

Faculty activities, 2014 AIChE Annual Meeting

Twenty-one faculty of the Artie McFerrin Department of Chemical Engineering reflect on their participation in the [2014 AIChE Annual Meeting](#) in Atlanta. Professors chaired/co-chaired 17 sessions, presented 58 papers and 14 posters. Several faculty members also received awards and held other leadership roles in the meeting.

[Dr. Mustafa Akbulut](#) – Attended and presented one paper with his research group.

Paper Presentation:

1. “Study of Bitumen Adsorption Onto Mineral Surfaces Using a Quartz Crystal Microbalance” (471c). Authors: Y. F. Lopez, M. Akbulut, Z. Cheng, A. Chaves, L. Hoyos, L. E. Sanabria.

[Dr. Perla B. Balbuena](#) – Attended; her group presented three papers.

Paper Presentations:

1. “Impact of Support, Nanoparticle Size, and Carbon Precursor on the Nanotube Growth Mechanism: Viability of Controlling Nanotube Structure” (290a). Authors: D. G. Gualdron, J. M. Beetge, J. C. Burgos and P. B. Balbuena.
2. “Role and Stability of a Metal Carbide Catalyst in the Growth of Single-Walled Carbon Nanotubes” (290b). Authors: J. L. Gomez-Ballesteros, P. A. Lin, M. Picher, R. Sharma and P. B. Balbuena.
3. “Methane to Higher Hydrocarbons By a Non-Oxidative Catalytic Conversion” (159d). Authors: S. Nahreen, J. M. Martinez-De la Hoz, R. Gupta and P. B. Balbuena.

[Dr. Zhengdong Cheng](#) – Attended; his group presented two papers.

Paper Presentations:

1. “Nanoencapsulation of Phase Changing Materials Using Nanoplates” (90056). Authors: Z. Cheng, X. Wang and E. L. Zhang.
2. “Study of Bitumen Adsorption Onto Mineral Surfaces Using a Quartz Crystal Microbalance” (388098). Authors: Y. F. Lopez, M. Akbulut, Z. Cheng, A. Chaves, L. Hoyos and L. E. Sanabria.

[Dr. Mahmoud M. El-Halwagi](#) – Attended and chaired/co-chaired two sessions. His group presented four papers and six posters. He was elected [AIChE Fellow](#) and participated in the Chem-E-Car event.

Paper Presentations:

1. “Dynamic Simulation Targeting Emission and GHG Reduction Under Abnormal Operations: Start-up of an Ethylene Plant By Total Recycle and Intermediate Storage” (153c). Authors: H. Dinh, S. Zhang, Y. Xu, Q. Xu, F. T. Eljack and M. M. El-Halwagi.
2. “Integrated Environmental, Health and Safety Index (IEHS): An Index’s Evolution into a Flowsheet Design Tool” (379762). Authors: S. Jairam and M. M. El-Halwagi.
3. “Environmental and Techno-Economic Analysis for Ethylene Production from Shale Gas” (465a). Authors: A. P. Ortiz-Espinoza, A. Jiménez and M. M. El-Halwagi.
4. “Multi-Objective Optimization for Solid Waste Management Systems” (104a). Authors: J. E. Santibañez-Aguilar, J. Martínez-Gomez, J. M. Ponce-Ortega, F. Nápoles-Rivera, M. Serna-González and M. M. El-Halwagi.

Poster Presentations:

1. “Optimal Design of Thermal Membrane Distillation Systems and Heat Integration with Process Plants” (569ak). Authors: R. Gonzalez-Bravo, N. A. Elsayed, J. M. Ponce-Ortega, F. Nápoles-Rivera and M. M. El-Halwagi.
2. “Optimal Planning for Ambrox® Production Based on Ageratina Jucotepecana” (569u). Authors: S. I. Martinez-Guido, J. B. Gonzalez-Campos, F. Nápoles-Rivera, M. Serna-González, M. M. El-Halwagi and J. M. Ponce-Ortega.
3. “Simultaneous Design of Water Reusing and Rainwater Harvesting Systems in a Residential Complex” (224h). Authors: M. Garcia-Montoya, A. Bocanegra-Martinez, J. M. Ponce-Ortega, F. Nápoles-Rivera, M. Serna-González and M. M. El-Halwagi.
4. “Multi-Objective Optimization for Solid Waste Management Systems” (104a). Authors: J. E. Santibañez-Aguilar, Juan Martínez-Gomez, J. M. Ponce-Ortega, F. Nápoles-Rivera, M. Serna-González and M. M. El-Halwagi.
5. “Optimal Design of Domestic Water-Heating Systems through Solar Collectors” (224g). Authors: A. F. Sanchez-Bautista, J. E. Santibañez-Aguilar, J. M. Ponce-Ortega, F. Nápoles-Rivera, M. Serna-González and M. M. El-Halwagi.
6. “Environmental and Techno-Economic Analysis for Ethylene Production from Shale Gas” (465a). Authors: A. P. Ortiz-Espinoza, A. Jiménez and M. M. El-Halwagi.

