



SYMPOSIUM SPEAKERS

Speakers are listed in the order of their presentations.

Charles Gay

President, Applied Solar Applied Materials, Inc.

Dr. Charlie Gay was named president of Applied Solar and chairman of the Applied Solar Council at Applied Materials, Inc. in 2009. As president of Applied Solar, Dr. Gay is responsible for positioning Applied and the company's solar efforts with important stakeholders in the industry, technical community, and particularly governments around the world. As chairman of the Applied Solar Council, Dr. Gay leads a cross-company



forum to assure cohesiveness on solar-related initiatives and strategy related to technology and market development. An industry veteran with over 30 years of

experience in the solar industry, Dr. Gay joined Applied in 2006 as corporate vice president and general manager of the Solar Business Group.

Dr. Gay has a doctorate in physical chemistry from the University of California, Riverside. He holds numerous patents for solar cell and module construction and is the recipient of the Gold Medal for Achievement from the World Renewable Energy Congress.

Norman Yeong-Jgi Chen

Former Deputy Director, Chemical Systems, Chung-Shan Institute of Science and Technology, Taiwan Ministry of National Defense

Norman was the first international student to receive a Ph.D. degree from UCR's Department of Chemistry (1970), under the supervision of Professor William H. Orttung. He completed his postdoctoral work at the University of Colorado, Boulder. After returning to his home country of Taiwan, Norman joined



the Chemical Systems division at Chung-Shan Institute of Science and Technology (CSIST), the primary R&D institution of the Taiwan Ministry of National Defense. He

served as the group leader of the physical chemistry division in Chemical Systems from 1972 to 1983. He became the deputy director of the CSIST Chemical Systems division in 1983 and served in that position for 20 years.

Norman was a board member of the Plan Evaluation and Progress Review committee for CSIST until his retirement in 2007. During his 32-year career at CSIST, he participated in and supervised research projects ranging from rocket propellant formulation to warhead technology to chemical warfare detection devices.

Richard A. Gibbs

Professor of Medicinal Chemistry and Molecular Pharmacology, Purdue University

Dr. Gibbs was raised in Riverside, but went to the East Coast for his B.A. degree, at Johns Hopkins University in

1983. He returned home and obtained his Ph. D. in 1988 from UC Riverside for work on Vitamin D analogs and the development of new synthetic methods



with Professor William Okamura. From 1988 to 1991 he was an NSF post-doctoral fellow at Penn State University with Professor Stephen Benkovic, where

he worked on catalytic antibodies. He joined the Wayne State University faculty in 1992, and was promoted to Associate Professor in 1998. He moved to Purdue University in 2001, where he is currently Professor of Medicinal Chemistry and Molecular Pharmacology. Dr. Gibbs also serves as leader of the Medicinal Chemistry program in the Purdue University Center for Cancer Research. He was the recipient of a PhRMA Foundation Research Award (1992) and an American Cancer Society Junior Faculty Research Award (1996-1998), and is currently a University Faculty Scholar at Purdue. Professionally, he has served as Vice Chair (2005), Chair (2006), and Past Chair (2007) of the Division of Medicinal Chemistry of the American Chemical Society. He has served on a number of NIH and other study sections, and was a member of the NIH Drug Metabolism and Pharmacology study section (2006-2010).

Dr. Gibbs's research interests are focused on the enzymology and biological consequences of protein post-translational modifications. Specifically, he is interested in inhibitors of protein prenylation and associated posttranslational modifications as anticancer agents. As a part of this work, he has developed new synthetic methods useful in the generation of isoprenoid analogs. He and

his collaborators have discovered new isoprenoid-based inhibitors of protein farnesyltransferase and protein geranylgeranyltransferase. More recently, he has worked to develop isoprenylcysteine methyltransferase inhibitors and has conducted a variety of studies on the biological and structural consequences of prenylation. Very recently, he has collaborated on studies that establish the protein substrate specificity of protein prenyltransferases, and developed methods to catalog the cellular "prenylome." He has published more than 50 papers and has given over 100 presentations at universities and scientific meetings.

Stephen L. Pentoney, Jr.

