Separations Division of AIChE

American Institute of Chemical Engineers

Scenes from the Annual Awards Banquet
San Francisco, November 4, 2013

The 2013 AIChE Separations Division Awards Banquet was held November 4 at the Empress of China Restaurant in San Francisco. Here, Division members are shown beginning the evening with some lively conversation (upper photos). Nicholas Urbanski, Awards Program Coordinator, makes sure all is ready (lower left, with Kathleen Mihlbachler, Atanas Serbezov, and Glenn Lipscomb), and Immediate Past Chair Mark Pilling congratulates current Chair Linda Wang on a very successful year (lower right). See pages 5 - 15 for more photos of the evening's events.

Words from the Chair…

Dear All:

I am honored to have served as the Chair of the Separations Division in 2013. It has also been an amazing experience for me as an officer of the Division over the past several years. I have been impressed by the people and the operations of the Division. I would like to share with you what I learned and some news about the Division.

As you may know, the major functions of the Division include managing programs for AIChE meetings and recognizing people with various awards for outstanding service or research. In 2013, for example, 130 sessions were organized, and more than 600 papers were presented at the meeting in San Francisco. Awards presented in the San Francisco meeting include: the Service Awards to Drs. Jud King and Jimmy Humphrey, who were the major founders of the Separations Division; the Gerhold Award sponsored by UOP to Dr. Benny Freeman for his outstanding contributions in separations technology; the Kunish Award sponsored by the Fractionation Research Institute to an outstanding researcher under the age of 40, Dr. Moises Carreon; and Graduate Student Research Awards to Kumar Varoon Agrawal (membranes), Michael J. Mitchell (bioseparations), Andrew S. Paluch (crystallization), Michael C. Stern (distillation and absorption), Joshua Thomson (membranes), Xiaochuan Yang (crystallization), and Rong Yang (Prof. D. Bhattacharyya Graduate Student Research Award). The awardees were honored in the Separations Award Dinner at the Empress of China restaurant. The dinner was organized by Nicholas Urbanski, the Director of Awards, and was attended by more than 70 members.

All the activities of the Division have been carried out by volunteers. The Division treasurer, Neil Yeoman, the Division secretary, Atanas Serbezov, Paul Bryan, the manager of the Gerhold Award, and our current liaison to the AIChE Technology Operating Council, Sharon Robinson, have served the Division for a decade or more. Many past chairs of the Division continue to participate in the planning meetings, evaluate nominations for awards, organize sessions, and offer their advice or share their experiences with their successors. I was advised and helped many times in the past two years by the 2012 Chair, Mark Pilling, the 2011 Chair, Benny Freeman, and the 2010 Chair, D. Bhattacharyya. Without their help, my job would have been more difficult. Our Director of Awards, Nicholas Urbanski, tirelessly organized all the Graduate Student Awards and the annual award dinners for the past four years. The eight Area Chairs, Nicholas Urbanski (Area 2A distillation and absorption), Paul Kenis (Area 2B Crystallization and Evaporation), Megan Donaldson (Area 2C Extraction), Tarun Poddar (Area 2D Membrane-based Separations), Roger Whitley (Area 2E Adsorption and Ion Exchange), Isaac Gamwo (Area 2F Fluid Particle Separations), Kathleen Mihlbachler (Area 2g Biospearations), and Alice He (Area 2H General Separations) worked with more than two hundreds session chairs for the meetings and helped review the nominations of the Graduate Student Research Awards in 2013. The dedication, cooperation, and the "can do" spirit of all the volunteers are crucial for continued success of the Division since 1990.

The organization of the Division is also amazingly robust and flexible, leaving plenty of room for new ideas and continued improvement. Many new initiatives were implemented or proposed in 2013:

