates is included here. Voting details will be provided shortly, and voting will start in November and end December 31, 2010. Look for your ballots soon!

### Candidates for Second Vice-Chair

Richard Isherwood—UOP

Lori McDowell—Praxair, inc.

### Candidates for Director

Belma Demeril—Rentech, Inc.

Gary Hawkins—Emerson Process Management

Helen Lou—Lamar University

M. Nazmul Karim— Texas Tech

Peyton Richmond—Lamar University

## TV Will Save the World (excerpted from Time, March 23, 2010) by Bob Dye

Forget Twitter, Facebook, Google and the Kindle. Forget the latest sleek iGadget.

Television is still the most influential medium around. Indeed, for the many poorest regions of the world, it remains the next big thing—poised, finally to attain truly global ubiquity. And that is a good thing, because the TV revolution is changing lives for the better.

Across the developing world, around 45% of households had a TV in 1995; by 2005 the number had climbed to 60%. That's some way behind the US, where there are more TVs than people, but it dwarfs worldwide internet access. Five million more households in sub-Saharan Africa will get a TV over the next five years. In 2005, after the fall of the Taliban, which had outlawed TV, 1 in 5 Afghans had one. The global total is another 150 million by 2013 — pushing the numbers to well beyond two-thirds of households.

Television's most transformative impact will be on the lives of women. In India, researchers Robert Jensen and Emily Oster found that where cable TV reached villages, women were more likely to go to market without their husbands' permission and less likely to want a boy rather than a girl. They were more likely to make decisions over child health care and less likely to think that men had the right to beat their wives. TV is also a powerful medium for adult education. Too much TV has been associated with violence, obesity and social isolation. But TV is having a positive impact on the lives of billions of people, worldwide.

## Notes from the Editor by Lori McDowell

Welcome to the Fall issue of Flashpoint! Time has certainly gone by fast, it seems like it was just yesterday when the Summer issue came out. I hope you have all had a productive fall and are ready for the winter. Last winter we had some snow in Houston, but this winter my family will head up to the northeast in search of snow.

Speaking of snow, Salt Lake City has its share and, AIChE's Fall Annual meeting in Salt Lake City is just around the corner. The Spring Meeting in Chicago will be here before we know it. Hopefully, spring weather comes to Chicago with the meeting instead of snow!

I received a letter from AIChE last week notifying me that I have been selected as an AIChE Fellow. Thanks to Dennis O'Brien for all his hard work on my nomination! While I am excited to be selected and to be part of such a wonderful group, it is somewhat bittersweet. When I look in the mirror, I still see the 25 year old young female engineer excited about the career ahead, not someone who has been in the industry 25 years—and I always thought Fellows were old men—no offense meant. I'm now sure that even our 80 and 90 year-old+ members still see themselves as those young engineers! And I probably appear ancient to all those young YPAB members! I guess that just means that we all have a lot more in common than our differences, and as long as we keep learning, we'll never get old! Well have a great fall, a great holiday season and see you all next year! As always, suggestion, comments and criticisms are always welcome and encouraged! Lori

## Refinery Overview Tutorial

We are pleased to inform you that the *Refining Overview* tutorial is available on our F&PD website under "Member Center". You will have to log-in to view the tutorial which is in a PDF format. The *Refining Overview - Petroleum, Processes, and Products* was originally developed in 2000 in a CD-ROM format by F&D. The *Refining Overview* was developed from a series of short courses sponsored by the Professional Development Committee of the South Texas Section of the AIChE (STS-AIChE). Ed Ekholm, Freeman Self and Keith Bowers were the primary authors and it also includes contributions from various other consultants - many thanks to all of them!

The *Refinery Overview* tutorial is divided in four parts. The first part, *Crude Petroleum: Feeds and Products*, contains three chapters which talks about the nature of crude petroleum, various feed streams and finally, on the products and its specifications. The second part, *The Development of the Modern Refinery*, has five chapters which gives a nice overview of refinery history and how it has evolved over the course of time. The third part, *Processing*, has nineteen chapters which talks about various refining technologies. It also gives a brief account of simple and complex refineries. The last part, *References*, contains all the references and resource information in developing this tutorial.

We sincerely hope that you will benefit from the use of this non-profit educational material.



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## AIChE Spring 2011 Meeting: Topical Conference on Refinery Processing

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The Fuels & Petrochemicals Division is soliciting presenters to submit an abstract for Topical 7 on Refinery Processing for the 2011 AIChE National Spring Meeting. The call for papers is open now and closes October 22<sup>nd</sup>; you can submit your abstract online at <http://aiche.confex.com/aiche/s11/cfp.cgi>.

Topical 7 has 20 sessions available to submit an abstract. The full list of sessions and descriptions can be found online at <http://aiche.confex.com/aiche/s11/webprogrampreliminary/T7.html>. Sessions include the refining core topics such as advances in FCC, hydroprocessing, diesel production, naphtha technologies, bottom of the barrel processing, fouling, and sulfur management. In addition, there will be three tutorials available to submit abstracts on heavy oil processing, fouling and design of crude pre-heat trains, and process control. Other topics of interest include CO<sub>2</sub> reduction, energy conservation, sustainability, environment and water solutions, biofuels, hydrogen management, projects, simulation, and

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## AIChE Spring 2011 Meeting: 11th Topical Conference on Gas Utilization

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Utilization of gas continues to gain more attention because of higher oil price. The use of LNG is gaining popularity for power generation, industrial basic materials and household usage. Governments and companies are looking for more opportunities to convert the alternative carbonaceous feed-stocks into valuable products such as fuels and chemicals. This year's program will cover the following :

Coal, Biomass and Natural Gas to Liquids - Focus on the fundamentals and processes for the conversion of coal, natural gas, biomass and other carbon-bearing materials to fuels and chemicals.

