

THE Indicator

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2013 Baekeland Awardee Christopher J. Chang



*See Christopher Chang's biography and details
about the Baekeland Symposium on page 7.*

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NEW YORK SECTION

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Extraordinary Women in Science
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Westchester Chemical Society
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Tuesday, October 1, 2013

Nanoscience Discussion Group
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Friday, October 4, 2013

Biochemical Topical Group
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Friday, October 18, 2013

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Tuesday, October 22, 2013

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Friday, October 25, 2013

Hudson-Bergen Chemical Society
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National Chemistry Week Celebration
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NORTH JERSEY SECTION

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Saturday, October 26, 2013

National Chemistry Week Celebration
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Monday, October 28, 2013

North Jersey Executive Meeting
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**The Indicator is
posted to the web on
the 15th of the
previous month at
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**Deadline for items to be included in the
November 2013 issue of *The Indicator* is
September 20, 2013**



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THIS MONTH IN CHEMICAL HISTORY

Harold Goldwhite, California State University, Los Angeles • hgoldwh@calstatela.edu

About a year ago I contributed to an exhibition and seminar celebrating the 100th. anniversary of the Southern California ACS Section. This prompted a review of some early 20th. century chemistry textbooks. In this column I will look at the origin of one of these texts, a quite popular one in its time: "Introduction to Inorganic Chemistry" by Alexander Smith, Professor of Chemistry and Head of the Department of Chemistry in Columbia University, New York. This general chemistry text was first published in 1906. My copy is of the third edition, "Rewritten", of January 1917.

Some of the following biographical information was obtained from an extensive memoir by William A. Noyes, a distinguished American chemist, published in Volume XXI of the memoirs of the National Academy of Sciences. Alexander Smith (1865 – 1922) was born in Edinburgh, Scotland, into an artistic family. and earned his bachelor's degree from Edinburgh in 1886 where his initial interests in astronomy were supplanted by the more practical field of chemistry. Like many chemists of the period he moved to Germany for advanced training; he worked in the laboratory of Baeyer and received his doctorate at Munich in 1889. His work there was in organic chemistry; in collaboration with Claisen he studied reactions of 1,3 diketones including tautomerism and condensations. In 1889 he met Noyes in Munich.

After a year as an assistant at Edinburgh Smith realized that prospects of promotion there were poor. He wrote to Noyes about finding a position in the United States and as a result was appointed Professor of Chemistry and Mineralogy at Wabash College, a Presbyterian institution in Crawfordsville, Indiana in 1890. His 4 years there were marked by his development as a teacher, and by further research on condensations and on benzoin. His reputation led to an offer in 1894 from the University of Chicago to become Assistant Professor there in charge of the teaching of elementary inorganic chemistry, as general chemistry was termed at that time. Along with the move Smith changed his interests from organic to physical chemistry, a fairly new field at that period. He began an extensive series of researches, published in 7 articles, on the various forms of elemental sulfur. (In 1912 this work earned him the Keith Medal of the University of Edinburgh).

From the earliest years of his career Alexander Smith was interested in the best ways to present chemistry in the classroom. This led to his many textbooks. The first, "Laboratory Outline of General Chemistry", was published in 1899. It was an immediate success. By the sixth edition, in 1917, 66,000 copies of this book had been sold. It was translated into German, Russian, and Italian. The second, in 1902, requested by the Dean of Teachers'College at Columbia University, was an introduction to chemistry (Smith's work) and physics (by Professor E. H.Hall of Harvard). The "Introduction to Inorganic Chemistry" was developed from 1903 to 1905, and was published in February 1906. Its success surprised and pleased both author and publisher; over 6,000 copies were sold in its first six months. It was translated into German, Russian, Italian, and Portuguese. Further texts appeared in 1908 and 1914.

Smith became President of the American Chemical Society for 1911. He gave his Presidential Address on "Lomonosoff, an early physical chemist" an unusual subject for an ACS Presidential address; a historical look at a pioneer Russian scientist. He was awarded many honors including election to scientific societies in Edinburgh, and Madrid. He became a member of the National Academy of Sciences in 1915. His published research includes 10 papers on organic chemistry; 26 on physical chemistry; 4 on astronomy. In addition to his textbooks he wrote 21 articles on pedagogy and the teaching of chemistry.

In a subsequent column I will examine his most significant textbook, "Introduction to Inorganic Chemistry".

National

THE IMPORTANCE OF THE AMERICA COMPETES ACT

The Subcommittee on Public Policy (SPP) of the ACS Committee on Economic and Professional Advancement (CEPA) would like to inform ACS members of an important piece of science legislation that expires this year. The America Creating Opportunities to Meaningfully Promote Excellence in Technology, Education, and Science Act, more commonly known by the acronym the COMPETES Act, was a key piece of highly bipartisan science legislation that first became law in 2007. It was inspired by the findings from the 2007 National Academy of Sciences report 'Rising Above the Gathering Storm', which identified ways to create high-quality jobs and focus new science and technology efforts on meeting the nation's needs. The original America COMPETES Act established a broad consensus for increasing U.S. investments in groundbreaking research in the physical sciences and engineering fields at the National Science Foundation (NSF), the Department of Energy (DOE) and the National Institute of Standards and Technology (NIST). The enacted legislation also significantly increased emphasis on science, technology, engineering, and math (STEM) education at the Department of Education (DoEd) and the NSF. It set authorization levels for these key science agencies for three years (2007-2010). The America COMPETES Act was a shining example of successful political bipartisanship and one of the most broadly supported pieces of major legislation passed by Congress in recent memory. COMPETES was reauthorized in 2010, again for three years and with bipartisan support, and expires at the end of 2013.