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[Dr. Yossef A. Elabd](#) – Attended and presented three papers and two posters with his group. He co-chaired one session. His group received the 3rd place award in the Materials Science and Engineering Poster Competition.

Paper Presentations:

1. “Polymerized Ionic Liquid Block Copolymers: Highly Versatile Ion Conductors” (371371). Author: Yossef A. Elabd (Invited speaker).
2. “Polymerized Ionic Liquid Block Copolymers as Anion Exchange Membranes for Alkaline Fuel Cells” (374494). Author: Y. Ye, J. R. Nykaza, K. M. Meek and Y. A. Elabd. (Invited speaker).
3. “Polymerized Ionic Liquid Membranes for CO₂ Capture: The Effect of Water Vapor” (381920). Authors: L. Ansaloni, J. R. Nykaza, M. Minelli, Y. A. Elabd, and M. G. Baschetti.

Poster Presentations:

1. “Alkaline Fuel Cell Performance with a Polymerized Ionic Liquid Block Copolymer as Anion Exchange Membrane” (226d). Authors: R. Benjamin, J. R. Nykaza and Y. A. Elabd.
2. “Polymerized Ionic Liquid Block Copolymers as Solid-State Polymer Electrolytes for Lithium-Ion Batteries” (226c). Authors: J. R. Nykaza and Y. A. Elabd.

[Dr. Christodoulos Floudas](#) – Attended and chaired/co-chaired one session. His group presented fifteen papers.

[Dr. M. M. Faruque Hasan](#) – Attended and presented five papers with his research group/collaborators.

[Dr. Charles J. Glover](#) – Attended.

[Dr. Micah J. Green](#) – Attended and presented two papers with his group. He chaired three sessions and served as an area programming chair.

Paper Presentations:

1. “Designer Stabilizer for Preparation of Pristine Graphene/Polysiloxane Films and Networks” (366398). Authors: D. Parviz, M. Green, Z. Yu and R. Hedden.
2. “Crumpling and Unfolding Behavior of Spray Dried Pristine Graphene Sheets” (366591). Authors: M. Green, D. Parviz, S. Das and F. Irin.

[Dr. Arul Jayaraman](#) – Attended.

[Dr. Hae-Kwon Jeong](#) – Attended and presented one poster with his group.

Poster Presentation:

1. “Improving Propylene/Propane Separation Performance of Zeolitic Imidazolate Framework ZIF-8 Membranes Synthesized by a Counter-Diffusion-based In situ Method” (414o). Authors: H. T. Kwon and H.-K. Jeong.

[Dr. Katy Kao](#) – Attended and chaired/co-chaired one session. She presented two papers and one poster with her research group.

Paper Presentations:

1. “Evolutionary Engineering of Sexual and Asexual Escherichia coli Strains for Osmotic Stress Tolerance” (664h). Authors: K. Kao and J. D. Winkler.
2. “Adaptation of *Candida Glabrata* to Environmental Stressors of Biomedical and Industrial Relevance” (149g). Authors: M. Huang and K. Kao.

Poster Presentation:

1. “Metabolic Engineering of *Saccharomyces Cerevisiae* for Enhanced Carotenoid Production” (599al). Authors: M. Olson, L. H. Reyes and K. Kao.

[Dr. M. Nazmul Karim](#) – Attended and chaired/co-chaired three sessions. He participated in the AIChE programming meeting as a representative of the fuels and petrochemicals division. His group presented two papers and one poster.

Paper Presentations:

1. “Economic Viability of Consolidated Bioprocessing As Compared to Separate Hydrolysis and Fermentation for the Production of Biochemically Derived Ethanol from Biomass” (569o). Authors: J. P. Raftery and M. N. Karim.

