

Contents

<i>Welcome to the TEP Division</i>	1
<i>Message from the Division Chair</i>	1
<i>Why TEP is Right for You</i>	2
<i>How to Join TEP</i>	2
<i>Meet us at the Spring AIChE Meeting – San Antonio, TX</i>	2
<i>ECI Massive Energy Storage for the Broader Use of Renewable Energy Sources Conference</i>	3
<i>TEP Best Paper Award</i>	4
<i>TEP Division Awards</i>	4
<i>TEP Division Award – Sponsored by Fauske & Associates</i>	4
<i>Donald Q. Kern Award – Sponsored by Tubular Exchanger Manufacturers Association</i>	5
<i>Meet the TEP Division Officers</i>	6

Welcome to the TEP Division



Chemical engineers are often responsible for both, conducting experiments at laboratory scale and scaling processes to commercial size. Thus, they explore the atomic- and molecular-level phenomena that take place, in order to get insight into critical areas in nano- and bio-technology for energy applications.

The Transport and Energy Processes (TEP) Division reports on promising technologies being considered nationwide for pilot and demonstration scale development; for example, fuel cell systems capable of using a

variety of fuels, and biofuel production facilities that use non-food, non-feed renewable feedstocks. In addition, opportunities for alternative fossil fuels continue to draw significant interest.

Focusing on the broad field of heat transfer, the AIChE Transport and Energy Processes Division coordinates meetings and conferences that provide opportunities for engineers and scientists to exchange ideas, experiences and evaluations.

This division also coordinates the institute's activities with other societies connected to the field.

Message from the Division Chair



Daniela S. Mainardi
Thomas C. & Nelda M. Jeffery
Associate Professor and Chair
Chemical Engineering
Louisiana Tech University

The AIChE Transport and Energy Processes Division consists of a blend of professionals from industry, national laboratories and academia who share their passion for understanding the transport processes involved in energy and related applications.

I invite you to join us to network with other researchers in the field, and to take advantage of valuable professional development opportunities available to you.

Why TEP is Right for You



“Our TEP members engage in outreach activities to communicate the excitement of energy and transport processes to young engineers and prospective students”

The TEP Division provides a platform for members and non-members in the following areas:

- Establish and expand your professional and social network.
- Obtain information on emerging technologies through tutorials and refresher courses on fuel cells, energy storage, and nanotechnology, and other topics relevant to your professional development.
- Obtain advanced information through topical and technical sessions.
- Develop valuable contacts leading to collaborations and funding.
- Develop contacts with academia, government agencies and National Laboratories.



How to Join TEP

Annual TEP membership is just \$7. To join:

Go to: <http://www.aiche.org/community/divisions-forums/tep>

or call AIChE Customer Service: 1-800-242-4363 (USA) or
+1-203-702-7660 (International)

Join us at the 2013 Spring AIChE Meeting – San Antonio, TX

April 28 - May 2, 2013
Grand Hyatt, San Antonio, Texas

Join us for an exciting session program in Emerging Technologies in Clean Energy for the Twenty-First Century

KEYNOTE Emerging Technologies in Clean Energy

Progress and Challenges in Emerging Clean Energy Technology: A Case Study in Hydrogen and Fuel Cells from the U.S. Department of Energy

Dr. Sunita Satyapal

Director, Fuel Cell Technologies Office
Energy Efficiency and Renewable Energy

U.S. Department of Energy

Monday, April 29, 2013: 2:00 PM - 3:00 PM, Grand Hyatt, Presidio B

**JOIN US FOR AN EXCITING TEP DIVISION SESSION PROGRAM
AT THE 2013 SPRING AIChE MEETING**

**April 28 - May 2, 2013
Grand Hyatt, San Antonio, Texas**

Advances in Fuel Cells and Batteries - A Special Session in Honor of Prof. Virendra

K. Mathur and His Contributions

Tuesday, April 30, 2013: 08:00 AM - 11:45 AM, Grand Hyatt, Presidio B

Sustainable and Renewable Biofuels (cellulosic hydrocarbon fuels, green diesel,
gasoline, etc.)