The ACS has been meeting with members of congress over the past several months advocating on behalf of COMPETES and would like to make ACS members aware of the effort.

While the specific provisions of the upcoming version of COMPETES are still being negotiated, the following public policy positions of the ACS can serve as a good template for issues most important to the Society:

U.S. Innovation and Entrepreneurship

http://portal.acs.org/portal/PublicWebSite/policy/publicpolicies/enable/innovation/WPCP_011518

Science and Technology Funding

http://portal.acs.org/portal/PublicWebSite/policy/publicpolicies/enable/stfunding/CNBP_023895

Science Education Policy

http://portal.acs.org/portal/PublicWebSite/policy/publicpolicies/invest/educationpolicies/WPCP_011527

More detailed information on the COMPETES Act can be found at

<https://www.fas.org/sgp/crs/misc/R42779.pdf>

Thank you for your attention,

Louise Lawter, Chair

The Subcommittee on Public Policy

ACS Committee on Economic and Professional Advancement (CEPA)

Baekeland Awardee

Christopher J. Chang

is a Professor of Chemistry and Molecular and Cell Biology and HHMI Investigator at UC Berkeley, as well as a Faculty Scientist in the Chemical Sciences Division of Lawrence Berkeley National Laboratory. He received his B.S. and M.S. degrees from Caltech in 1997, working with Prof. Harry Gray on spectroscopy of high-valent metal-nitrido and metal-oxo complexes. After spending a year as a Fulbright scholar in Strasbourg, France with Dr. Jean-Pierre Sauvage on chemical topology and molecular machines, Chris received his Ph.D. from MIT in 2002 under the supervision of Prof. Dan Nocera, where his graduate work focused on proton-electron transfer and oxygen catalysis. He stayed at MIT as a postdoctoral fellow with Prof. Steve Lippard, working on zinc biology and then began his independent career at UC Berkeley in Fall 2004. Research in the Chang lab is focused on chemical biology and inorganic chemistry, with particular interests in molecular imaging and catalysis applied to neuroscience, stem cells, cancer, infectious diseases, renewable energy, and green chemistry. His group's work has been honored by awards from the Dreyfus, Beckman, Sloan, and Packard Foundations, Amgen, Astra Zeneca, and Novartis, AFAR, Technology Review, the ACS Cope Scholar Fund, and the Society for Biological Inorganic Chemistry. Most recently Chris was awarded the 2012 ACS Eli Lilly Award in Biological Chemistry, the 2012 RSC Award in Transition Metal Chemistry, and the 2013 ACS Nobel Laureate Signature Award in Graduate Education.



The Baekeland Award will be presented on Friday, December 6, 2013 at the Baekeland Symposium, to be held at Rutgers University, Busch Campus, The Center for Integrative Proteomics Research, Room 120 A/B, 174 Frelinghuysen Road, Piscataway, NJ 08854-8087. More information will be posted in future issues of *The Indicator* and on the North Jersey website at www.njacs.org.



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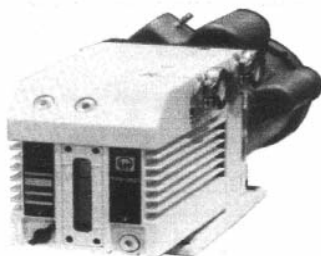
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New York Meetings

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NEW YORK SECTION BOARD MEETING DATES FOR 2013

The dates for the Board Meetings of the ACS New York Section for 2013 were chosen and approved at the November 30, 2012 Board Meeting. The meetings are open meetings – all are welcome. If non board members would like to attend the meeting, please let the New York Section office know by emailing Mrs. Marilyn Jespersen at njesper1@optonline.net or calling the office at (516) 883-7510.

The 2013 Board Meetings will be held on the following Fridays at 6:30 PM at St. John's University, D'Angelo Center, Jamaica, NY. Dr. Philip H. Mark will chair the meetings.

Friday, November 15

More information will be posted in future issues of *The Indicator* and on the New York website at <http://www.NewYorkACS.org>.

\$45 (students and post-docs).

