2017

INTERNATIONAL UNION OF PURE AND APPLIED CHEMISTRY

IUPAC Distinguished Women in Chemistry and Chemical Engineering Awards

Award Presentation – WCC Opening Session
Sunday, July 9 17:00 Golden Hall

Panel Discussions: Women in Chemistry
Tuesday, July 11 14:20 – 17:15 Golden Hall 3

14:20: Introduction, Carolyn Ribes

14:35: Panel I - Improving the world – Chemistry and the Sustainable Development Goals
Panelists: Zafra M Lerman, Ekaterina S Lokteva, and Yvonne P Mascarenhas
Moderator: Angela Wilson

15:10: Panel II –Successful Career, Successful Life - a Balancing Act
Panelists: Lifeng Chi, Veronika R Meyer, and Frances Separovic
Moderator: Vanderlan Bolzani

15:45: Coffee – 15 min
16:00: Panel III - The Role of Professional Organizations and Programs in Driving Changes
Ingrid Montes, Thisbe K Lindhorst, M. Concepción Gimeno, and Misako Aida
Moderator: Carolyn Ribes

16:40: **Update on the IMU/IUPAC project "A Global Approach to the Gender Gap in Mathematical and Natural Sciences: How to Measure It, How to Reduce It?"**
Speaker: Mei-Hung Chiu

16:50: Plan for a IUPAC100 networking breakfast/virtual handshake similar to IYC2011 Women Sharing a Chemical Moment in Time
Mary Garson

17:00: Closing statement and pictures

2017 Distinguished Women in Chemistry and Chemical Engineering

- Prof. Misako **Aida**, Hiroshima University, Japan
- Prof. Lifeng **Chi**, Soochow University, Suzhou, China
- Prof. M. Concepción **Gimeno**, Institute of Chemical Synthesis and Homogeneous Catalysis (ISQCH), CSIC-University of Zaragoza, Spain
- Dr Jaqueline **Kiplinger**, Los Alamos National Laboratory, Los Alamos, NM, United States
- Prof. Zafra **Lerman**, Malta Conferences Foundation, Evanston, IL, United States
- Prof. Thisbe K. **Lindhorst**, Universität Kiel, Germany
- Prof. Ekaterina **Lokteva**, M.V. Lomonosov Moscow State University, Moscow, Russia
- Prof. Yvonne **Mascarenhas**, University of Sao Paulo, Sao Carlos, Brazil
- Dr Veronika Ruth **Meyer**, Empa St. Gallen (retired), Swiss Federal Laboratories for Materials Science and Technology, Switzerland
- Prof. Ingrid **Montes-González**, University of Puerto Rico, San Juan, Puerto Rico
- Prof. Frances **Separovic**, University of Melbourne, Australia
- Prof. Jihong **Yu**, Jilin University, China

Previous Recipients

2011

Vanderlan Bolzani, Brazil
Linda F. Nazar, Canada
Nicole J. Moreau, France
Luisa De Cola, Germany
Katharina Kohse-Höinghaus, Germany
Magdolna Hargittai, Hungary
Klára Tóth, Hungary
Ada E. Yonath, Isreal
Yoshie Souma, Japan
Nouria A. Al-Awadi, Kuwait
Faizah Mohammed Abdel Mohsin Al-Kharafi, Kuwait

2011, *continued*

Carolyn Ribes, Netherlands
Izabela Nowak, Poland
Natalia Tarasova,Russia
Sara Snogerup Linse, Sweden
H.R.H. Princess Chulabhorn Mahidol, Thailand
Ayse Aroguz, Turkey
Véronique Gouverneur, UK
Lesley J. Yellowlees, UK
Novella Bridges, USA
Joanna Fowler, USA
Nancy B. Jackson, USA

2013

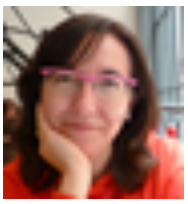
Irina P. Beletskaya, Russia
Annette Doherty, UK
Mary Garson, Australia
Evamarie Hey-Hawkins, Germany
Kazue Kurihara, Japan
Liliana Mammino, South Africa
Elsa Reichmanis, USA
Concepció Rovira, Spain
Maria Vallet-Regi, Spain
Angela Wilson, USA
Yi Xie, China

2015

Lucia Banci, Italy
Margaret Brimble, New Zealand
Ewa Bulska, Poland
Karen Gleason, USA
Janet Hering, Switzerland
Nadia G. Kandile, Egypt
Maki Kawai, Japan
Hyunjoo Lee, South Korea
Carmen Nájera, , Spain
Helga Rűbsamen-Schaeff, Germany
Roberta Sessoli, , Italy
Livia Simon Sarkadi, Hungary