1. *Handbook for Officers.* An officer usually serves in a given position for one term and moves on to another position. The Division is developing a handbook documenting the tasks for each position and the tips or lessons from the past officers. The goal is to help new officers to start up quickly and to ensure smooth transitions. Mark Pilling and several area chairs initiated this effort.
2. *LinkedIn for Separations.* In January 2013, Marcus Mello, a Director of the Division, initiated a LinkedIn group site for the Division. He is the manager of this site. The purpose is to reach out to more members and to increase the "connectivity" among members. One can post news, job openings, announcements, links to other websites, or important topics for on-line discussion. More than 50 members have already joined LinkedIn. If you are interested in joining this group, please e-mail Dr. Mello.
3. *AIChE Separations Division Website.* Roger Whitley, a Director of the Division, volunteered to be the first website content manager for the Division. He will work with the IT department of the AIChE to post important information or news of the Division. Our previous independent Division website is now discontinued and replaced by the one within the AIChE website.
4. *Separations Division Newsletter.* Dr. Timothy Frank, the first Vice Chair of 2014, initiated a newsletter for the Division. He took many pictures of the Award Dinner in San Francisco to share with you in this newsletter.
5. *Separations Division Service Award*. In honor of the vision and the leadership of the founders of the Division, the name of this award will be changed to "Separations Division Founders Award," starting in 2014.
6. *New Annual Award Dinner Manager.* Dr. Scott Husson, the second Vice Chair in 2014, has kindly agreed to serve as the Award Dinner manager in 2014. In the past, the Director of Awards managed both the Graduate Student Awards and the Award Dinner. It was too much work for one officer. Kathleen Mihlbachler and Tarun Poddar will succeed Nicholas Urbanski as the Directors of Awards in 2015.
7. *Standard Time of 25 min for Oral Presentation for the Sessions in Separations.* It was proposed in the Division meeting on Nov. 4, 2013 that each oral presentation in the Division should have 25 min. Each session should have six or fewer oral presentations. This proposal had almost unanimous support from the members present at the meeting. This proposal aims to give sufficient time for each presentation and to allow people to attend multiple sessions in a given period. I checked with all the Area Chairs after the San Francisco meeting. All areas, except Areas 2B and 2E, agreed with this proposal. I encourage all the session chairs to follow this guideline in future meetings.

8. *Participation of Division Planning Meetings Offsite.* Many important ideas and decisions are discussed during the spring and the fall planning meetings. Because of high travel costs, not all the officers or interested members can attend both meetings. Roger Whitley and Sharon Robinson are working with AIChE to explore the possibility of having speakers and microphones in the meeting room to allow offsite participation in the meeting via Google+ or other videoconference applications.
9. *Separations Division Technology Innovation Award.* Thanks to our treasurer, Neil Yeoman, the Division had a balance of about $78,000 in Dec. 2013. It was proposed in the San Francisco planning meeting to use some of the funds to establish Separations Technology Innovation Awards. Nicholas Urbanski volunteered to develop a proposal about the details of the new awards, which will be discussed in the spring planning meeting in New Orleans, March 30, 2014.

I have had a great experience working with a wonderful group of dedicated volunteers in this Division. We are very lucky to have Glenn Lipscomb as the Chair for 2014. Glenn is well known for his research expertise in membranes and has organized many successful international conferences. I will serve as the "past chair" in 2014. This Division is the only organization I know of that has a list of tasks for "past chairs"!

Happy New Year!

Nien-Hwa Linda Wang
2013 Chair, Separations Division of AIChE

Scenes from the Annual Awards Banquet

Photos by Glenn Shiveler and Tim Frank. Commentary by Tim Frank

The annual Separations Division Awards Banquet was held Monday, November 4, 2013 during the AIChE Fall Meeting. The venue was the well-known Empress of China Restaurant in San Francisco's historic Chinatown district. Professor Linda Wang, the 2013 Chair of the Separations Division, presided over the evening's activities. Nicholas Urbanski served as the Awards Program Coordinator in charge of planning for the awards and the banquet arrangements. The following is a collection of photos from the evening. We hope you will enjoy the opportunity to view the evening's festivities.

Linda Wang, presiding Chair of the Division, presents Mike Resetarits with a plaque to commemorate his service as Director (2009-2013). Nicholas Urbanski, Awards Program Coordinator, looks on.

Linda Wang thanks Kathleen Mihlbachler for her service as Area Chair for Bioseparations (Area 2g).

Linda Wang with Isaac Gamwo, Area Chair of Fluid Particle Separations (Area 2f), thanking him for his service to the Division.

Linda Wang, Chair, and Nicholas Urbanski, Awards Program Coordinator, recognized a number of graduate students for their work in separations. Here, Kumar Varoon Agrawal, Ph.D. Candidate at the University of Minnesota, accepts a Graduate Student Research Award for research in Membrane-based Separations (Area 2d).

Michael Mitchell, Ph.D. Candidate at Cornell University, receives a Graduate Student Research Award for work in Bioseparations (Area 2g).

Andrew Paluch, Ph.D. Candidate at the University of Notre Dame, is recognized for research in Crystallization & Evaporation (Area 2b).

Michael Stern, Ph.D. Candidate at Massachusetts Institute of Technology, receives recognition for his work in Distillation & Absorption (Area 2b).

Joshua Thompson, Georgia Institute of Technology, receives a Graduate Student Award in Membrane-based Separations (Area 2d).

Xiaochuan "Ben" Yang, Massachusetts Institute of Technology, accepts a Graduate Student Research Award given for research in Crystallization & Evaporation (Area 2b).

The evening included the presentation of the Separations Division Service Award to the Division founders, Judson King and Jimmy Humphrey.

Drs. King and Humphrey share stories about how the Separations Division first began.

Dr. Moises Carreon accepts the 2013 John G. Kunesh Award for outstanding contributions to separations R&D.

