

華美化學學會

Chinese American Chemical Society

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Tri-State CACS 2006 Annual Symposium

**“Cooperation and Collaboration in the Age of
Global Competition”**

Co-sponsored by
The Department of Pharmaceutical Chemistry
Ernest Mario School of Pharmacy, Rutgers University

8:30 am – 4:00 pm
Saturday, June 10, 2006
Rutgers Busch Campus Center,
Piscataway, NJ

604 Bartholomew Rd, Piscataway, NJ 08854

Acknowledgement

Tri-State CACS gratefully acknowledges the following sponsors for their support of Tri-State CACS and this symposium:

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Forward

Welcome to the CACS Annual Symposium of 2006!

On behalf of the Tri-State CACS, we'd like to express our sincere gratitude to our sponsors, to the American Chemical Society, and to our volunteers for their support and contributions to the cause of our organization.

For a quarter of a century the CACS has continued to promote cohesion among Chinese-American chemical professionals, and to address their common interest and concerns. In addition to holding events like this, in the past several years the Tri-State CACS has added Young Chemist Award to help cultivate interests of high school students in chemical sciences. We have also initiated a mentor program to help new comers gain a quick footing in their professional careers in the US.

As the world is witnessing fast economic development in Asia, particularly in China, the American chemical enterprise as a whole and the Chinese-American chemical professionals in particular, are presented with unprecedented opportunities and challenges. In organizing a successful 2006 Beijing International Pharmaceutical & Chemical Intellectual Property Forum, the CACS has started a new mission to promote dialogue and collaborations in chemical and pharmaceutical R&D between the US and China. Continuing on that theme, the focus of 2006 Annual Symposium is "Cooperation and Collaboration in the Age of Global Competition".

We are fortunate to have, among a group of distinguished speakers, ACS president-elect Dr. Catherine Hunt as a speaker at our symposium. Dr. Hunt has a keen interest in

promoting innovation through collaboration to meet the challenges in this age of globalization. We look forward to her perspective on this important issue. We are also honored that Dr. Mark Powell, senior vice-president of Bristol-Myers Squibb, will deliver a speech on “Pharmaceutical Development in the 21st Century.” His message should be of particular interest to us as the Tri-State is considered the “medicine cabinet” of the US, and many of our members work in pharmaceutical related fields. We will also be treated with a presentation on cutting-edge pharmaceutical research. Dr. Birendra Pramanik, distinguished fellow at Schering-Plough, will talk about “Application of Mass Spectrometric Techniques in Drug Discovery and Development.”

As a tradition, this symposium also features distinguished Chinese American chemists. Dr. Margaret Wu, senior scientific advisor at ExxonMobil, and Prof. Jing Li of Rutgers University, will give presentations on their technologically and scientifically ground-breaking work, which should provide inspiration to all of us.

The exciting time of globalization would not have been possible without the effort and creativity of chemist-turned entrepreneurs. We will hear some of them describing their experiences in the business world.

We hope that you will enjoy this symposium. Once again, thank you for your participation!



Guang Cao, Ph.D.

President of Tri-State CACS



Guodong Chen, Ph.D.

