



American Institute of Chemical Engineers

Knoxville-Oak Ridge Section

For additional information see our Web site at: <http://www.ornl.gov/sci/aiche/>
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Inside this issue

Article	Pg.
• September 2015 Meeting	1
• Khomami Elected AIChE Fellow	2
• DePaoli Wins 2015 AIChE Robert E. Wilson Award	2
• Professional Development Hour Certificates	3
• Student Poster Presentation at September Meeting	3
• Activities Calendar	4
• Sponsoring Opportunities	4
• Officers	4
• About Our Organization... AIChE Partners	5

September 2015 Meeting

Date: Thursday, September 17, 2015
Cost: \$20
Location: Rothchild Catering and Conference Center, 8807 Kingston Pike, Knoxville TN

5:30 pm Executive Committee Meeting (All members welcome)
6:00 pm Dinner
7:00 pm Program – Dr. Don Byerly, Professor Emeritus in the Department of Earth & Planetary Sciences at the University of Tennessee, Knoxville, ***The Last Billion Years: A Geologic History of Tennessee***

Abstract – What is now Tennessee has evolved in many ways since the formation of its earliest rock record over a billion years ago. Once part of the supercontinent, Rodinia and then later part of another supercontinent, Pangea, Tennessee's real estate was ultimately shoved into its present place on the North American supercontinent between 300 and 250 million years ago by plate tectonics. Throughout that long span of "deep time" Tennessee's landscape slowly evolved to its present form.

Bio – Dr. Don Byerly is Professor Emeritus in the Department of Earth & Planetary Sciences at the University of Tennessee, Knoxville. Professor Byerly received the A.B. degree from the College of Wooster and the M.S. and Ph.D. degrees from UT Knoxville. He taught at UT for 43 years before retiring in 2000.

Please make your reservations by noon September 15 by contacting

Paula George, georgepm@ornl.gov, (865)576-0603 or
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The Section will subsidize up to 15 students, including graduate students

The Executive Committee of the Knoxville – Oak Ridge Section of the AIChE would like to thank our corporate host and sponsor for our summer planning meeting for the 2015/2016 year.



Thanks to Focus Environmental, Inc. for providing their Papermill Drive office conference room for our planning meeting.



Thanks to Bechtel National, Inc., for their donation to attract speakers that will sustain our program to provide continuing education credit to our professional engineering membership.

Khomami Elected AIChE Fellow

Dr. Bamin Khomami, professor and head of the Department of Chemical and Biomolecular Engineering, was elected as a Fellow of the American Institute of Chemical Engineers (AIChE). Fellow is AIChE's highest grade of membership and is achieved only by election by the AIChE Board of Directors, generally upon recommendation of the AIChE Admissions Committee through whom all nominations for election to Fellow are processed.



To be nominated for election as Fellow the candidate must have been in chemical engineering practice for an adequate period of time to demonstrate long-term excellence, normally 25 years, shall have been an AIChE member for at least ten years (exclusive of student membership), and is a Senior Member at the time of election.

Election as Fellow is in recognition of "service to the profession" and "significant professional accomplishment." Contribution in one of these areas shall be outstanding, and some contribution in both areas is necessary.



1. "Service to the profession" means efforts done for reasons other than financial compensation for AIChE, other technical societies, or other not-for-profit entities whose efforts benefit chemical engineers or the advancement of the engineering profession.
2. "Significant professional accomplishments" shall be based on success in process, product, or theoretical developments, project leadership, managerial achievement, the educating of engineers, or other activities related to chemical engineering.

Please join us in congratulating Dr. Khomami on recognition as a Fellow in AIChE.

(Article distilled from the UT College of Engineering Newsletter and AIChE website: <http://www.iche.org/community/fellows>)

DePaoli Wins 2015 AIChE Robert E. Wilson Award

Dr. David DePaoli has been selected as this year's winner of the Robert E. Wilson Award, sponsored by the Nuclear Engineering Division of the AIChE. This award recognizes outstanding chemical engineering contributions and achievements in the nuclear industry. David is a senior scientist at the Oak Ridge National Laboratory and an officer in the Knoxville-Oak Ridge Section of AIChE. Please join us in congratulating Dr. DePaoli on the receipt of this prestigious award.



(Graphic courtesy of Oak Ridge National Laboratory)

Professional Development Hour Certificates

Professional Development Hour (PDH) certificates have routinely been available to the attendees of our meetings. The informative technical seminars presented at each meeting provide attendees with 1 PDH of credit toward partial fulfillment of the continuing education requirements for licensure. PDH certificates will now be issued electronically based on a sign-in sheet that will be available at each meeting. PDH certificates will be issued by emailing a copy of the certificate to each requestor of record, according to the sign-in sheet.

Student Poster Presentation at September Meeting

University of Tennessee Chemical and Biomolecular Engineering (CBE) PhD candidate, Mouge Mohagheghi, will present a poster on her research, titled: *Molecular Processes leading to shear banding in well-entangled polymeric melts*, at the September meeting of the Knoxville-Oak Ridge Section of AIChE. You are invited to either arrive at 5:30 p.m. or remain after the regular meeting to talk with Mouge about her work.