Benny Freeman is shown receiving the 2013 Clarence Gerhold Award for excellence in separations R&D. The award was presented by representatives of the sponsoring organization, UOP, LLC (A Honeywell Company).

Here, Bipin Vora, UOP Fellow (retired) tells everyone about Clarence "Larry" Gerhold and the significance of the award given in his honor.

Loretta and Neil Yeoman

Barbara and Jimmy Humphrey

Isaac Gamwo (National Energy Technology Laboratory)

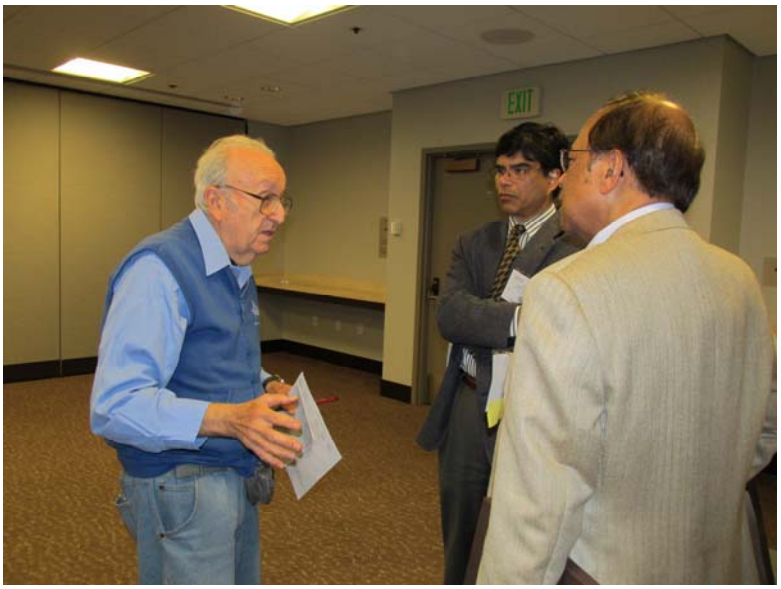
Andrew Paluch (graduate student, University of Notre Dame), Sharon Robinson (Oak Ridge National Laboratory), and Marcus Mello (Chevron).

Benny Freeman and Bruce Eldridge, colleagues at the University of Texas at Austin.

Ed Cussler (University of Minnesota) and Judson King (UC – Berkeley) reminisce about their undergraduate days at Yale University, among other things.

Bill Koros (Georgia Tech) and Linda Wang (Purdue).

Glenn Lipscomb, University of Toledo Professor and 1st Vice Chair, is ready to take on the Chair position in 2014.



And planning for next year already is underway!

Meet the Award Winners

By Nicholas Urbanski

Dr. Benny D. Freeman
Recipient of the 2013 Clarence Gerhold Award

The Clarence Gerhold Award, sponsored by UOP, LLC (A Honeywell Company), recognizes outstanding contributions in research, development, or in the application of chemical separations technology.

The AIChE Separations Division is pleased to recognize Dr. Benny D. Freeman (University of Texas at Austin) with the 2013 Clarence G. Gerhold Award for significant developments and exceptional leadership in the area of mass transport in polymers for membrane applications.

Professor Freeman's introduction to the field of membrane science began as an undergraduate researcher in Professor Bill Koros's group at North Carolina State University (NCSU). As a faculty member, he initially focused on fundamental studies of structure/property relations in polymers for gas separations. Dr. Ingo Pinnau, then at Membrane Technology and Research, Inc., introduced Professor Freeman to novel materials concepts related to polymers that were reverse-selective. This collaboration led to nanocomposite membranes where the addition of nanoparticles simultaneously increased both permeability and selectivity for removing higher hydrocarbons from mixtures with hydrogen or methane. It also stimulated interest in tuning thermodynamic interactions between gas molecules and polymers to enhance separation properties which led Professor Freeman's group to prepare polymers with high CO_2 permeability and high CO_2/H_2 selectivity. The widely cited observation by Dr. Lloyd Robeson that there was a so-called "upper bound" to the tradeoff between gas permeability and selectivity stimulated Professor Freeman to develop a model to predict this phenomenon. A collaboration with Professors Young Moo Lee and Ho Bum Park of Hanyang University in Korea resulted in so-called "thermally rearranged," or TR, polymers, with properties that often are beyond the upper bound for many gas pairs. Dr. Freeman's fouling-resistant membrane studies led to the formation of an Austin-based startup, Advanced Hydro, Inc.