President-Elect of Tri-State CACS

Program

8:30	On-site Registration / Vendor Setup / Breakfast & Coffee
	Morning Session
	Session Chairs - Guodong Chen and Longqin Hu
9:00	Opening Remarks Guang Cao
9:10	Dr. Catherine T. (Katie) Hunt, 2006 President-Elect of the American Chemical Society, Leader, Technology Partnerships – Rohm and Haas Company “Re-igniting Our Commitment to Science and Technology: Education, Collaboration and Innovation!”
9:50	Dr. Mark L. Powell, Senior Vice President, Bristol-Myers Squibb “Pharmaceutical Development in the 21st Century”
10:30	Coffee Break
10:50	Dr. Margaret Wu, Senior Scientific Advisor, Corporate Strategic Research, ExxonMobil Research and Engineering Co. “ExxonMobil Synthetic Lubricant Development”
11:30	Dr. Birendra N. Pramanik, Distinguished Fellow, Schering-Plough Research Institute “Application of Mass Spectrometric Techniques in Drug Discovery and Development”
12:10	Lunch
	Afternoon Session
	Session Chairs - Guoqiang Shi and Duxi Zhang
1:00	Prof. Jing Li, Department of Chemistry and Chemical Biology, Rutgers University “Can Macroparticles Do What Nanoparticles Do? Designing New Semiconductor Nanostructures That are Independent of Size”
1:40	Dr. Peijun Cong, VP, Technology Development, Accelryg Corp “High Throughput Chemical R&D in China: an Introduction to Accelryg”
2:20	Ms. Ping Cao, Marketing Manager, and Dr. James A Schwindeman, Chief Operating Officer, Tyger Scientific, Inc. “Adventures in the Research Jungle” -Tales of Tyger Scientific Inc.”
3:00	Dr. Leo (Lixin) Shen, Vice-President, AstaTech, Inc. “Continuous Innovation in Advanced Chemistries and Manufacturing”
3:40	Closing Remarks Guodong Chen

Speakers and Abstracts

Dr. Catherine T. Hunt, 2006 President-elect of the American Chemical Society, Leader, Technology Partnerships – Rohm and Haas Company

“Re-Igniting our Commitment to Science and Technology: Education, Collaboration and Innovation!”

The chemical enterprise has changed dramatically in the last 20 years. To keep pace with change, we must reignite our commitment to Science and Technology – and ACS can lead the way.

The keys to success in this endeavor are: *education, collaboration and innovation!*

1. **Education:** educating legislators, the media, the public and the next generation,
2. **Collaboration:** building a strong, vibrant and vocal technical community, and
3. **Innovation:** recreating our companies, our schools and ourselves.

I will highlight my approach to forming Technology Partnerships at Rohm and Haas and my vision for extending this collaborative approach to CACS.

Working together we can change the face of chemistry!

Dr. Catherine T. (“Katie”) Hunt graduated from Smith College with high honors in Chemistry. She received a Ph.D. in Chemistry from the University of California, Davis with Professor Alan Balch. As an NIH Postdoctoral Fellow at Yale University in MB&B (Molecular

Biophysics and Biochemistry), Katie extended her working knowledge of NMR to biological systems.

Katie started her career at Rohm and Haas Company in 1984 at the Spring House Technical Center. In her current role as Leader for Technology Partnerships (Emerging Technologies), she champions collaborations across industry, academia and national labs, working together with foundations and government agencies.

Katie was an organizing member of the Vision 2020 Nanotechnology Roadmap and continues to be active in the rollout. She is a member of several associations including: ACS, AAAS, Sigma Xi and the NY Academy of Science.

Katie lives in Upper Dublin with her husband, Wes, and their son, James. She enjoys mentoring, judging science fairs and serving on the Upper Dublin Library Board.

Mark L. Powell, Ph.D., Senior Vice President and World Wide Head of Pharmaceutical Development at Bristol-Myers Squibb

“Pharmaceutical Development in the 21st Century”

Dr. Powell is currently the Senior Vice President and World Wide head of Pharmaceutical Development at Bristol-Myers Squibb. He is responsible for the planning and directing of all pharmaceutical development activities for all BMS compounds (small molecules and biologics) in Global Pharmaceutical Development, as well as supporting globally manufactured products as necessary. Pharmaceutical Development laboratories are located on 7 research campuses in the United States, Canada, UK and

Belgium. In addition to his functional responsibilities, Mark was the Head of Diabetes Exploratory Development at BMS from 2000-2005. In that capacity he was responsible for the pharmaceutical, preclinical, and clinical exploratory development and progression of all diabetes compounds transitioning out of discovery and into Phase III clinical development.