For more information and to register for the event, go to:

www.nyas.org/atherosclerosis2013

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WESTCHESTER CHEMICAL SOCIETY

Special Seminar – “Catalyzed Direct Reactions of Silicon: Examples, Si Surface Enrichment and Silylene Intermediates”

Speaker: Kenrick M. Lewis, Ph.D
Corporate Research Fellow
Momentive Performance
Materials, Tarrytown, NY

$(\text{CH}_3)_2\text{SiCl}$ is the principal precursor to silicones. More than 1 million metric tons of it is manufactured annually in fluidized beds by the reaction of CH_3Cl with copper-activated silicon^(1, 2). $\text{HSi}(\text{OCH}_3)_3$ is manufactured in slurry phase reactors via the analogous reaction with CH_3OH ^(3, 4). It is produced in considerably lower volume, but it is an important raw material for the manufacture of organofunctional silanes and coupling agents. The reaction of copper-

activated silicon with $(\text{CH}_3)_2\text{NH}$ produces $\text{HSi}[\text{N}(\text{CH}_3)_2]_2$ ⁽⁵⁾. All three reactions are examples of the Rochow – Müller Direct Synthesis of silanes. This presentation will discuss salient features of these copper-catalyzed, gas-solid reactions with particular emphasis on the role of silicon surface enrichment⁽⁶⁾ and silylene intermediates^(7–10).

1. K. M. Lewis and D. G. Rethwisch (Editors), *Catalyzed Direct Reactions of Silicon*, Elsevier Science Publishers, Amsterdam, 1993, chp. 1
2. D. Seyferth, *Organometallics*, 20 (2001) 4978
3. H. Oye, et al. (Editors), *Silicon for the Chemical Industry IV*, June 3–5, 1998, Norwegian Institute of Science & Technology, 7034 Trondheim, Norway. See pp 265 – 327
4. A Better Route to Alkoxysilanes, Kirkpatrick Award. *Chemical Engineering*, Nov. 1999, pp 92 – 95
5. Ref. 1, chp. 20
6. K. M. Lewis, D. McLeod and B. Kanner in J. W. Ward (Editor), *Catalysis 1987*, Elsevier Science Publishers, Amsterdam, 1988. pp 415 - 434
7. M. P. Clarke and I. M. T. Davidson, *J. Organomet. Chem.*, 408 (1991) 149
8. Ref 1, chp 16
9. M. Okamoto, *Res. Chem. Intermed.*, 32 (2006) 317 - 330
10. L. Lorey and G. Roewer, *Silicon Chem.*, 1 (2002) 299 - 308

Dr. Kenrick Martin Lewis is a Corporate Research Fellow with Momentive Performance Materials in Tarrytown, NY. He joined the Linde Research Dept. of Union Carbide in January, 1977 and has been at the Tarrytown Technical Center since then. Dr. Lewis's research interests encompass both process and materials chemistry. In process chemistry, he has contributed to the fundamental understanding and technological exploitation of the catalytic transformations of silicon and silicon compounds. These include direct syntheses of silanes from silicon, hydrosilylation and redistribution/disproportionation of organosilicon compounds. Use of nanosized materials in the catalyses is a particular emphasis. The materials chemistry interests are focused on structure-property relationships among siloxane-polyether copolymers, surface modification of polysiloxanes in medical, dental and urethane foam applications. He is co-editor of *Catalyzed Direct Reactions of Silicon* (Elsevier, 1993), author of forty-six technical publications, and inventor of twenty-six issued US patents.

Dr. Lewis was born in Grenada, West Indies, and completed his secondary education there. His degrees are from the University of Alberta (Edmonton), BS (first class honors

in chemistry), and from the University of Massachusetts (Amherst), Ph.D. (Inorganic Chemistry). Dr. Lewis has been the recipient of many scholarships, prizes and awards from his studentship to the present time. These include the Latimer and Langmuir Awards at General Electric Co., Caribbean Icon of Science and Technology from the Caribbean Council for Science and Technology, and a Key Contributor to the 1999 Kirkpatrick Award for Innovation in the Direct Synthesis of Trimethoxysilane.

Date: Tuesday, October 1, 2013

Times: Refreshments 5:30 PM

Lecture 6:00 PM

Place: Westchester Community College
Gateway Building, Room 110
75 Grasslands Road
Valhalla, NY

Cost: Free and Open to the Public

Further Information: Paul Dillon,

PaulWDillon2@hotmail.com

(914) 393-6940

Next Meetings:

Special Seminar – “Electrochemical Detection of Thermal DNA State Transitions and Antibiotic Drug Binding to DNA at Surfaces”

Speaker: Irina Belozeroва, Ph.D.

Date: Wednesday, November 13, 2013

Times, Place, Cost same as October.

Special Seminar – “DNA: Not Merely the Secret of Life”

Speaker: Nadrian C. (Ned) Seeman, Ph.D

Date: Wednesday, December 4, 2013

Times, Place, Cost same as October.

NY NANOSCIENCE DISCUSSION GROUP

2013-2014 Sessions.

*Hosted by the New York University
Department of Chemistry*

Speakers to be announced.

The NYNDG is an ACS Topical Group that meets in the New York University Department of Chemistry. Sessions feature three 30-minute presentations on nanoscience, one each with strong orientation in biology, chemistry, and physics/applied mathematics. Presentations will be focused on discussion of recent work, although speakers will place the work in a context understandable to a broad audience.