Professor Freeman has led many professional committees and organizations devoted to separation science. He has served as Chair of the Polymeric Materials: Science and Engineering (PMSE) Division of the ACS, Chair of the Gordon Research Conference on Membranes: Materials and Processes, President of the North American Membrane Society, Chair of the Membranes Area of the Separations Division of the AIChE, and Chair of the Separations Division of AIChE. He currently serves as an ACS Councilor for the PMSE Division, and he is a member of the editorial boards for nine journals, including *Polymer*, *Journal of Membrane Science*, and *Desalination*. Since 2007, he has served as Associate Editor of *Industrial & Engineering Chemistry Research*.

Professor Freeman holds the Richard B. Curran Centennial Chair in Chemical Engineering at UT-Austin. He has been at UT-Austin since 2002. Prior to that, he taught at NCSU from 1989 until 2002. In 1988-1989 he was a NATO/NSF Postdoctoral Fellow in Paris, France at the Ecole Supérieure de Physique et de Chimie Industrielles de la Ville de Paris, Laboratoire Physico-Chimie Stucturale et Macromoléculaire. He earned a Ph.D. in Chemical Engineering at the University of California, Berkeley in 1988 and a B.S. in Chemical Engineering at NCSU in 1983.

Professor Freeman's research contributions have been recognized by many awards, including the Society of Plastics Engineers International Award, the Roy W. Tess Award in Coatings and the Cooperative Research Award from the PMSE Division of ACS, the ACS Award in Applied Polymer Science, and the AIChE Institute Award for Excellence in Industrial Gases Technology.

The list of Gerhold Award recipients comprises a truly distinguished group:

1992 – C. J. King	1993 – A. D. Randolph
1994 – J. R. Fair	1995 – G. E. Keller
1996 – R. W. Rousseau	1997 – R. T. Yang
1998 – M. Larson	1999 – W. J. Koros
2000 – G. Belfort	2001 – R. Agrawal
2002 – N. N. Li	2003 – H. Z. Kister
2004 – M. F. Doherty	2005 – C. A. Eckert
2006 – E. L. Cussler	2007 – W. S. Ho
2008 – K. K. Sirkar	2009 – D. Bhattacharyya
2010 – N. Yeoman	2011 – R. D. Noble
2012 – S. Kulprathipanja	2013 – B. D. Freeman

The deadline for submitting a nomination package for the next Gerhold Award is May 1, 2014 (Note: Some older web pages erroneously refer to May 31 or some later date). Starting in 2010 the award is presented in even years to nominees from industry or non academic entities, and in odd years to nominees from academia. Nominees can indicate in which category they want to be considered. The criteria used for selection shall be consistent with the category. For more information, go to http://www.aiche.org/community/awards/clarence-larry-g-gerhold-award .

Clarence G. Gerhold, A Pioneer in Chemical Processes

> *"Within three months of his arrival at UOP's Riverside Laboratory in 1929, Clarence G. "Larry" Gerhold developed a new cracking process, called thermal reforming, that used gasoline, rather than crude oil, as a feedstock. He was also the prime inventor of UOP processes that separate aromatics from other hydrocarbons. These processes contributed to the explosive growth in the aromatic derivatives branch of the petrochemical industry. His work at Riverside was the basis for the ultimate development of the UOP® Sorbex® processes, which provide continuous adsorption separations. Gerhold was appointed manager of the Riverside laboratory in 1945"**

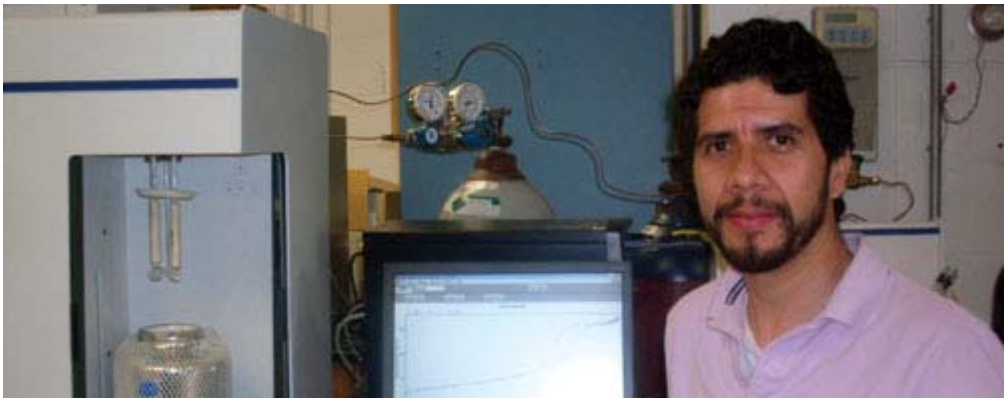
Clarence "Larry" Gerhold was one of the nation's outstanding innovators in conceiving and implementing new processes in the petroleum, refining, and petrochemical industries. His 78 patents serve as clear evidence of his technical leadership and innovation. From 1929, when he conceived of thermal reforming, to Simulated Moving Bed (SMB) chromatography and the SORBEX adsorptive separation process technology, he had always explored the unconventional possibilities instead of simply following evolutionary paths.