Dr. Powell obtained his Ph.D. from the University of Washington in 1980 and has worked in the pharmaceutical industry for 27 years. His professional experiences have encompassed all aspects of preclinical, clinical and pharmaceutical development, from discovery lead compound optimization and selection through to final regulatory submission and successful product launches of both new compounds and life cycle management projects, as he has assumed increasing responsibilities throughout his career

Dr. Powell has authored and co-authored more than 125 scientific articles and presentations which have been made at the local, national and international level, as well as given numerous invited talks. He has participated in, and moderated, many scientific discussion panels at both national and international meetings and has chaired an international scientific conference.

Dr. Margaret M. Wu, Sr. Scientific Advisor, Corporate Strategic Research, ExxonMobil Research & Engineering Co., Clinton, NJ

“ExxonMobil Synthetic Lubricant Development”

Lubricant has been an integral part of our human civilization. From the very beginning of the industrial age, ExxonMobil had been at the forefront in providing

lubricants made from petroleum to meet the increasing demand for advanced machinery. More recently, as the society moved into automotive and space age, ExxonMobil continued to provide advanced synthetic lubricant products to address challenging needs. Today, ExxonMobil is the world’s largest supplier for advanced synthetic lubricants used in modern jet airplanes, automobiles and industrial machinery. We achieved this position through our long term commitment in research and development of new products and processes.

This presentation will include a brief introduction about lubricants, followed by a more in-depth discussion of the development of two synthetic lubricants - jet engine lubricant and automotive engine lubricant. In each product, the science and developmental process will be used to illustrate our approach to advanced product design. Key focus will be placed on how we identified the needs for these advanced products, the science involved to meet these needs and the developmental process to reach a successful product launch.

Margaret Wu joined Mobil Chemical R&D Company in Edison, New Jersey in 1978, after receiving a PhD degree from University of Rochester in Physical Organic Chemistry. She started her career in petrochemical research developing zeolite based processes. Later she had assignments in polyolefin catalyst development and in specialty chemical research. Fifteen years ago, Margaret was assigned to develop Mobil’s next generation synthetic lubricant products and became an expert in the field. She has been an inventor and a major driving force in developing key components used in Mobil 1 automotive engine oil - an ExxonMobil’s flagship lubricant product. Since the merger of Exxon and Mobil in 2000, she joined the company’s Corporate Strategic Research Department in Clinton. She was

promoted to Senior Scientific Adviser in the highest technical rank group within the company in 2002.

Margaret is the author or co-author of more than 80 issued U.S patents and numerous publications. She received Tribute to Women in Industry (TWIN) award early in her career. More recently, she was awarded the 2005 Thomas Alva Edison Patent Award and many internal ExxonMobil special recognition awards.

Dr. Birendra N. Pramanik, Distinguished Fellow, Schering-Plough Research Institute, Kenilworth, NJ

“Application of Mass Spectrometric Techniques in Drug Discovery and Development”

With advancement in ionization methods, mass spectrometry (MS) has become a powerful technology for the characterization of pharmaceuticals. This presentation will give an overview of MS in drug discovery and development process, emphasizing problem solving skills in utilizing LC/MS and LC/MS/MS with examples from pharmaceutical research. They include structural analysis of trace-level impurities in drug substances, microwave-assisted MS analysis for proteins/peptides, and application to proteomics.

Dr. Birendra N. Pramanik has been working for Schering-Plough Research Institute (SPRI) in the area of mass spectrometry since 1980. He is currently a Distinguished Fellow at SPRI. Dr. Pramanik directs mass spectrometry and NMR efforts in support of SPRI programs. The responsibility of this group is to utilize modern instrumentation (NMR, LC/NMR, MS, HR/MS, LC/MS, LC/MS/MS, FT-MS, GC/MS, UV, IR) to provide

structural identification of new chemical entities (small molecules) and therapeutic proteins for the discovery and development of novel pharmaceuticals. He has published over 130 research papers mostly in the area of mass spectrometry, including chapters in books. Dr. Pramanik is a co-editor of a book on “Applied Electrospray Mass Spectrometry” (Marcel Dekker, Inc., New York, 2002). He has been an invited speaker at national and international meetings. He has served as a chairperson for the North Jersey ACS Mass Spectrometry group and as chairman for major sessions of the American Society for Mass Spectrometry Meetings. He has received a number of awards, including the American Chemical Society New Jersey Regional Award for Achievements in Mass Spectrometry. He received his Ph.D. in Organic Chemistry under Professor Ajay K. Bose from Stevens Institute of Technology in 1977.