Mark Your Calendars:

Dates: Tuesdays, October 1, December 3, February 11 and April 8

Times: Refreshments at 7:00 PM

Science at 7:30 PM

Place: NYU Silver Center
31 Washington Place (between
Washington Square East and
Greene Street
Room 1003 (10th floor)
New York, NY

For more information, contact: James Canary (james.canary@nyu.edu)

Topical Group History:

<http://www.nyu.edu/projects/nanoscience>

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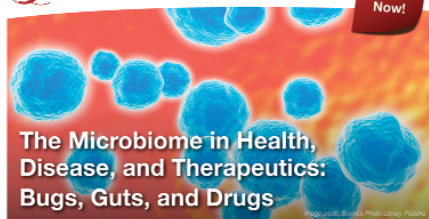
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BIOCHEMICAL TOPICAL GROUP — JOINT MEETING WITH THE NYAS BIOCHEMICAL PHARMACOLOGY DISCUSSION GROUP

The Microbiome in Health, Disease, and Therapeutics: Bugs, Guts, and Drugs



Organizers: Mercedes Beyna, MS
Pfizer Global Research and Development

Robert Martone
Covance Biomarker Center of Excellence

Richard Snyder, MS
Covance Biomarker Center of Excellence

Nilufer Seth, PhD
Pfizer Global Research and Development

Jennifer Henry, PhD
The New York Academy of Sciences

Speakers: David Artis, PhD
University of Pennsylvania

Stephen M. Collins, MBBS
McMaster University
Ontario, Canada

Michael A. Fischbach, PhD
University of California
San Francisco

Dirk Gevers, PhD
The Broad Institute of MIT
and Harvard

Jeremy K. Nicholson, FMedSci
Imperial College London

Lita M. Proctor, PhD
National Human Genome
Research Institute, NIH

Symbioses between humans and our gut microbiome influence human biology including nutrition, immune function, and brain

development. We review how symbiotic relationships impact drug metabolism and development, and a variety of disease states.

Date: Friday, October 4, 2013

Time: 8:00 AM – 4:30 PM (reception to follow)

Place: New York Academy of Sciences
7 World Trade Center
250 Greenwich Street – 40th Floor
New York, NY 10007

Cost: This event has reduced-rate registration for ACS and NYAS members, at \$30 or \$15 (for students and post-docs). Please select the appropriate non-member Registration Category and use the Priority Code ACS. Non-members may attend for a fee of \$85 (corporate), \$65 (non-profit or academic) or \$45 (students and post-docs).

For more information and to register for the event, go to: www.nyas.org/microbiome2013

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HIGH SCHOOL TEACHERS TOPICAL GROUP

The Discovery of the Higgs Boson: Latest Results from the ATLAS Experiment at the LHC

Speaker: Michael Tuts
Department of Physics
Columbia University

On July 4, 2012, the ATLAS and CMS experiments at the Large Hadron Collider (LHC) announced the discovery of a new particle – we called this new particle “Higgs-Boson-like.” Since that time these experiments have collected significantly more data leading us to the conclusion that we can now call it a Higgs rather than Higgs-like. Professor Tuts will talk about the discovery of the Higgs Boson in the context of the ATLAS experiment, where he is currently the U.S. ATLAS Operations Program Manager. He is one of 3,000 physicists from 38 countries that work on the ATLAS detector at the CERN Laboratory just outside of Geneva, Switzerland. They have analyzed over one thousand trillion proton-proton collisions to extract the evidence of the existence of the Higgs which is only very rarely created in

these collisions. He will briefly describe the ATLAS detector and the LHC, which is one of the largest scientific instruments ever built – effectively a 100 megapixel camera that can take 40 million pictures per second of the proton collisions, thus serving as a microscope for the subatomic world. He will show us some of the data that confirms the Higgs discovery to a very high degree of confidence, as well as evidence for other properties of this particle that point to it being the Higgs predicted by the Standard Model of particle physics. He will end by telling us what the plans are for the future.

Michael Tuts is a professor of physics at Columbia University where he has been on the faculty since 1983. As an experimental particle physicist his research focuses of trying to understand the fundamental particles and forces – he has pursued that goal with experiments at the Nevis cyclotron, the Cornell Electron Storage Ring (CUSB experiment), the Fermilab Tevatron (D0 experiment), and the LHC (ATLAS experiment). Currently he is the U.S. ATLAS Operations Program Manager in charge of overseeing over 500 U.S. physicists contributing to the operations of the ATLAS experiment.

Date: Friday, October 18, 2013

Times: Social and Dinner 5:45 PM

Place: M&G Pub
Murphy and Gonzales
21 Waverly Place (at Green Street, North-east corner)
New York, NY

Times: Meeting — 7:15 PM

Place: New York University
Silver Center Room 207
32 Waverly Place (South-east corner Washington Sq. East)
New York, NY 10003

Security at NYU requires that you show a picture ID to enter the building. In case of unexpected severe weather, call John Roeder, 212-497-6500, between 9 AM and 2 PM to verify that meeting is still on; (516) 385-4698 for other info.