Clearly he was one of Universal Oil Products' most prolific people. He had an early vision of modern petroleum processing and for his entire career worked to promote this vision. Importantly, he had the determination to push through developments which at the time were given little hope for commercial acceptance.

An important example of his accomplishments is the Platforming process. There was general skepticism when platimum-promoted catalysts were suggested by UOP's Vladimir Haensel in 1947. Larry took a different approach. He analyzed the possible problems and persuaded the researchers to develop viable solutions. He convinced management of the need for rapid commercialization of the process. He worked with all the process development and design functions to move forward. His efforts were instrumental in the development and implementation of a commercially-successful operation within 2-1/2 years of the first laboratory experiment!

Larry championed many UOP processes: thermal reforming, catalytic polymerization, dehydrogenation, the UDEX extraction process (co-developed by UOP and The Dow Chemical Company), and the UOP SORBEX adsorption separation process including invention of SMB chromatography. His solutions to problems overcame obstacles to commercial realization, and his vision and persistence resulted in new directions for these developing industries.

*Excerpt taken from "UOP Riverside Laboratory, A National Historic Chemical Landmark" (American Chemical Society (ACS), Division of the History of Chemistry and The Office of Public Outreach, 1995), used with permission of ACS.



Dr. Moises A. Carreon
Recipient of the 2013 John G. Kunesh Award

The John Kunesh Award, sponsored by Fractionation Research, Inc. (FRI), recognizes outstanding contributions to the academic, scientific, technological, industrial, or service areas involving separations technologies for individuals under the age of 40.

The AIChE Separations Division is pleased to recognize Dr. Moises A. Carreon (University of Louisville) with the 2013 John G. Kunesh Award for outstanding fundamental and applied research in porous crystalline membranes for selective gas separations.

Dr. Carreon has been involved in cutting-edge research on porous crystalline membranes for almost a decade. His contributions to the scientific areas involving molecular gas separations by membranes have been substantial. Dr. Carreon has achieved results of high conceptual and practical significance. He has made important contributions in elucidating fundamental structure-function relationships of polycrystalline SAPO-34 zeolite membranes, which show great promise for separation of carbon dioxide from methane (natural gas mixtures) and from nitrogen (flue gas mixtures). Dr. Carreon worked together with Professors John Falconer and Rich Noble at the University of Colorado – Boulder on the development of SAPO-34 membranes to near commercial demonstration for the separation of CO_2 from natural gas under the sponsorship of Shell Global Solutions. Based on Professor Carreon's fundamental contributions in the area of zeolite membranes, he is in an excellent position to pursue development of a next generation of porous crystalline membranes that could be amenable for industrial scale-up for natural gas purification and flue gas treatment. Professor Carreon has been among the pioneers in the field of zeolitic imidalozate framework (ZIF) membranes for carbon dioxide separation from light gases. In particular, these membranes have shown unprecedented high CO_2 permeances and promising separation selectivities. His current work, supported by NSF-CAREER, is focused on developing novel compositions of ZIF membranes able to effectively separate carbon dioxide.

Professor Carreon also has recently made seminal contributions to research on bio-metal-organic framework (Bio-MOF) membranes which are an emerging class of porous crystals that hold great promise for molecular gas separations due to their permanent microporosity with pore sizes close to the kinetic diameter of relevant gas molecules, high surfaced areas, and chemical stability. Recently, his group has demonstrated the feasibility of the development of Bio-MOF membranes that could be promising for carbon dioxide capture.

In addition, Dr. Carreon's current research efforts also involve separation of krypton from xenon, an important problem for the nuclear processing industries. Separating Kr from Xe is a critical step in removing radioactive Kr during treatment of spent nuclear fuel. Together with researchers at Pacific Northwest National Laboratory (PNNL), Dr. Carreon is proposing to develop highly selective porous crystalline membranes for this challenging gas separation.

Dr. Carreon earned his B.S. in Chemical Engineering and M.S. in Materials Science and Engineering (1999) from the Universidad Michoacana in Mexico (1999), and a Ph.D. in Chemical Engineering from the University of Cincinnati (2003). He is currently Associate Professor in Chemical Engineering at the University of Louisville. Dr. Carreon will be joining the Chemical & Biological Engineering Department at Colorado School of Mines in 2014.

Beginning in 2010, the Kunesh Award has recognized exceptional contributions for individuals at an early stage in their career:

2010 – Scott M. Husson
2011 – Isabel C. Escobar
2013 – Moises A. Carreon
2010 – Nicholas F. Urbanski
2012 – Sankar Nair

The deadline for submitting a nomination package for the next Kunesh Award is May 1, 2014. This award is presented in memory of John G. Kunesh, past Separations Division Chairman and Technical Director of Fractionation Research, Inc. (FRI). His dedication to the distillation industry and service to those working in it serve as a model for all those practicing engineering disciplines. John actively challenged, mentored, and encouraged young engineers to succeed.