Prof. Jing Li, Department of Chemistry and Chemical Biology, Rutgers University.

“Can Macroparticles Do What Nanoparticles Do? Designing New Semiconductor Nanostructures That are Independent of Size”

Semiconductor quantum dots (QDs) represent a very important class of nanomaterials. Their ability to tune the electronic and optical properties of the semiconductor bulk has made them one of the hottest topics of the current materials research. However, it remains a great challenge for their use in optoelectronic devices that require high intensity, sharp lines or high carrier mobility and conductivity due to the weak correlation between these very small particles. In attempt to address these problems, we have designed and developed a new type of nanostructured materials that possess interesting

properties of semiconductor QDs while having extended and perfectly ordered crystal lattices. The semiconductor properties of the parent II-VI bulk are essentially retained in these hybrid structures with significant enhancement in certain areas. In addition, they exhibit very similar property tunability as those of the quantum dots as a result of very strong quantum confinement effect (QCE). The key difference is that the QCE in these hybrid structures is originated internally, rather than externally as in the QDs so it is independent of particle size. This work also serves a nice example where an interdisciplinary collaboration is crucial for success.

Professor Jing Li completed her undergraduate education in China and her graduate studies in USA. She received her Ph.D. degree from Cornell University in January 1990. Her doctoral research was conducted under the supervision of Professor Ronald Hoffmann, the 1981 Nobel laureate in Chemistry. After two years of postdoctoral research with Professor Frank J. DiSalvo (member of the National Academy of Sciences) at Cornell (October 1989 to August 1991), she joined the chemistry faculty at Rutgers University in September 1991. She was promoted to Associate Professor (with Tenure) in 1996, (Full) Professor I in 1999, and Professor II in 2006.

Dr. Li's research interests and activities are mainly in the areas of solid-state inorganic and materials chemistry. Her research has resulted in some 120 publications and two patents. Two papers (Li, J. et. al. *J. Chem. Soc. Chem. Comm.*, 2002, 2872, and Li, J. et.al. *Angew. Chem. Int. Ed.* 2003, 42, 542) were selected as "Hot Papers" by the two journals in 2002 and 2003, respectively. Another two papers (Li, J. et. al. *Inorg. Chem.*, 1999, 38, 2695; Li, J. et. al. *Inorg. Chem.*, 1999, 38, 4608) were in the select group

of TOP 40 MOST CITED PAPERS in Inorganic Chemistry for the five-year period 1999-2003. Her work has been reported in a number of magazines and newspapers including *C&EN News* (Vol. 80, No. 48, December 12, 2002, pg. 12), *Chemistry & Industry* (No. 1, January 6, 2003, pg. 28), *Nature Materials* (Vol. 2, March 2003, pg. 132), *EE Times* (March 23, 2004), and *Materials Today* (Vol. 7, No. 3, March 2004, pg. 15). She has delivered over 100 keynote, invited lectures and seminars worldwide and organized a number of conferences and symposia. She is currently Associate Editor for *Journal of Solid State Chemistry*, member of Advisory Editorial Board for *Inorganic Chemistry* and *Chinese Journal of Structural Chemistry*. She was also editor of a book volume "Solid-State Chemistry of Inorganic Materials V" published in 2005 (ISBN 1-55899-796-2). Dr. Li's honors include a 1994 Henry Dreyfus Teacher-Scholar Award, a 1995 National Science Foundation's CAREER Award and a 1995 Presidential Faculty Fellows (PFF) Award (NSF). She was a Henry Rutgers Research Fellow in 1991-1993, and was awarded a 1996 Board of Trustees Fellowship by Rutgers University for Scholarly Excellence. She was a recipient of "Outstanding Achievement Award" by Chinese Association of Science and Technology (USA) in 2002. Dr. Li has served as panelist for a number of NSF's funding programs and as reviewers for numerous funding agencies (e.g. NSF, DOE, ACS) and prestigious journals.