Dr. Misako Aida is Executive Vice President for University Reform, and Professor for Chemistry of Hiroshima University (HU). She contributes to the field of quantum chemistry through the combination of graph theory and with molecular simulation methods, clarifying the topological nature and the reaction mechanism of molecular assembly systems including water clusters, materials and biomolecules. Her research approach is unique in capturing the essential qualities from large amounts of data. Dr. Aida has shown her great leadership in gender equality promotion and in developing next generation researchers. She has managed 6 programs (3 related to the career advancement of women researchers and 3 related to the fostering of young researchers) in HU, which is one of the top10 research universities in Japan, with1800 academic faculty members, 11000 undergraduate students and 4400 graduate students. She succeeded in increasing the ratio of women faculty members of HU. Her achievement in the career advancement of women researchers and young researchers is not limited to HU; her actions have enhanced the gender equality promotion and the development of young researchers in many corporations in Japan. She is now the Executive Vice President for University Reform of HU. Dr. Aida's power to grasp essential qualities from large amounts of data has made significant contributions not only in quantum chemistry but also in higher education system. Since university is comprised of faculties with various disciplines, it is difficult to define a common objective measure that is applied to all faculty members. She has developed an integrated objective measure for quantifying multifaceted faculty activities, the Achievement-Motivated Key Performance Indicator (AKPI®), to visualize university performance. This is the first evidence-based performance indicator for faculty member and is now in practical use in the management of HU to shape a stronger faculty body.

Dr. Lifeng Chi pursued her PhD degree in University of Göttingen, Germany in 1989. In 2000 she finished her Habilitation - as the only woman in 40 years from the Physics Department - in University of Münster, Germany. In 2004, She became a Professor in Physics, University of Münster. She joined Soochow University in China as a chaired Professor in 2012 and built up her research team there. Her key independent research is centered around supramolecular chemistry on surfaces. In the three important branches of this research area - molecular assembly and reactions, molecular patterning, structured functional surfaces – she has internationally recognized and highly appraised achievements. Having developed her unique scientific profile, she has collaborated with many distinguished groups worldwide. In these collaborations, she contributed not only her broad expertise in materials characterization, but also many original ideas on the control of self-assembly systems. She has published more than 300 SCI journal papers and contributed to 10 books chapters. She is the mother of a 22-years old son, who studies mathematics in Bonn, Germany. In her free time, she likes reading, traveling and photography.

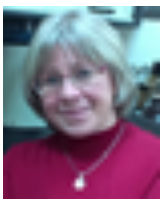


Professor M. Concepción Gimeno received her undergraduate education in Chemistry at the University of Zaragoza (Spain) and obtained the PhD under the supervision of Prof. Rafael Usón and Prof. Antonio Laguna from the University of Zaragoza in 1988. After her postdoctoral work with Prof. F. Gordon A. Stone at the University of Bristol, she joined the Spanish Research Council (CSIC) in 1990 as Tenured Scientist, in the Institute of Chemical Synthesis and Homogeneous Catalysis (CSIC-University of Zaragoza). In 2000 she was promoted to Research Scientist and later in 2008 to Research Professor. Her research interests focus on the design and synthesis of coordination compounds, mainly of group 11 metals, with specific properties for various applications, including luminescence, medicine or catalysis. She managed several milestones in the chemistry of gold, including complexes with unusual structures or geometries, compounds with excellent photophysical properties, as almost quantitative quantum yields, or superior antitumor, bactericidal or anti-VIH derivatives. The union of the biological and the fluorescence properties of the compounds enable the design of molecules that can be used simultaneously in diagnosis and therapy (theranostic agents). She is author of more than 230 scientific publications among articles, reviews, and book chapters, and a licensed patent. Her scientific work has been widely cited by authors working in her field of research (>4700 citations, h = 36). Prof. Gimeno has held several management positions such as President of the Aragón Section of the Spanish Royal Chemistry Society (RSEQ), member of the chemical and chemical technologies area of the CSIC and Vice-director of the Institute of Chemical Synthesis and Homogeneous Catalysis..