The Kunesh Award continues this encouragement by recognizing outstanding contributions to the academic, scientific, technological, industrial, or service areas involving separations technologies by individuals under the age of 40. Criteria considered in selecting an awardee include: Significant discoveries, important research, development of new processes and products, introduction of new education concepts, service to the Separations Division, or outstanding service to the separations community. For more information, go to

http://www.aiche.org/community/awards/frijohn-g-kunesh-award.

John G. Kunesh, A Mentor to Chemical Engineers

Dr. John G. Kunesh mentored and supervised many young chemical engineers. The majority of those engineers are still contributing globally in the Separations field.

John received B.S., M.S., and Ph.D. degrees from Carnegie Mellon University, the latter in 1971. His first industry position was with UOP in Des Plaines, Illinois, where he soon became the Manager of twenty engineers within the Design Engineering group of the Process Division. For six years, he led UOP's Training Group for New Design Engineers. He also led UOP's Design Engineering Course for Client Personnel.

In 1976, John left UOP for Hydrocarbon Research, Inc., in New Jersey, where he soon became their Vice President of Process Design. Among his achievements there was management of engineering for a new coal liquefaction plant design. In 1984, John joined Fractionation Research, Inc. (FRI) as their Technical Director, a position which he held for 18 years. John and his FRI group contributed appreciably to global distillation. FRI testing included studies of high-capacity trays, packing distributors, structured packing, high-capacity structured packing, and high-performance random packing. FRI's Design Rating Program was initially authored during John's tenure.

John was an AIChE Separations Division Director for 6 years, and its Chair in 2004. Anyone who knew or worked for John enjoyed, respected, and learned from him. The Separations world benefitted greatly from John's time in it.

Judson King and Jimmy Humphrey with Linda Wang, Chair.

Separations Division Service Award

The Service Award recognizes outstanding service to the Separations Division. The recipient must have a considerable record of service to the Division and the separations area, performed above and beyond the expected duties, and participated extensively in a variety of Division activities with documented evidence of sustained service over an extended period of time.

The Separations Division is pleased to recognize Dr. Jimmy L. Humphrey and Dr. C. Judson King for outstanding and long-lasting leadership, dedication and commitment to the Separations Division. It is through their leadership and sense of service that they founded the Separations Division in 1990.

Jimmy L. Humphrey, Ph.D., P.E., is a technology consultant and advisor to industry and government. He is a registered Professional Engineer in Texas. His expertise includes converting petroleum, biomass, and coal feedstocks to alternative fuels and chemicals, developing new approaches to increase industrial energy efficiency, and formulating smart manufacturing practices to prevent plant problems before they occur. Jimmy has consulted with more than 50 Fortune 1000 companies and several government agencies. He obtained his B.S. degree from Texas A&M (1963) and Ph.D. from the University of Texas – Austin (1967). He is co-author of two books and 70 publications. Jimmy Humphrey and George Keller co-authored the book *Separation Process Technology* (McGraw-Hill, 1997), to explain industrial needs and approaches to maximizing the performance of separation processes. It continues to be a key reference for engineers and others interested in the subject. Jimmy is also known for his work developing the Separations Research Program at the University of Texas (with Prof. James Fair). Dr. Humphrey also has served as a member of the AIChE Research and New Technology Committee (RANTC), as a Director of the Computing and Systems Technology (CAST) Division, and was elected a Fellow of AIChE in 1992. He currently is an Advisor on separation technology for the International Energy Agency. Previous awards include a DOE Certificate for Outstanding and Valuable Service to the DOE Biomass Program, the AIChE Mark Isaacs Award, the AIChE Equipment Committee Appreciation Award, and the Texas Industrial Energy Conference Service Award.

C. Judson King obtained his B.E. at Yale University (1956) and his M.S. and Ph.D. at Massachusetts Institute of Technology (1960), following which he directed the Bayway station of MIT's School of Chemical Engineering Practice. In 1963 he began a 50+ year career at the University of California at Berkeley. He has served the university as Professor, Vice-Chair (1967-72), and Chair (1972-81) of Chemical Engineering, Dean of the College of Chemistry (where Chemical Engineering resides, 1981-87), Provost – Professional Schools and Colleges (1987-94), Vice Provost for Research (1994-95), and Provost and Senior Vice President – Academic Affairs of the University of California (1995-2004). Since 2004 he has been Director of the Center for Studies in Higher Education at the Berkeley campus.