Tuesday, April 30, 2013: 01:30 PM - 05:00 PM, Grand Hyatt, Presidio B

Advancements in Hydrogen Production, Storage and Utilization

Tuesday, April 30, 2013: 02:00 PM - 05:00 PM, Grand Hyatt, Presidio A

Fundamental and Applied Research in Transport Phenomena in Heterogeneous and
Nano-Porous Materials

Wednesday, May 1, 2013: 08:30 AM - 11:30 AM, Grand Hyatt, Presidio A

Recent Developments in Biomass to Chemicals

Wednesday, May 1, 2013: 08:30 AM - 11:30 AM, Grand Hyatt, Presidio B

Carbon Capture, Storage and Utilization Routes to Produce Chemicals

Wednesday, May 1, 2013: 01:30 PM - 05:00 PM, Grand Hyatt, Presidio B

TEP is proud to announce its involvement with:

**Massive Energy Storage
for the Broader Use of Renewable Energy Sources**

An ECI Conference
Co-sponsored by the Center for Energy Initiatives, AIChE

June 23-26, 2013
Fairmont Newport Beach
Newport Beach, California, USA

Abstracts should be submitted by **March 31, 2013** electronically at:
<https://ssl.linklings.net/conferences/massiveenergystorage/>

*Don't
Miss
Out!*

2012 TEP Best Paper Award



The **TEP Best Paper Award** is given every year to the top presenter at the TEP topical sessions during the Spring AIChE Conference. The paper can be in any area of Chemical Engineering presented at any of the TEP Topical Sessions during the Spring Conference. Each session Chair will recommend one paper presented in his/her session based on pre-determined criteria.

The 2012 best paper award was given to two researchers, **Purnima Kharidehal**, Ph.D. candidate at **Louisiana Tech University** for her presentation "Anode Characteristics of MDH-Catalyzed Bio-Fuel Cell: A Multi-Scale Modeling Study", and **James W. Rice** from **Brown University** for his presentation "Aqueous Solubility of Binary and Multicomponent, Tarlike PAH Mixtures". Congratulations!!

TEP Division Awards

The TEP Division provides recognition and awards to chemical engineers who have demonstrated excellence and achievement in their specialty through two awards. The TEP Division Award is presented to an individual who has made an outstanding contribution to chemical engineering in the areas of heat transfer or energy conversion. The Donald Q. Kern Award is presented to an individual in

recognition of their expertise in heat transfer or energy conversion. Winners are presented with awards at a division/forum event held at one of AIChE's national conferences. Award recipients may also be recognized in AIChE member publications, meeting program books, and web-site listings. General rules, eligibility and how to apply for each of these awards are described in the sections below.

TEP Division Award – Sponsored by Fauske & Associates

This award is presented biennially and only members of AIChE are eligible. The selection criteria for the TEP Award include:

1. Distinguished service of a chemical engineering nature, in heat transfer or energy conversion as a professional engineer, educator, or AIChE leader.
2. Outstanding contributions of a chemical engineering nature, in the field of design, construction, operation, or management of heat transfer or energy conversion facilities or enterprises.
3. Research or development of new processes or equipment relating to chemical engineering applications in heat transfer or energy conversion.

4. The recipient must be a member of AIChE.

Nomination packages for the TEP Division Award must include a brief professional history of the nominee and specify how he/she meets the criteria of the award. Unless otherwise noted, three to five supporting letters, citing specific contributions and reasons for their value, are also required.

The TEP Division Award recipient will be invited to speak at a TEP Division dinner, held at an AIChE Annual Meeting. In addition to recognition, the winner of this award will receive a plaque and \$500.

Some past winners are: J. C. Chen, V. K. Mathur, S. W. Churchill, S. G. Bankoff, and J. W. Westwater.

To nominate someone for one of the TEP Division Awards, send five copies of the nomination package by April 1 to Daniela S. Mainardi, Associate Professor, Louisiana Tech University, 911 Hergot Street, Ruston, LA 71272 - phone (318-257-5126).

The general nomination form can be found on the TEP AIChE website.

For more information about the TEP Division Award, contact [Kelly Ibsen](mailto:kibsen@lynxeng.com) at kibsen@lynxeng.com.