Dr Jaqueline Kiplinger is a Fellow of the Materials Synthesis and Integrated Devices group in the Materials Physics and Applications Division at the Los Alamos National Laboratory (LANL) in the United States. She earned her BS in chemistry from the University of Colorado, Colorado Springs, in 1990 and completed here graduate studies at the University of Utah. She received the 1998 Nobel Laureate Signature Award in Chemistry. Kiplinger served as a postdoctoral researcher at UC Berkeley from 1996-1999. She joined the LANL in 1999 and was named a Technical Staff Member within the Chemistry Division in 2002. Her research focuses on f-element organometallic chemistry, including pentavalent uranium, and organometallic synthesis. She has served on several journal editorial boards for the American Chemical Society and has been a leader in the ACS Division of Inorganic Chemistry. She is a Fellow of the American Association for the Advancement of Science, the Royal Society of Chemistry, and the American Institute of Chemists. She has been recognized for scientific achievements with two R&D 100 awards, the Los Alamos Fellowship, a Fellows Prize for Research. She was the first women to receive the F. Albert Cotton Award in Synthetic Inorganic Chemistry from the American Chemical Society in 2015.

Zafra Lerman is the President of the Malta Conferences Foundation and holds a PhD from the Weizmann Institute of Science (Israel). She conducted research on isotope effects at Cornell and Northwestern Universities (US), and the ETH (Switzerland). She developed an innovative approach of teaching science through the arts, which proved to be extremely successful among underprivileged students around the globe. From 1986 to 2011, she chaired the American Chemical Society's Subcommittee on Scientific Freedom and Human Rights. At great risk to her safety, she succeeded in preventing executions, releasing prisoners of conscience from jail and bringing dissidents to freedom. Since 2001, she has been using science as a bridge to peace in the Middle East. The "Malta Conferences" bring together scientists from 15 Middle East countries with 5 Nobel Laureates to work on solving regional problems, establishing cross-border collaborations, and forging relationships that bridge chasms of distrust and intolerance. She received over 40 international awards for her work in education, human rights, peace, and science diplomacy, including the Presidential Award from President Clinton (1999); Royal Society of Chemistry, England, Nyholm Education Award (2005); New York Academy of Sciences Pagels Human Rights Award (2005); CRDF Global George Brown Award for International Scientific Cooperation (2007); the ACS Pimentel Award for excellence in chemical education (2010); International Conference on Chemistry for Mankind (India) Award for Stimulating Collaborations and Ensuring Human Rights (2011); AAAS Award for Science Diplomacy (2015); APS Andrei Sakharov Prize for human rights (2016); and the Peace and Justice Award from the UN NOVUS summit (2016). She was honored three times by the US Congress with speeches about her work in 2002, 2004, and 2013. Her work has been featured on many national and international television and media outlets. She enjoys spending time with her two grandsons.

Thisbe K. Lindhorst is Professor of Organic and Biological Chemistry at the Otto Diels Institute of Organic Chemistry at Christiana Albertina University of Kiel. She studied chemistry at the universities of München and Münster and received her PhD from the University of Hamburg. When Thisbe was appointed Full Professor at the University of Kiel in 2000, she was the first female Full Professor of Organic Chemistry after World War Second. She has been a role model ever since, encouraging young women to pursue a career in science and mastering high performance in chemistry and family life. Thisbe Lindhorst herself has two grown-up children, born in 1991 and 1995. In 2016, Professor Lindhorst was elected president of the German Chemical Society (GDCh), being only the second women in this position in a 150 year long history. This year, in 2017, the German Chemical Society is celebrating her 150 anniversary. On this occasion, Thisbe Lindhorst has edited a book covering all aspects of modern chemistry and its fascinating implications in life (ISBN: 978-3-527-34203-7). Professor Lindhorst is an expert in carbohydrate chemistry and author of a successful text book on glycochemistry and glycobiochemistry, published with Wiley-VCH, as well as approx. 150 science papers. Her research is dedicated to the glycosciences, an area of chemistry which investigates the biological function of carbohydrates in cell-cell communication and in cell recognition. She has pioneered the field of multivalency studies in the glycosiences and only recently her research group has shed light on the importance of molecular orientation on cell surfaces in the context of biological recognition and response. These finding have a potential in the development of anti-microbial drugs and for a specific anti-adhesion therapy. Thisbe has themed her life as a scientist under the motto "thinking values", highlighting that the awareness of an ethical basis has to accompany every expert knowledge.