Dr. King is well-known as the author of the textbook *Separation Processes* (McGraw-Hill, 1971, 1980). His principal areas of chemical engineering research have dealt with freeze drying of foods and pharmaceuticals, spray drying, extraction, adsorption, and separations by reversible chemical complexation. He is a thirty-one year member of the National Academy of Engineering, was the first recipient of the Clarence Gerhold Award (in 1992), and has received numerous other AIChE awards including the William H. Walker Award, the Warren K. Lewis Award, and the Food, Pharmaceutical and Bioengineering Division Award in Chemical Engineering. Dr. King also has been recognized with the AIChE Institute Lectureship, as well as other high-level recognitions given by the Council for Chemical Research, the American Chemical Society, the Electrochemical Society, among other leading professional organizations.

Graduate Student Research Awards

Graduate Student Research Awards recognize outstanding work by graduate students in one of the Separations Division Program Areas: Distillation & Absorption (Area 2a), Crystallization & Evaporation (Area 2b), Extraction (Area 2c), Membrane-based Separations (Area 2d), Adsorption & Ion Exchange (Area 2e), Fluid Particle Separations (Area 2f), and Bioseparations (Area 2g).

For 2013, the Separations Division is pleased to recognize the following students for excellence in separations research (in no particular order):

Michael C. Stern
Distillation & Absorption
Professor T. Allan Hatton
Massachusetts Institute of Technology

Andrew S. Paluch
Crystallization and Evaporation
Professor Edward Maginn
University of Notre Dame

Xiaochuan Yang
Crystallization & Evaporation
Professor Allan Myerson
Massachusetts Institute of Technology

Kumar Varoon Agrawal
Membrane-based Separations
Professor Michael Tsapatsis
University of Minnesota

Joshua A. Thompson
Membrane-based Separations
Professor Sankar Nair
Georgia Institute of Technology

Michael J. Mitchell
Bioseparations
Professor Michael King
Cornell University

Rong Yang
Dibakar Bhattacharyya Research Award in Membrane Research
Professor Karen Gleason
Massachusetts Institute of Technology

The Separations Division of AIChE established the Graduate Student Research Award program to encourage graduate students to excel, to promote a high level of interest in the field of separations, to identify future leaders in the field, and to strengthen the cooperation between academia and industry in the separations field. Each award comprises a $200 check and a plaque. Nominees must be (have been) graduate students since the last Fall AIChE Annual Meeting and/or the following calendar year. In 2013, the Graduate Student Awards Program was underwritten by Chevron and by the Separations Division of AIChE.

Nominations for 2014 Graduate Student Awards are due by May 1, 2014. A nomination package includes: 1) A single nomination letter detailing the student's strengths and accomplishments, by a faculty member who must be a member of AIChE; 2) A single research paper (published or otherwise) contributing to separations fundamentals or applications. This paper may be co-authored by others, but the student nominee must have been a primary author. The paper should be of a quality acceptable for publication in journals such as *AIChE Journal* or *Chemical Engineering Science*; and 3) The student's CV. For more information, go to
http://www.aiche.org/community/awards/separations-division-graduate-student-research-award.

Professor Dibakar Bhattacharyya Graduate Student Research Award

Another award given for excellence in research by a graduate student is the Dibakar Bhattacharyya Award. This award recognizes excellence in membrane-based separations research and is given to recognize Professor Bhattacharyya's support and overall long-term commitment to student development. In 2013, this recognition was awarded to Rong Yang, a Ph.D. Candidate at Massachusetts Institute of Technology.

The Separations Division of AIChE

2013 Officers, Directors, and Chair Holders

ELECTED OFFICERS AND DIRECTORS (2013)

CHAIR: Nien-Hwa (Linda) Wang	**1st VICE CHAIR**: Glenn Lipscomb
IMMEDIATE PAST CHAIR: Mark Pilling	**2nd VICE CHAIR**: Tim Frank

TREASURER: Neil Yeoman	**SECRETARY**: Atanas Serbezov

DIRECTOR: Scott Husson (2009-2013)	**DIRECTOR:** Mike Resetarits (2009-2013)
DIRECTOR: Mark Davis (2010-2014)	**DIRECTOR**: Nicholas Urbanski (2010-2014)
DIRECTOR: Isabel Escobar (2011-2015)	**DIRECTOR**: Sharon Robinson (2011-2015)
DIRECTOR: Marcus Mello (2012-2016)	**DIRECTOR:** Roger Whitley (2012-2016)
DIRECTOR: Jeff McCutcheon (2013-2017)	**DIRECTOR**: Tarun Poddar (2013-2017)

SPECIFIC ROLES SERVING THE DIVISION (2013)

AWARDS PROGRAM COORDINATOR: Nicholas Urbanski	**AIChE CHEMICAL ENGINEERING TECHNOLOGY OPERATING COUNCIL (CTOC) LIAISON**: Sharon Robinson
GERHOLD AWARD COORDINATOR: Paul Bryan	**NEWSLETTER EDITOR:** Tim Frank
MEMBERS COORDINATOR: Scott Husson	**STAFF LIAISON:** Diane Shuster