Abstract: Quantitative understanding of the influence of physico-chemical parameters on the dynamic evolution of microstructure in polymeric fluids plays a central role in processing of wide variety of micro-structured materials. To this end, robust and accurate simulation models that can quantitatively predict the flow structure and its hydrodynamic stability are essential in knowledge-based design of polymer processing operations and polymer-based products that constitute a significant portion of the U.S. manufacturing economy. In this study, hi-fidelity dissipative particle dynamics (DPD) simulations has been utilized to develop a mechanistic understanding of occurrence of "shear banding" in a unidirectional shear flow where the fluid instead of flowing with a uniform velocity separates into distinct fast and slow

flowing regimes. Specifically, for the first time, the intricate coupling between spatially inhomogeneous flow-induced entanglement densities and shear banding is elucidated [ACS Macro Lett. 4, 684 (2015)]. Moreover, this novel finding has paved the way for development of mechanistic understanding of shear banding in entangled polymeric fluids.

Bio: Born and raised in Tehran, Iran, Mouge Mohagheghi attended Sharif University of Technology in 2005 and received her bachelor's degree in chemical engineering in 2009 with honors (magna cum laude). During the last semester of her undergraduate studies, she interned at a leading private gas and petroleum company. In turn, she joined the Department of Chemical and Biomolecular Engineering (CBE) at UTK to pursue her Ph.D. in Chemical Engineering with minor in computational science. Her Ph.D. thesis research under supervision of Professor Khomami is mainly focused on the development of computational models to understand the underlying physics of single and multi-component polymeric systems at equilibrium and in non-equilibrium settings. She also received her master's degree in 2013 in chemical engineering from UTK and has served as a teaching research assistant in

the CBE department of UTK. Her anticipated graduation date is in early spring 2016.

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Mouge Mohagheghi



THE UNIVERSITY OF
TENNESSEE

Activities Calendar

Date	Time	Topic	Speaker	Location
Sept 17	6:00 PM	The Last Billion Years: A Geologic History of Tennessee	Don Byerly, UT Professor Emeritus	Rothchild's, Knoxville TN
Oct 22	6:00 PM	The SPRUCE (Spruce and Peatland Responses Under Climatic and Environmental Change) Project	Paul Hanson	Rothchild's, Knoxville TN
Nov 19	6:00 PM	Biofuels	Brian Davison, ORNL	Rothchild's, Knoxville TN
Dec 10	6:00 PM	Feel the Power of the Dork Side: A Humorous and Educational Look at Science and Engineering and Their Practitioners	Pete Ludovice, GA Tech	Rothchild's, Knoxville TN
Jan 21	6:00 PM	Critical Materials Institute	Bruce Moyer, ORNL	Rothchild's, Knoxville TN
Feb	6:00 PM	Joint meeting with ANS – Topic TBD	TBD	TBD
Mar 10	6:00 PM	Joint meeting with UT – Future of Chemical Engineering	Phil Westmorland	TBD
Apr 14	6:00 PM	Energy Choices and Consequences	Harold "Lee" Dobbs, UT	Rothchild's, Knoxville TN
Apr XX		UT Department of Chemical & Biomolecular Engineering Awards Banquet		TBD
May 12	6:00 PM	Super Hydrophobic Coatings	TBD	Rothchild's, Knoxville TN

Sponsoring Opportunities

We continue to accept advertising in the newsletter in order to provide funds to support student participation in the meetings.

Rates per newsletter are:

\$80 full-page advertisement

\$45 half-page advertisement

\$25 quarter-page advertisement

The section will also continue to accept individual or corporate sponsors to provide student meals at section

meetings. The sponsor will be recognized at the meeting and in the Newsletter.

The cost to sponsor one meeting is **\$200**. It's a great way to encourage students to attend the local meetings and become future members in the Institute!



ShaRE Electron microscope facility – ORNL
(Photo courtesy of DOE Digital Photo Archive
<https://www.flickr.com/photos/oakridgelab>)

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"The challenge of leadership is to be strong but not rude; be kind, but not weak; be bold, but not a bully; be humble, but not timid; be proud, but not arrogant; have humor, but without folly."

Jim Rohn
1930-2009

American entrepreneur,
author and motivational
speaker

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We're on the Web!

See us at:

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About Our Organization...AIChE Partners

AIChE maintains a close working relationship with a number of other engineering and scientific organizations in the U.S. and around the world. These organizations may span the engineering disciplines or focus on one particular aspect of technology. Here is a partial list of groups with which AIChE is actively engaged:

American Association of Engineering Societies (AAES)

Accreditation Board for Engineering and Technology (ABET)

American Institute for Medical and Biological Engineering (AIMBE)

Chemical Heritage Foundation (CHF)

Engineering and Construction Contracting (ECC) Association

Engineers Forum on Sustainability (EFS)

Founder Societies
National Council of Examiners for Engineering and Surveying (NCEES)

Global Partner Organizations

United Engineering Foundation (UEF)

World Chemical Engineering Council (WCEC)

For additional information on AIChE Partner organizations, refer to:

<http://www.aiche.org/community/aiche-partners>

Source: National AIChE website, <http://www.aiche.org/community/aiche-partners>

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