Director of Scientific Affairs and Technology Management
Immunoassay and Molecular Diagnostics
Beckman Coulter

Steve Pentoney earned his B.S. in Chemistry in 1983 from California State University, Long Beach, and his Ph.D. in Analytical Chemistry from the University of California,

Riverside, in 1987, working under the mentorship of Professor Peter Griffiths in the area of hyphenated techniques.

Steve then took a

postdoctoral research position with Richard Zare at Stanford University, working in the area of capillary electrophoresis-based biochemical analysis. In 1989 Steve joined the Palo Alto-based research and development group of Beckman Instruments, now known as Beckman Coulter. Over the years, Steve has held various positions of increasing responsibility within Beckman Coulter's Research and Development groups and Product Development centers. Steve is currently the Director of Scientific Affairs and Technology Management within Beckman Coulter's Immunoassay and Molecular Diagnostics business center.

Steve holds a Lean Six Sigma Black

Belt from San Diego State University, has been awarded 20 US patents, is a member of Beckman Coulter Inventor's Hall of Fame, and has authored or coauthored 30 scientific publications.

In 2003 Steve received the Distinguished Alumnus award from the College of Natural Sciences and Mathematics at California State University, Long Beach, and is a member of CSULB's Chemistry/Biochemistry Department Advisory Board. In 2006 he was elected to the Grants Advisory Council of the Arnold and Mabel Beckman Foundation's "Beckman Young Investigator Program." In 2009 he joined the Board of Advisors of the University of California, Riverside, College of Natural and Agricultural Sciences.

Most importantly, Steve holds his United States Coast Guard Captain's License, which enables him to run fishing charters in his spare time.

Jon Rainier

Professor of Chemistry, University of Utah

A third-generation Californian, Jon Rainier was born in Anaheim. Following his receipt of a B.S. in Chemistry from UC Irvine in 1985, he worked for three years in industry (HITCO) while also attending California State University, Long Beach (CSULB), where he received an M.S. degree in 1989 under the direction of Professor Kensaku Nakayama. He then received a Ph.D. at UC Riverside under the direction of Professor Steven R. Angle,

working in the general area of quinone methide chemistry. In 1993 he moved to Philadelphia to work as an NIH postdoctoral fellow in the laboratory of

Professor Amos B. Smith III. It was there that he developed an interest in natural product total synthesis and specifically indole alkaloids.

In 1996 Jon received a faculty appointment at the University of Arizona. There he established a research group focusing on the synthesis of heterocyclic natural products including members of the polycyclic ether class. He moved to the University of Utah in 2002. At Utah, Jon has continued his interest in the synthesis of natural products while also collaboratively studying biological and medicinal chemistry. Current natural product targets include brevenal, adriatoxin, hemibrevetoxin B, the kapakahines, and chetomin. Current medicinal chemistry/biological chemistry targets include ASIC channels, antifungals, ion channel modifiers, and hepatitis C inhibitors.

Jon's awards include a CAREER Award from NSF, a First Award from NIH, a Research Innovation Award from Research Corporation, and a Gencorp Foundation Technology Award for Excellence in Chemical Synthesis.

Robert A. Crowell

Brookhaven National Laboratory

Rob got a Ph.D. working under Prof. Chronister in '92. At UCR Eric taught



Rob many useful things such as how to build fancy ultrafast lasers and use them to study some very fundamental and interesting problems in

chemical physics. Specifically, he used the combination of extreme pressure and temperature to study the intricate and important role that vibrational and electronic degrees of freedom play in chemical reactivity.

After UCR Rob was awarded an Associated Western University Fellowship and headed north to work with Sunney Xie (Harvard) while he was at Pacific Northwest National Laboratory. At PNNL Rob learned a great deal about zymurgy and also something about the development of ultrafast multi-dimensional IR spectroscopy to study water dynamics.