Ekaterina Lokteva graduated from Lomonosov Moscow State University in 1980 and started working at Chemistry Department of this university, first in the Chair of Petrochemistry, and from 1989 in Physical Chemistry Chair. PhD since 1987, D.Sci from 2010. Her scientific activity relates mainly to environmental heterogeneous catalysis. She participated in the development of the reductive catalytic ways of chlorinated organic substances disposal excluding dioxins formation, and novel catalysts (with ultralow precious metals loadings; supported on nanodiamond carrier; biotemplated etc.) for this technology as well as for CO oxidation. New catalysts provide high TOF values in hydrodechlorination of chlorinated organics, CO oxidation due to structure and electronic features. Lokteva is an author of more than 100 scientific publications and 7 books. She is teaching the courses on heterogeneous catalysis and green chemistry in Lomonosov Moscow State University and other universities, supervised 13 diploma and 4 PhD works. Since 2005 E. Lokteva participates in Green chemistry movement. She is vice-head of Green Chemistry Scientific-Educational Centre in her University, and the member of CHEMRAWN Committee and Green Chemistry Sub-Committee of IUPAC. She was between principal organizers of the Second IUPAC Conference on Green Chemistry (Moscow-St.Petersburg, Russia, 2008), XII European Congress on Catalysis (Kazan, Russia, 2015) and other significant conferences. Very successive were two Symposiums on Education in the Field of Catalysis, organized in the frames of 1st Russian Congress on Catalysis in (Samara, Russia, 2014) and XII European Congress on Catalysis. She participated in two IUPAC projects connected with Chemistry beyond chlorine. E. Lokteva provides public lectures and media publications and talks explaining the importance of green chemistry. She was awarded by Lomonosov Prize (2009). She is keen swimmer, likes reading and long walks. She has 27-year old son.

Yvonne P. Mascarenhas was born in a small town in the interior of São Paulo but when she was only 10 years old her family moved to Rio de Janeiro, then the capital of Brazil. She was interested in chemistry and inspired by an excellent high school teacher, Albert Ebert, of a Rio de Janeiro private school. Her undergraduate studies were done in the Chemistry Department of the University of Brazil, nowadays renamed as Federal University of Rio de Janeiro. Her interest in Crystallography was aroused by Prof. Elisiario Távora a mineralogist who received his PhD with M.J. Buerger, an eminent MIT professor, Boston, USA. After obtaining a BSc in Chemistry, Mascarenhas was hired at the Engineering School of São Carlos, Campus of São Carlos of the University of São Paulo. In 1959, she went to the USA supported by a Fulbright fellowship to be trained in Molecular Structure Crystallography in the Crystallography Department, Pittsburgh University, then directed by Prof. G. A. Jeffrey. After her return to Brazil, she applied for funds to establish an X-ray Diffraction Laboratory and made an effort to interact with several members of the Brazilian community of chemistry, biochemistry and materials science with whom she was collaborated for many years. All these collaborations were done with the participation of Brazilian graduate students that, in this way, were introduced to several X-ray diffraction methods. With the participation of her students and the collaboration with several scientists, she has published more than 160 papers in international journals and many MSc and PhD thesis. Most of her students have found jobs in other universities in Brazil and run their own research groups. In order to raise to interest of students of chemistry, bio-chemistry and condensed matter physics, she organized many courses and workshops in several structural crystallography applications held, not only in her Institute, but also in other universities.

Born in 1951 in Bern, Switzerland, **Veronika R. Meyer** started her scientific career with an apprenticeship as laboratory technician. This formation led to her interest in analytical chemistry. Later she earned a BSc from the engineering school of Burgdorf (by then "Technikum") and finally a PhD from the University of Bern. For her post-doc stays she visited the Weizmann Institute of Science in Rehovot (Israel) and the University of Delaware in Newark (USA). Her research fields were high-performance liquid chromatography, chirality, measurement uncertainty, and good analytical practice. She was a lecturer (Privatdozentin) at the University of Bern, and from 1989 until her retirement in 2015 she worked at Empa St. Gallen, the Swiss Federal Laboratories for Materials Science and Research. In 1979, the first German edition of her textbook "Praxis der HPLC" appeared, and nine more editions, always improved and updated, followed over the decades. Later also five English editions, as "Practical HPLC", were published. The total number of all editions sums up to 32,000 copies sold. Another book, in fact a picture-book, is "Pitfalls and Errors of HPLC in Pictures". In 2005, she invented the column format "Highlights of Analytical Sciences in Switzerland" for the journal *Chimia* (Swiss Chemical Society), a one-page presentation of new analytical developments and applications. Under her editorial guidance, 120 contributions were published so far. Veronika R. Meyer is a passionate mountaineer who visited mountains on all continents, in addition to hundreds of peaks in the Alps. She climbed the "Seven Summits", the highest peaks of each continent, including Mount Everest in 2007. At present, she is still active at Empa on a voluntary basis. As a member of the Green Party, she is an elected parliamentarian of the City of St. Gallen.