Dr. Li has taught and developed more than ten different undergraduate and graduate courses since her first appointment with the University. Her teaching activities also include serving as faculty advisor of the Chemistry Club, participating in the "Partners in Science" program (for high school science teachers, 1992-2001) sponsored

by the Research Corporation and serving as a mentor in the ACS's Project SEED program (for high school students, 1992-2005). Dr. Li has been actively involved in a number of other educational programs, such as "Success in the Sciences", funded by the William Penn Foundation for African-American and Hispanic undergraduate students, "Mentors and Partners" program for the elementary school teachers, Science-Math Fairs for grade students, and the Bridges Program for high school students sponsored by NIH. She served as a Principal Investigator and director of "Girls in Engineering, Mathematics and Science program (GEMS, 1999-2003), funded by the National Science Foundation (over one-half million dollars). She is currently a member of the Executive Committee of the Rutgers IGERT (NSF) program, and faculty participant of the Rutgers Catalyst Manufacture Science and Engineering (RCMSE) Program.

Dr. Peijun (PC) Cong, Vice-President, Technology Development, Accelergy Corporation

"High Throughput Chemical R&D in China: an Introduction to Accelergy"

Accelergy Corporation is a US venture backed start-up company with a wholly owned subsidiary R&D center in Shanghai, China. In this presentation, key aspects of Accelergy's unique business model will be described, along with highlights of recent technological accomplishments.

Prior to joining Accelergy in July of 2004, Dr. Cong was a Distinguished Scientist at Symyx, a US company specializing in development of methods and tools for high-throughput experimentation. He has also been on

the faculty of Hong Kong University of Science and Technology and a research staff member at University of California, San Diego.

Ping Cao, Marketing Manager of Tyger Scientific Inc. and **Dr. James A Schwindeman**, Chief Operating Officer of Tyger Scientific Inc.

"Adventures in the Research Jungle" - Tales of Tyger Scientific, Inc."

Serving the pharmaceutical, biotechnology and chemical industries, Tyger Scientific Inc. has gained a strong reputation in the most challenging organic synthesis field for reliable quality, on time delivery and competitive pricing. The key of our business success - caring about our customer just like we care about friends. Examples of Tyger's chemistry expertise - Heterocyclic chemistry, Chiral compounds and selective hydrogenation will be presented.

Ping is responsible for business development, sales, and marketing at Tyger Scientific. She graduated from Tianjin University in China with a master degree in engineering. She also received a master degree in science from Michigan State University in 2004.

Dr. James A Schwindeman received his PhD from Ohio State University and worked for FMC for 18 years as a lab director and business development manager before joining Tyger Scientific, Inc. in 2005.

Dr. Lixin (Leo) Shen, Vice-President, AstaTech, Inc.

“Continuous Innovation in Advanced Chemistries and Manufacturing “

Global fine and pharmaceutical chemical market has become much more competitive. To keep the leading position in the market, AstaTech emphasizes innovation in advanced chemistries and manufacturing. To maintain competitive advantages, AstaTech has recently enhanced its company management team. In the talk, we would like to share our experiences with the CACS colleagues on AstaTech's business approaches.

Biographical sketch of Leo (Lixin) Shen:

1995.1	MSc from University of Toronto
1999.9	Ph.D. from University of Waterloo
1999.10-2005.5	Worked from staff investigator to principle investigator (group leader) at ArQule, Inc.
2005.6-present	Vice president at AstaTech, Inc.
2003-2004	President-elect of Sino-American Pharmaceutical Professional Association - New England (SAPA-NE)
2004-2005	President for SAPA-NE
2005-present	Chair of the Executive Advisory Committee of SAPA-NE

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