Around '95 Rob left the PNNL colony for Argonne National Laboratory. At ANL Rob was involved in many projects that focused on the fundamental aspects of the interaction of highly ionizing radiation with condensed matter. Rob became group leader of the Radiation and Photochemistry Group and with the help of his talented group developed the technique of using multi-terawatt lasers to generate very short (<50 fs), very high energy (>10 MeV) electron bunches that were then used in ultrafast pulse radiolysis studies. At ANL Rob received the Argonne Pacesetter Award for the development of the Terawatt Ultrafast High Field Facility and the Radiation Research Society Young Investigator Award for his work studying the chemistry of the excited states of liquid water.

In 2008 Rob left ANL and moved to Brookhaven National Laboratory where he now works. His current research interests are focused on studying the role of the solvent and the interface in chemical reactivity. He uses the techniques of ultrafast x-ray, optical and pulse radiolysis to look at interfacial charge transfer processes that are relevant to solar and nuclear energy. He recently received a fellowship from the Japanese Society for the Promotion of Science which allows him to teach graduate classes at several different Japanese universities. Rob also serves on several advisory panels in the areas of next generation light sources and next generation nuclear reactor technology.

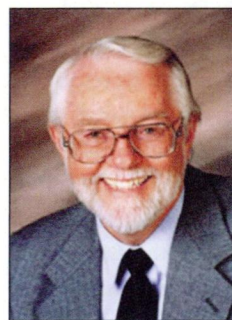
Arthur D. Riggs

Professor of Biology and Director Emeritus, Beckman Research Institute of the City of Hope

Arthur D. Riggs received his B.A. in Chemistry from the University of California, Riverside, in 1961 and his Ph.D. in Biochemistry from the California Institute of Technology in 1966. He received postdoctoral training at the Salk Institute during 1966-1969, and since then has been at the City of Hope Medical Center, serving as chair of the Biology Department most of the period 1982-2001. In 1984 the City of Hope became

the site of the first Beckman Research Institute. In 1994, Dr. Riggs was named the founding dean of the City of Hope's now fully accredited graduate school. During 2001-2007 he served as director of the Beckman Research Institute of the City of Hope. Among other awards, he received the Juvenile Diabetes Foundation Research Award in 1979 for work leading to the bacterial production of insulin. In 2006 he was elected to the National Academy of Sciences.

His thesis work led to the Huberman and Riggs classic studies on mammalian DNA replication. His postdoctoral work resulted in the Riggs and Bourgeois series of papers on the lac repressor and bacterial gene regulation. He was the first to



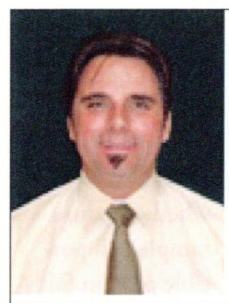
study a pure transcription factor and its specific binding to DNA. In his laboratories at City of Hope, Dr. Riggs turned his attention to mammalian gene regulation, DNA methylation, and what is now called epigenetics — the study of persistent changes in gene expression that do not involve changes in primary base sequence. He correctly proposed DNA methylation as an epigenetic mechanism.

In the late 1970s, in addition to studying epigenetics, Riggs collaborated with a number of colleagues, including Itakura, Boyer, and Goeddel, on work that used chemically synthesized DNA for novel recombinant DNA techniques and the expression in *E. coli* of the first man-designed and man-made genes — the genes for somatostatin and human insulin. The success of the somatostatin/insulin project catalyzed the development of the biotech industry, aided by key, dominant patents held by Genentech, Inc., on which Itakura and Riggs are the sole inventors.

Andreas Kaerner

Eli Lilly and Company

Andreas received his B.S. in chemistry at the University of New Hampshire in 1990, and his Ph.D. in analytical chem-



istry at UCR in 1998 under the direction of Dallas Rabenstein, specializing in NMR spectroscopy. After receiving his Ph.D., Andreas went on to do a postdoc-

toral fellowship at Eli Lilly & Company in Indianapolis, where he developed LC-NMR-MS instrumentation and methodology.