Note: For those who prefer indoor attended parking, it is available at the Melro/Romar Garages. The entrance is on the west side of Broadway just south of 8th Street, directly across from Astor Place. It is a short, easy walk from the garage to the restaurant or meeting room.

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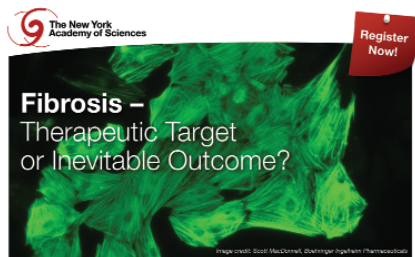
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BIOCHEMICAL TOPICAL GROUP — JOINT MEETING WITH THE NYAS BIOCHEMICAL PHARMACOLOGY DISCUSSION GROUP

Fibrosis – Therapeutic Target or Inevitable Outcome?



Organizers: Katalin Kauser, MD, PhD, DSc

Scott MacDonnell, PhD
Boehringer-Ingelheim
Pharmaceuticals

Silvia Pomposiello, PhD
F. Hoffmann-La Roche

Carolyn Foster, PhD

Jennifer Henry, PhD
The New York Academy of
Sciences

Speakers: Richard M. Silver, MD
Medical University of South
Carolina

Raghu Kalluri, MD, PhD
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School

Dan Wu, PhD
Yale University

Fibrosis is common in chronic organ injury, leading to progressive life-threatening outcomes. We review the link between fibrosis and disease and explore ways to use biomarkers and imaging to translate laboratory results into clinical success.

Date: Tuesday, October 22, 2013

Time: 8:30 AM – 4:30 PM (reception to follow)

Place: New York Academy of Sciences
7 World Trade Center
250 Greenwich Street – 40th Floor
New York, NY 10007

Cost: This event has reduced-rate registration for ACS and NYAS members, at \$30 or \$15 (for students and post-docs). Please select the appropriate non-member Registration Category and use the Priority Code ACS. Non-members may attend for a fee of \$85 (corporate), \$65 (non-profit or academic) or \$45 (students and post-docs).

For more information and to register for the event, go to: www.nyas.org/fibrosis

To become a Member of the Academy, visit www.nyas.org/benefits



HUDSON-BERGEN CHEMICAL SOCIETY — JOINT MEETING WITH THE SCHOOL OF NATURAL SCIENCES OF FAIRLEIGH DICKINSON UNIVERSITY

Lipid Membrane Heterogeneities: Liposome-Vased Chemo- and Radio-Therapy with a ‘Transport Twist’

Speaker: Stavroula Sofou, PhD
Rutgers University

Nature uses lipid membranes as a universal wrap around cells, and there is increasing evidence of the membrane’s role in controlling critical cell functions by reorganizing itself into lipid rafts. Rafts consist of laterally phase separated lipids whose occurrence coincides with changes in the local cell surface topography, local valency, and membrane integrity. These structural changes seem to correlate with several critical cell functions including cell signaling and viral infection mechanisms, and the molecular processes regulating these changes are still largely unknown. Inspired by Nature, we use model lipid membranes to study simplified processes that alter the surface topography, the apparent activity/valency of functionalized membranes, the membrane permeability and fusogenicity, with the aim to potentially contribute to the understanding and control of related collective membrane behavior. We design and study such simplified pH-dependent processes on model

functionalized lipid bilayers in the form of giant and of small unilamellar vesicles. Giant lipid vesicles are used as templates to study the morphology, reversibility, and kinetics of formation and growth of phase separated lipid domains. Integration of these processes on nanometer-sized lipid vesicles used as drug delivery carriers may precisely control their interactions with diseased cells increasing therapeutic efficacy while minimizing toxicities by simultaneously addressing a number of transport-related obstacles within tumors or targeted cells. Examples of improving the therapeutic potential in liposomal chemotherapy and alpha-particle radiotherapy will be presented.

Stavroula Sofou, Ph.D., obtained her Diploma (1994) in Chemical Engineering from the National Technical University of Athens, Greece, and her Ph.D. (2001) in Chemical Engineering from Columbia University. She was trained as a post-doctoral fellow in Medical Physics/Experimental Pharmaceutics at Memorial Sloan-Kettering Cancer Center before joining in 2004 the Department of Chemical and Biological Engineering at the Polytechnic Institute of New York University as Assistant Professor. She is currently Associate Professor in the Departments of Chemical and Biochemical Engineering, and Biomedical Engineering at Rutgers University. Her research focuses on understanding intermolecular and interfacial interactions of materials, and particularly of self-assembling materials, with the biological milieu. She is interested in combining this knowledge with engineering principles to design successful devices as drug delivery carriers to promote human health.