Kinetics, Design and Modeling of Fischer-Tropsch Catalysts and Reactions - Focus on advances in catalyst development and reaction kinetics, including all aspects of the design, characterization, and modeling of Fischer Tropsch synthesis catalysts and reactions for gas-to-liquids (GTL), coal-to-liquids (CTL), and biomass-to-liquids (BTL) applications.

Production of Fuels and Chemicals from Fischer-Tropsch Hydrocarbons - Review the advances in the upgrading processes and technologies to produce fuels and chemicals from Fischer-Tropsch products.

Gasification Technologies/Gas Clean-up - Focus on advances in gasification technologies and gas clean-up.

Challenges for Future Gas supply & New Gas Projects - Review the challenges for gas supply in the world and new gas projects, and cover the following points: challenges on gas supply worldwide and in oil exporting countries; fluctuation in associated gas production with oil production fluctuation; new gas projects and effects of composition changes from wells; finding enough gasses to meet the electricity and desalination needs; finding enough gasses to meet the expanding petrochemical needs

Syngas to Ammonia - Review the advances in the technologies to produce ammonia from syngas.

CO<sub>2</sub> Conversion - Focus on the conversion of CO<sub>2</sub> to valuable products by catalytic, electrochemical/electrocatalytic, photochemical/photocatalytic, enzymatic/biochemical and plasma processes.

Gas Separation Technologies - Feature research presentations on novel processing techniques, process chemistry, reactor development, catalyst development, and catalyst deactivation for gas conversion and gas separations.

Advancements in Hydrogen Technologies - Cover all aspects of "The Hydrogen Chain" including hydrogen production, purification and storage. It will primarily discuss technologies that are new, alternative, or under development.

Greenhouse Gases Sequestration - Review advances in the sequestration technology for greenhouse gases.

LNG Equipment -LNG equipment developments in pumps, drivers, compressors, heat exchangers, liquid expanders etc.

LNG Regasification -LNG receiving terminals technology, process, regasification, and liquid extraction advancements

LNG Safety - Safety developments in LNG baseload plants, receiving terminals, ships and offshore facilities.

LNG Technology -Baseload LNG plants technology development in liquefaction, process, and commercial activities.

**Topical Conference Proceedings:** CDs will be available on the registration form or at the registration site at the Conference

**Associated Event:** Gas Utilization Luncheon

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## **On the Lighter Side—to all the kids who survived the 1930's, 40's, 50's, 60's and 70's—Congratulations!**

First, we survived being born to mothers who smoked and/or drank while they were pregnant. They took aspirin, ate blue cheese dressing, tuna from a can and didn't get tested for diabetes.

Then, after that trauma, we were put to sleep on our tummies in baby cribs covered with bright colored lead-based paints.

We had no childproof lids on medicine bottles, locks on doors or cabinets and when we rode our bikes, we wore baseball caps not helmets on our heads.

As infants and children, we would ride in cars with no car seats, no booster seat, no seat belts, no airbags, bald tires and sometimes no brakes.

Riding in the back of a pick-up truck on a warm day was always a special treat.

We drank water from the garden hose and not from a bottle.

We shared one soft drink with four friends, from one bottle and no one actually died from this.

We ate cupcakes, white bread, real butter and bacon. We drank Kool-aid made with real, white sugar. And we weren't overweight. WHY? Because we were always playing outside, that's why!

We would leave home in the morning and play all day, as long as we were back when the streetlights came on. No one was able to reach us all day. And we were OKAY.

We would spend hours building our go-carts out of scraps and then ride them down the hill, only to find out we forgot the brakes. After running into the bushes a few times, we learned to solve the problem. We did not have Play stations, Nintendo's, X-boxes. There were no video games, no DVD or Blu ray movies, no surround sound or CDs, no cell phones, no personal computers, no Internet and no chat rooms. And we only had three TV stations.

WE HAD FRIENDS and we went outside and found them!

We fell out of trees, got cut, broke bones and teeth and there were no lawsuits from these accidents.

We got spankings with wooden spoons, belts, switches, or just a bare hand and no one called child protective services to report abuse.

We were given BB guns for our tenth birthdays, made up games with sticks and tennis balls and, although we were told it would happen, we did not lose out very many eyes.

We rode bikes or walked to a friend's house and knocked on the door or rang the bell, or just walked in and talked to them.

Little League had try-outs and not everyone made the team. Those who didn't had to learn to deal with disappointment, and had to practice and try-harder for next year! Imagine that!! We even played dodgeball in school and one team actually lost!

The idea of a parent bailing us out if we broke the law was unheard of. They actually sided with the law!

These generations have produced some of the best risk-takers, problem solvers and inventors ever.

The past 50 years have been an explosion of innovation and new ideas.

We had freedom, failure, success and responsibility, and we learned how to deal with it all!

**IF YOU are one of them, CONGRATULATIONS!**

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## Fuels and Petrochemicals Division 2010-2011 Executive Committee

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