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2. "A Methodology for Leak Detection in Natural Gas Pipelines Under Different Consumer Usage Patterns" (587c). Authors: X. Pan and M. N. Karim.

Poster Presentation:

1. "The Development of Cellulose Monolith with Anion Exchange/Pseudo-Affinity Functionalization for the Separation of Influenza Virus" (415f). Authors: X. Pan and M. N. Karim.

[Dr. Costas Kravaris](#) – Attended and presented one paper.

Paper Presentation:

1. "Design of Sampled Data Nonlinear Observers for Processes Monitoring" (523h). Author: Costas Kravaris.

[Dr. Jodie L. Lutkenhaus](#) – Attended and chaired/co-chaired two sessions. Her group presented three papers and two posters.

Paper Presentations:

1. "In Situ One-Step Synthesis of Hierarchical Nitrogen-Doped Porous Carbons Derived from Metal-Organic Frameworks for Supercapacitors" (70d). Authors: J. W. Jeon, S. Nune and J. Lutkenhaus.

2. "Thermal Transitions in Layer-By-Layer Assemblies Observed Using Electrochemical Impedance Spectroscopy" (619h). Authors: C. Sung, K. Hearn and J. Lutkenhaus.

3. "Hybrid Electrodes for Electrochemical Energy Storage" (521a: Invited Talk). Authors: J. Lutkenhaus, J. W. Jeon, H. An, J. Mike, S. R. Kwon and R. Verduzco.

Poster Presentations:

1. "Temperature-Triggered Shape Transformations in Layer-By-Layer Microtubes" (226aa). Authors: C. Sung, V. Ajay, K. Hearn and J. Lutkenhaus.

2. "Porous Polyaniline Nanofiber/Graphene Multilayer Electrodes for Energy Storage" (230f). Authors: J. W. Jeon, S. R. Kwon and J. Lutkenhaus.

[Dr. M. Sam Mannan](#) – Attended and presented research with his group/collaborators.

[Dr. Stratos Pistikopoulos](#) – Attended and presented six papers and one poster with his research group and collaborators. He co-organized and co-chaired two invited sessions, and participated as a trustee in the CACChE meeting and dinner. He was elected second vice chair of CAST and participated in the division's executive planning meeting and annual dinner.

[Dr. Jorge M. Seminario](#) – Attended.

[Dr. Victor M. Ugaz](#) – Attended and presented five papers with his group. He chaired/co-chaired one session.

Paper Presentations:

1. "Portable Smartphone-Enabled DNA Analysis" (127f). Authors: A. Priye and V. M. Ugaz.

2. "Scaling of Entropic Trapping Transport in Weak Electric Fields: A Monte Carlo Study" (269e). Authors: N. Shi and V. M. Ugaz.

3. "An Entropic Force Microscope Enables Nano-Scale Conformational Probing of Biomolecules" (322a). Authors: N. Shi and V. M. Ugaz.

4. "Continuous Sizing and Characterization of Suspension-Based Nanomaterials" (391c). Authors: F. Meng and V. M. Ugaz.

5. "Novel 3D-Printed Oleophilic Absorbents" (710a). Authors: D. Han and V. M. Ugaz.

[Dr. Benjamin A. Wilhite](#) – Attended and presented three papers with his group. He served on a division board of directors.

Paper Presentations:

1. "Annular Micro-Channel Reactors: Efficient and Scalable Methane Steam Reformers" (500b). Authors: P. Bossard, L. Breziner, C. Quenzel, H. Butcher and B. A. Wilhite.

2. "Optimizing the Design and Implementation of the Upper Level Curriculum: Making the Case for Scheduling Analysis of an Undergraduate Program" (559b). Author: B. A. Wilhite.

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3. “Enhancing Catalyst Effectiveness and Loading in Microreactors” (304c). Authors: H. Butcher, B. A. Wilhite, P. Bossard and C. Quenzel.

[Dr. Hung Jen Wu](#) – Attended and presented one paper. He chaired/co-chaired one session.

Paper Presentation:

1. “Detection and Diagnosis of Mycobacterium Tuberculosis Using Customized Nanopores” (385990). Authors: H.-J. Wu, Y. Li, J. Fan, Z. Deng, Y. Hu, X. Liu, E. A. Graviss and X. Ma.