Date: Friday, October 25, 2013

Times: Social 5:30 PM

Dinner 6:00 PM

Lecture 7:00 PM

Place: Dickinson Hall Café

Fairleigh Dickinson University

Teaneck, NJ

Cost: \$10.00 for dinner

Reservations: Dr. Mihaela Leonida (201) 692-2338, e-mail: mleonida@fdu.edu by **October 18, 2013.**

Learn more about the
New York Section at
www.NewYorkACS.org

NEW YORK SECTION — NATIONAL CHEMISTRY WEEK ACTIVITY

Come and join us in the fun as the New York Section of the American Chemical Society celebrates National Chemistry Week on **Sunday October 27, 2013** at the New York Hall of Science, located in Flushing, Queens!

http://www.newyorkacs.org/meetings/NCW/2013_ncw.php

The event will run from 11 am to 4 pm and showcase chemistry principles using demonstrations performed by local college students and volunteers from local industries for children of all ages. This year's theme is "**Energy: Now and Forever!**" All are welcome!

For more details, direction, and to see photos from last year's fun, please visit our website. Hope to see you all there!



EXTRAORDINARY WOMEN IN SCIENCE & MEDICINE: FOUR CENTURIES OF ACHIEVEMENT

The Grolier Club is pleased to present a landmark exhibition exploring the legacy of thirty-two remarkable women whose extraordinary scientific accomplishments in physics, chemistry, astronomy, mathematics, computing, and medicine changed science. *Extraordinary Women in Science & Medicine: Four Centuries of Achievement* will illuminate the often little-known careers and accomplishments of these female scientists, examining their work and lives over four centuries.

More than 150 original artifacts, including books, manuscripts, serials, authors' separates, Ph.D. theses, and laboratory apparatus (such as that used by Marie Curie during her earliest work on radioactivity) will be on view, providing a remarkable overview of the scientific contributions of this eminent group.

Included will be numerous items with special attributes and provenance. Of particular interest will be Emilie Du Châtelet's 1759 translation of Newton's *Principia* with the bookplate of Talleyrand; copies of all of her other scientific publications; a mathematics workbook and a letter, both in her hand; and materials about her fourteen-year relationship with Voltaire, including a book she

(continued on page 14)

EXTRAORDINARY WOMEN IN SCIENCE & MEDICINE

(continued from page 13)

co-authored—although without her name on the title page. A scientific breakthrough written on a brown paper bag is displayed. The exhibition also serves to announce a falsely attributed first edition due to a typesetter error in the seventeenth century and other bibliographical discoveries.

Extraordinary Women in Science & Medicine: Four Centuries of Achievement highlights such modern luminaries of the physical sciences as Marie and Irène Curie, Marietta Blau, Lise Meitner, Maria Goeppert Mayer, C.-S. Wu, Dorothy Crowfoot Hodgkin, and Rosalind Franklin in physics and chemistry. Astronomers include Maria Cunitz, the most advanced scholar in mathematical astronomy of the seventeenth century, and Cecilia Payne-Gaposchkin, whose Ph.D. thesis in 1925 was the beginning of modern astrophysics. Among the mathematicians highlighted are Sophie Germain, Sophie Kowalevski, Emmy Noether, Emilie Du Châtelet, Maria Agnesi, and Florence Nightingale—for her work in statistics. Grace Hopper, the creator of many fundamental concepts in digital computing, is featured. Represented also are Laura Bassi, Hertha Ayrton, Marie Meurdrac, Marie Thiroux d'Arconville, Elizabeth Fulhame, and Ada, Countess of Lovelace.

Among medical scientists, the exhibition features Gerti Cori, instrumental in unveiling the fundamental mechanism of metabolism; Gertrude Elion, the first to design medicines effective in the cure of cancer and viral diseases; Rosalyn Yalow, developer of the powerful analytic tool, radioimmunoassay; and Florence Sabin, whose discoveries form the basis for our current understanding of cellular immunity. Two game-changers in medical science are Rita Levi-Montalcini, discoverer of nerve growth factor, and Barbara McClintock who discovered that genes are not fixed but move—the key paradigm shift in modern genetics. Great and influential clinical physicians include Louise Boursier, midwife to King Henry IV and Marie de Medici of France; the pioneering pediatric neurologist Mary Putnam Jacobi; and Helen Taussig, designer of the life-saving “blue baby” operation.

The exhibition is designed to pose questions about women's recognition — or lack there-

of — in the sciences. Topics treated include educational opportunities, role models, the use of social capital, individual styles of doing science, and gender issues associated with society norms of the periods. The viewer may consider such questions, for example, as who deserved and who received Nobel Prize awards among the modern women. The intention is to raise awareness about how women's roles have been limited in the development of the sciences.

Date: Sept. 18 - Nov. 23, 2013

Times: Mon.-Sat. 10:00 AM - 5:00 PM

Place: Grolier Club
47 East 60th Street
New York, NY

The exhibit will be open to the public free of charge. Additional information and directions are available at www.grolierclub.org.

EXHIBITION-RELATED EVENTS: **Thursday, October 3, 2013**, 6:00 PM-7:30 PM: Collectors' Forum; **Saturday, October 26, 2013**, 12:00 PM-5:00, Symposium on Extraordinary Women in Science & Medicine; **October 16, 23 and 30, 2013:** Lunch-hour tours of the exhibition.