AREA CHAIRS (2013)

CHAIR: Area 2a (Distillation & Absorption) Nicholas Urbanski	**VICE CHAIR:** Area 2a (Distillation & Absorption) Anand Vennavelli
	VICE CHAIR: Area 2a (Distillation & Absorption) Žarko Olujić
CHAIR: Area 2b (Crystallization & Evaporation) Paul Kenis	**VICE CHAIR:** Area 2b (Crystallization & Evaporation) Christopher Burcham
CHAIR: Area 2c (Extraction) Megan Donaldson	**VICE CHAIR:** Area 2c (Extraction) Mike Trippeer
CHAIR: Area 2d (Membrane-Based Separations) Tarun Poddar	**VICE CHAIR:** Area 2d (Membrane-Based Separations) Lauren Greenlee
CHAIR: Area 2e (Adsorption & Ion Exchange) Roger Whitley	**VICE CHAIR:** Area 2e (Adsorption & Ion Exchange) Krista Walton
CHAIR: Area 2f (Fluid-Particle Separations) Isaac Gamwo	**VICE CHAIR:** Area 2f (Fluid-Particle Separations) Seyi Odueyungbo
CHAIR: Area 2g (Bioseparations) Kathleen Mihlbachler	**VICE CHAIR:** Area 2g (Bioseparations) Jessica Molek
CHAIR: Area 2h (General Topics & Other Methods) Alice He	**VICE CHAIR:** Area 2h (General Topics & Other Methods) Stephen Ritchie

2014 Officers, Directors, and Chair Holders

ELECTED OFFICERS AND DIRECTORS (2014)

CHAIR: Glenn Lipscomb	**1st VICE CHAIR**: Tim Frank
IMMEDIATE PAST CHAIR: Nien-Hwa (Linda) Wang	**2nd VICE CHAIR**: Scott Husson
TREASURER: Neil Yeoman	**SECRETARY**: Atanas Serbezov
DIRECTOR: Mark Davis (2010-2014)	**DIRECTOR**: Nicholas Urbanski (2010-2014)
DIRECTOR: Isabel Escobar (2011-2015)	**DIRECTOR**: Sharon Robinson (2011-2015)
DIRECTOR: Marcus Mello (2012-2016)	**DIRECTOR:** Roger Whitley (2012-2016)
DIRECTOR: Jeff McCutcheon (2013-2017)	**DIRECTOR**: Tarun Poddar (2013-2017)
DIRECTOR: Kathleen Mihlbachler (2014-2018)	**DIRECTOR**: Anand Vennavelli (2014-2018)

SPECIFIC ROLES SERVING THE DIVISION (2014)

AWARDS PROGRAM COORDINATOR: Nicholas Urbanski	**AIChE CHEMICAL ENGINEERING TECHNOLOGY OPERATING COUNCIL (CTOC) LIAISON**: Sharon Robinson
GERHOLD AWARD COORDINATOR: Paul Bryan	**NEWSLETTER EDITOR:** Tim Frank
MEMBERS COORDINATOR: Marcus Mello	**STAFF LIAISON:** Diane Shuster
WEBMASTER: Roger Whitley	

AREA CHAIRS (2014)

CHAIR: Area 2a (Distillation & Absorption) Anand Vennavelli	**VICE CHAIR:** Area 2a (Distillation & Absorption) Dan Summers
	VICE CHAIR: Area 2a (Distillation & Absorption) Žarko Olujić
CHAIR: Area 2b (Crystallization & Evaporation) Christopher Burcham	**VICE CHAIR:** Area 2b (Crystallization & Evaporation) Maria Tsianou
CHAIR: Area 2c (Extraction) Megan Donaldson	**VICE CHAIR:** Area 2c (Extraction) George Goff
CHAIR: Area 2d (Membrane-Based Separations) Lauren Greenlee	**VICE CHAIR:** Area 2d (Membrane-Based Separations) Jeff McCutcheon
CHAIR: Area 2e (Adsorption & Ion Exchange) Krista Walton	**VICE CHAIR:** Area 2e (Adsorption & Ion Exchange) Matthias Thommes
CHAIR: Area 2f (Fluid-Particle Separations) Isaac Gamwo	**VICE CHAIR:** Area 2f (Fluid-Particle Separations) Seyi Odueyungbo
CHAIR: Area 2g (Bioseparations) Jessica Molek	**VICE CHAIR:** Area 2g (Bioseparations) Stephen Theil
CHAIR: Area 2h (General Topics & Other Methods) Stephen Ritchie	**VICE CHAIR:** Area 2h (General Topics & Other Methods) Alice He