Ingrid Montes-González earned her Ph.D. in Organic Chemistry from the University of Puerto Rico-Río Piedras, where she teaches chemistry (for 30 years) and is the Assistant Dean of Graduate Studies and Research for the College of Natural Sciences. Dr. Montes is an ACS and IUPAC Fellow; received the 2012 ACS Volunteer Service Award, is an Honorary Member of the Golden Key International Honor Society and has received many recognitions In Puerto Rico and internationally. Her scientific contributions are focused on two areas: Organometallic chemistry and Chemical Education. In organometallics, she explores the synthesis and characterization of ferrocene derivatives and studies their potential applications as redox-sensors, in polymers and in drug design. She develops new methodologies applying green chemistry principles. In Chemical Education, she works on the theoretical perspective, building on constructivist learning theory, mostly applied to organic chemistry, green chemistry and history of chemistry learning. Through her research and volunteer service she has contributions to Chemistry, Chemical Education, and Community outreach in Puerto Rico, Latin America, and the World. Dr. Montes has been extremely active at the national, state and local level of chemistry, active in leadership, governance, and programming. She has been a Director-at-Large of the ACS Board of Directors since 2013. She is co-founder of the Spanish Webinar Series of ACS and Mexican Chemical Society. She is founder of the Chemistry Festival, recently adopted as an ACS Program. This is a major community outreach event that, through demonstrations, emphasizes the importance of chemistry in daily life. Since 2010 it has been successfully implemented in fourteen countries around the world impacting thousands of people. Dr. Montes loves nature and animals; is married and is the proud mother of Gerardo José and Mariana del Carmen. She is very excited and happy to become a grandmother in this year.

Professor Frances Separovic is a Biophysical Chemist based at the Bio21 Institute, University of Melbourne, Australia. Frances grew up in Broken Hill and, after the birth of her son, did a BA at Macquarie and a PhD at UNSW while working full-time at CSIRO, Sydney. Following a post-doctoral fellowship at National Institutes of Health (USA), Frances joined the University of Melbourne in 1996, where she became the first woman professor of chemistry (2005) and Head of School (2010-2016). Frances has developed solid-state NMR techniques to determine the structure and dynamics of molecules in biological membranes with a focus on peptide antibiotics and toxins within phospholipid membranes. Whilst teaching Chemistry, Frances has served as Assistant Dean (EO) (2001-02) and Associate Dean (2009-10) of the Science Faculty. She is currently Secretary of the Biophysical Society (USA) and is an editorial board member of Accounts of Chemical Research and Chemical Reviews and editor of *Biochimica Biophysica Acta* and *European Biophysics Journal*. Frances was elected President of Australian New Zealand Society for Magnetic Resonance, ANZMAG (2011-13); General Treasurer of the Royal Australian Chemical Institute, RACI (2008-10); Council of the Biophysical Society (2007-10); Treasurer of Lorne Protein Conference (2006-09), Council of International Union of Pure & Applied Biophysics, IUPAB (2002-05); and President of Australian Society for Biophysics, ASB (1999-2001, 2012-14). Frances has organized 40 major scientific conferences and published over 200 papers in international journals. She was awarded the ASB Robertson Medal (2009) and ANZMAG Medal (2011) and elected in 2012 as Fellow of the Biophysical Society (USA) and ISMAR Fellow. In 2012 Frances became the first female chemist elected a Fellow of the Australian Academy of Science.

Prof. Jihong Yu received her PhD degree from Jilin University in 1995. During 1996-1998, she worked as a postdoctoral fellow first at the Hong Kong University of Science and Technology and then at Tohoku University in Japan. She has been a full Professor in the Chemistry Department, Jilin University since 1999. She was elected as the member of the Chinese Academy of Sciences in 2015.

Her main research interest is in rational synthesis and application of zeolitic nanoporous materials. Prof. Yu has successfully developed novel computational methodologies and synthetic strategies for the discovery of new zeolitic materials by combining multidisciplinary knowledge in physical science. Utilizing novel computational methods and automated screen approaches she developed, new zeolites with desirable pore structures and specific properties can be predicted. Towards rational synthesis of zeolitic materials, she has proposed several valuable synthetic approaches, such as combination of computer simulations and high-throughput techniques; use of computational data mining technique to establish the relationship of synthesis and structure, etc. Prof. Yu has discovered that hydroxyl free radicals are involved in the zeolite crystallization and can remarkably accelerate the zeolite synthesis, which sheds a new light on zeolite crystallization. Prof. Yu's creative work draws a roadmap toward the function-led targeted synthesis of new materials by introducing rational design and predictive chemistry in a discipline where trial-and-error methods are always commonly used as a tool. Through her over 300 publications, 6 books, and 20 patents, and over 50 presentations, her outstanding and prolific mentorship as a teacher, services as associate editors and board members of several prestigious international journals, and leaders of some key research programs and creative research teams, Prof. Yu's accomplishments have had a major impact on the international chemistry community.