For special visits with a curator, contact Ronald K. Smeltzer, rksmeltzer@verizon.net

Submitted by Dr. John B. Sharkey, Chair of the Committee on the History of the ACS New York Section.



EMPLOYMENT AND PROFESSIONAL RELATIONS COMMITTEE OF THE NEW YORK SECTION

To Human Resources Departments in Industry and Academia

The Employment and Professional Relations Committee maintains a roster of candidates who are ACS members seeking a position in the New York metropolitan area. If you have job openings and would like qualified candidates to contact you, please send a brief job description and educational/experience background required to hessytaft@hotmail.com.

Candidates from our roster who meet the requirements you describe will be asked to contact you.

North Jersey Meetings

<http://www.njacs.org>

NORTH JERSEY EXECUTIVE COMMITTEE MEETING

Section officers, councilors, committee chairs, topical group chairs, and section event organizers meet regularly at the Executive Committee Meeting to discuss topics of importance to running the section and representing the membership. All ACS members are welcome to attend this meeting and to become more involved in section activities.

Date: Monday, October 28, 2013

Times: 6:30 PM

Place: Rutgers University
Busch Campus, Center for
Integrative Proteomics Research
Room 126, 174 Frelinghuysen Rd.
Piscataway, NJ

Cost: Pizza \$5.00 prior to meeting

Directions can be found here:

<http://deposit.rcsb.org/directions/directions-cjpr.html>

For reservations please call (732) 463-7271 or email chemphun@gmail.com prior to **Wednesday, October 23, 2013**.

Dinner cost is payable at the door; however, if you are not able to attend and did not cancel your reservation, you are responsible for the price of your dinner.

ChemExpo 2013

at Liberty Science Center



Saturday, October 26th, 2013

10 a.m. - 2 p.m.

"ENERGY: Now and Forever!"

Hands-on Science Activities

A family affair presented by area chemists, college and high school chemistry teachers and students.

Visit **Liberty Science Center** and enjoy this additional event included with general admission to the Center

Coordinated by

North Jersey Section of the American Chemical Society



For further information go to www.njacs.org or email mitachaki@gmail.com

NMR TOPICAL GROUP

Symposium on NMR in Biomedical Research 2013

Sponsors: ACD / Labs

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Cambridge Isotope

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JEOL

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Nexomics Biosciences

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Agenda

- 1:00 Opening Remarks
- 1:05 Prof. Josh Wand
University of Pennsylvania
"Conformational Entropy and Its
Role in Protein Function as
Revealed by NMR Relaxation"
- 1:55 Prof. Mike Summers
University of Maryland
Baltimore Campus
"New Insights into the Structure of
the HIV-1 RNA Packaging Signal"
- 2:45 Prof. Gerhard Wagner
Harvard University
"Still Improving Data Acquisition and
Processing to Aid Studies of Large
Proteins"
- 3:35 Coffee Break
- 4:05 Dr. Feng Luo
Bristol-Myers Squibb
"Functional Magnetic Resonance
Imaging in Schizophrenia"
- 4:55 Prof. David Wishart
University of Alberta
"NMR and Metabolomics, Pushing
the Boundaries of Speed,
Sensitivity & Coverage"
- 5:45 Closing Remarks
- 5:50 Cocktail reception cosponsored by
Bruker-Biospin and MestreLab Res.

Date: Wednesday, October 2, 2013

Times: 1:00 - 6:45 PM

Place: Waksman Institute
Rutgers University
Piscataway, NJ

Cost: Registration fee \$10.00. No charge for students, postdocs, retirees, unemployed.

On-line registration (**till September 30**) via:
<http://www.njacs.org/topicalgroups/nmr-spectroscopy> or email to gvt@rutgers.edu

CAREERS IN TRANSITION MEETINGS

Job Hunting??

We offer assistance at Students2Science to help members with their job search on the second Monday of each month. Topics at this free workshop are:

- Techniques to enhance resume effectiveness
- Interview practice along with responding to difficult questions
- Networking to find hidden jobs
- Planning a more effective job search

Date: Monday, October 14, 2013

Times: Meeting 5:30 - 9:00 PM
Pizza snack and soda 6:30 PM

Place: Students 2 Science, Inc.
66 Deforest Avenue
East Hanover, NJ

Cost: \$5.00 for pizza and soda

Reservations: at

www.njacs.org/careers.html

A job board and networking assistance is offered at most topical group meetings. Appointments with Bill can be arranged for

personal assistance at (908) 875-9069 or billsuits@earthlink.net.

See www.njacs.org under the Career tab for Jobs hidden from sight and relevant blogs.



NMR TOPICAL GROUP

Sponsored by Bruker-Biospin

GENERAL OVERVIEW OF NEW PRODUCTS FOR 2013

Presented by: George Anastasi
Regional Sales Manager
Bruker-Biospin, Inc.