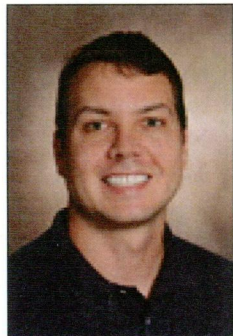
Andreas continued at Eli Lilly after completing his postdoc and now leads a development-focused spectroscopy group that supports a number of divisions. His group works in a variety of areas that involve the use of NMR, MS, and chromatography. This includes NMR micro-imaging of formulated pharmaceutical products, real-time reaction characterization using flow NMR and IR, quantitative NMR, characterization of alternative and continuous reactions, advanced structure elucidation, mass guided preparative isolations, MS-based leachable and extractable characterization, NMR fermentation characterization, and NMR characterization of protein/antibody-producing cell cultures. In addition, Andreas partnered with InnoCentive to co-develop InnoCentive@Lilly, a companywide open innovation tool used internally at Eli Lilly to solve problems at the global rather than local level.

John Chaput

Assistant Professor, Arizona State University

Prof. Chaput joined the faculty at Arizona State University in January of 2005 after completing a Ph.D. at UCR and a postdoctoral fellowship in molecular biology and genetics at Harvard Medical School.

The Chaput lab applies the principles of natural selection to evolve functional molecules in the laboratory. This methodology (also referred to as test tube evolution) makes it possible to create artificial molecules with tailor-made properties.



One fundamental question that Chaput is attempting to address is whether nature sampled all possible protein folds or just a small subset of the possible protein

possible protein folds that are available in the protein universe. Through a process of in vitro selection and structure determination, Chaput is identifying new protein folds with specific, predefined functions. This approach of de novo protein evolution has the potential to create tailor-made proteins for biotechnology and molecular medicine.

Chaput is also interested in uncovering hidden proteins that remain buried in the shadows of the human genome. Using an integrated experimental-bioinformatics approach, Chaput is examining human DNA for sequences that enhance the translation of new proteins. This project is providing new insight into our current understanding of how genetic information is encoded in the genome.

Lastly, Chaput is developing artificial affinity reagents that recognize human proteins with high affinity and specificity, but overcome or avoid many of the problems associated with traditional antibodies. This approach has the potential to dramatically improve the rate at which high-quality protein affinity reagents are generated to human proteins.

Adah Almutairi

Assistant Professor, University of California San Diego

Adah Almutairi moved to Los Angeles in 1997 to attend Occidental College, where she was awarded the Rodna Nye

Scholarship. After receiving a bachelor's degree in chemistry, Prof. Almutairi was selected to receive a GAANN Fellowship to continue her studies at the University of California, Riverside. In 2005, she completed her Ph.D. in Materials Chemistry and received both the UC Dissertation Award and the prestigious UC Presidential Postdoctoral Fellowship. Upon completing a postdoctoral appointment at the University of California, Berkeley, in the laboratories of Prof. Jean Fréchet



in Chemistry and Chemical Engineering, Prof. Almutairi moved to the University of California, San Diego, to establish the Laboratory for Bioresponsive Materials as a faculty member in Pharmaceutical Sciences and an affiliate faculty member in Nanoengineering, and a faculty member of both Materials Science and Engineering and Biomedical Sciences. Adah has authored numerous publications and presented at conferences worldwide. Her research interests are in interfacing materials chemistry and engineering with biomedical sciences for practical applications.

Vince Lavallo

Postdoctoral Scholar, California Institute of Technology



A native Southern Californian, Vince Lavallo was born on base at Camp Pendleton. Vince graduated from UCR in 2005 with a B.S. in Biochemistry. During his undergraduate studies, Vince was a UC LEADS scholar and performed productive undergraduate research in the laboratory of Professor Guy Bertrand. Vince enjoyed his undergraduate experience so much

that he decided to stay at UCR for his doctoral studies under the continued guidance of Guy Bertrand. After being granted a Ph.D. in Chemistry (2008), he came to Cal Tech as a postdoctoral scholar in the laboratory of Robert H. Grubbs. Vince is strongly interested in the preparation of novel organic/inorganic molecules with potentially useful properties. His honors include an ACS Division of Organic Chemistry graduate fellowship, ACS Division of Inorganic Chemistry Young Investigator Award, and an NIH Postdoctoral Fellowship.