Donald Q. Kern Award – Sponsored by Tubular Exchanger Manufacturers Association (TEMA)

The Donald Q. Kern Award recognizes an individual's expertise in a given field of heat transfer or energy conversion. The winner is selected based upon the significance of their contributions to applied heat transfer or conversion, or, in the translation of research results into useful technological applications.

Nomination packages for the Donald Q. Kern Award must include a brief professional history of the nominee and specify how he/she meets the criteria of the award. Unless otherwise noted, three to five supporting letters, citing specific contributions and

reasons for their value, are also required. Nomination packages are received and awardees are selected by a subcommittee of the TEP Division.

The Donald Q. Kern Award recipient is required to prepare a written review of a topic selected by the recipient, with the review typically being published in an AIChE publication. In addition, the recipient receives a plaque and \$1,500.

Some of the past winners are M. El-Genk, K. Bell, P. C. Wayner, Jr., and S. W. Churchill.

To nominate someone for one of the TEP Division Awards, send five copies of the nomination

package by April 1 to Daniela S. Mainardi, Associate Professor, Louisiana Tech University, 911 Hergot Street, Ruston, LA 71272 - phone (318-257-5126).

The general nomination form can be found on the TEP AIChE website.

The 2013 D. Q. Kern Award will be supported by TEMA, the Tubular Exchanger Manufacturers Association. Please consult the AIChE website before sending applications, as other conditions for the award may apply.

For more information about the Donald Q. Kern Award, contact Terry L. Payne at PAYNETL@ORNL.GOV.

Mohamed El-Genk, Regents' Professor of Chemical and Nuclear Engineering at the University of New Mexico, was awarded the 2010 Donald Q. Kern Award in recognition of his contributions to chemical engineering that resulted from his research in:

- Boiling heat transfer and two-phase flow; natural and mixed convection, and change-of-phase heat transfer; flow field visualization,
- Nuclear reactors design, safety and thermal-hydraulics and severe accident analyses,
- Design, integration, safety and multi-physics simulation of Space nuclear power and propulsion systems,

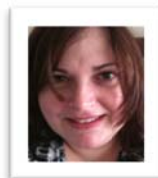
- Heat pipes and thermosyphons, thermal management of space power systems, and
- Nuclear fuel, materials and fuel cycle; radiation detection; shielding high energetic space particles.

His vast contributions to the field of chemical engineering are well-documented by his publication list, a list that includes 280 Refereed papers, 240 Conference Proceedings full papers, 57 Conference Transactions Articles, 77 Technical Reports and 4 US patents awarded (3 more pending), a Book and over 50 Book volumes, and 5 Book Chapters.

Meet the TEP Division Officers

DIVISION CHAIR:

Daniela S. Mainardi
Louisiana Tech University
mainardi@latech.edu



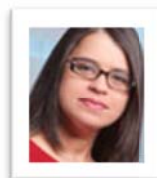
Daniela Mainardi is an Associate Professor and Program Chair of Chemical Engineering, and Associate Professor of Nanosystems Engineering at Louisiana Tech University; currently holding the Thomas C. & Nelda M. Jeffery Professorship in Chemical Engineering.

Mainardi has extensive experience in a large variety of multi-scale molecular simulation tools and has conducted research on different and complementary nano- and bio-technology-related topics with applications to transport and catalysis. Mainardi has received the NSF-CAREER award in 2005 on *Modified-Methanol Dehydrogenase Enzymatic Catalysts For Fuel Cell Devices*.

Mainardi has been an active member of the AIChE since 1999. She has been the *Chair and Co-Chair* for several AIChE Spring and National meetings, a *Director (2009-2011) and Topical Chair (2010) of AIChE-TEP Division*, and the *2010 Spring AIChE Meeting TEP Division sessions organizer*.

2010 & 2011 CHAIR:

Amy Miranda
Myriant Corporation
amiranda@myriant.com



1ST VICE CHAIR:

Terry Payne
Oak Ridge National Laboratory
PAYNETL@ORNL.GOV



2ND VICE CHAIR:

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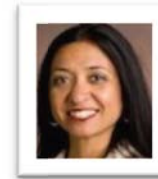
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