Recent Advances in NMR Spectroscopy of Encapsulated Proteins & Nucleic Acids Dissolved in Low Viscosity Fluids

Speaker: Prof. Josh Wand
Johnson Research Foundation
& Department of Biochemistry
& Biophysics
University of Pennsylvania
Perelman School of Medicine
Philadelphia, PA

Solution NMR spectroscopy is a powerful technique to study protein structure and dynamics on multiple timescales and in many contexts. Sample preparation is often the key ingredient that enables otherwise very difficult studies of complex macromolecular systems. Some time ago we introduced the idea of using solutions of proteins encapsulated within the protective aqueous core of a reverse or inverted micelle and dissolved in low viscosity fluids as a means to overcome the "slow tumbling" problem presented by large, soluble proteins. Since then several advantageous properties of the reverse micelle particle have been used to promote studies of integral and anchored membrane proteins, soluble proteins and nucleic acids of marginal stability as well as investigations of various aspects of protein biophysics such as cold denaturation, protein hydration and protein motion. Despite this, the approach has not been generally adopted by the NMR community. To make this reverse micelle encapsulation approach more accessible, we have developed an optimized reverse micelle surfactant system. Comprised of the nonionic 1-decanoyl-rac-glycerol and the zwitterionic lauryldimethylamine-N-oxide (10MAG/LDAO), this mixture is found to faithfully encapsulate a diverse set of proteins ranging up to 80



The New Jersey Pharmaceutical Quality Control Association (NJPCA) invites you to attend our Luncheon (11:30 AM to 2:00 PM) Monthly Meetings for 2013-2014; the following dates have been set for the upcoming year. Please mark your calendars!

October 15, 2013	Method Transfer	Speaker: Kim Huynh-Ba
November 19, 2013	More details to follow	Speaker: details to follow
January through May 2014	Our QA Certification Training Course (evening weekly sessions)	Registration will begin in the Fall of 2013
January 21, 2014	More details to follow	Speaker: details to follow
February 18, 2014	ICH Q3D Elemental Impurities (luncheon meeting)	Speaker: Janeen Skutnik-Wilkinson
March 18, 2014	USP Update	Speaker: more details soon
April 8, 2014	Rapid Micro Testing vs. Traditional Micro Testing (evening discussion panel)	Speakers: Dr. Daniel Prince, Dr. Scott Sutton, Dr. Michael Miller
May 21, 2014 FDA Conference	More details to follow	Speakers: details to follow

Future updates on meeting information can also be found on the website (topics and speakers):
www.NJPCA.org

kDa in size and having a broad spectrum of electrostatic properties. Extensive chemical shift analyses indicate that encapsulation conditions that maintain high structural fidelity can be directly found. A clear advantage of 10MAG/LDAO is the active decrease of molecular reorientation time for encapsulated macromolecules larger than ~20 kDa leading to improved signal-to-noise. The properties of 10MAG/LDAO are also found to be very favorable for solution NMR studies of lipidated proteins. New and efficient strategies for optimization of encapsulation conditions have also been developed. 10MAG/LDAO performs well in both the low viscosity pentane and ultra-low viscosity liquid ethane and should serve as a general platform for initiating solution NMR studies of proteins and nucleic acids. In a parallel effort, it has been realized that reverse micelle solutions potentially offer a route to implement dynamic nuclear polarization enhancement of protein resonances by avoiding the dielectric heating generally associated with standard aqueous samples. Initial results will be presented. Supported by NSF and the NIH.

Doubled Door Prizes!

Date: Wednesday, October 23, 2013

Times: Dinner 6:00 PM

Seminar 7:00 PM

Place: CABM at Rutgers University

Room 010

679 Hoes Lane West

Piscataway, NJ

Cost: Dinner cost — No charge thanks to the generous sponsorship by Bruker-Biospin

Directions: <http://www.mapquest.com> and enter depicted address. [[register](#)]



NORTH JERSEY YOUNGER CHEMISTS COMMITTEE

Happy Hour/Trivia Night


Our Happy Hour/Trivia Night was held on August 21, 2013 at the Fox and Hound in Edison, NJ.

The evening began with a social hour encouraging attendees to mingle and interact with each other over a game of pool or a piece of pizza. Attendees had a chance to network and share information on resume assistance, job placements, mentoring. We also advertised our upcoming events.

The evening ended with an opportunity to continue discussion while competing in the Fox and Hound's Wednesday night trivia competition. Our team, the "Atomic Number," won 2nd place!

We would like to thank everyone, especially the new members, who attended our summer happy hour/trivia night

Learn more about the
North Jersey Section at
www.NJACS.org



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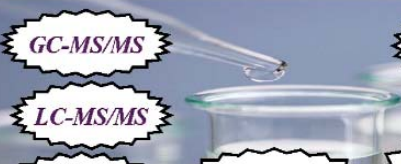
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NORTH JERSEY 50 YEAR MEMBERS

Twelve members of the North Jersey Section celebrated their 50 Year Anniversaries at the 2013 Awards and Recognition Dinner at The Mansion, Fairleigh Dickinson University, Madison on

May 14th. The 60 Year members were featured in the September issue of *The Indicator*. The twelve 50 Year members are shown with Monica Sekharan, NoJ-ACS Chair-Elect, and Amber Charlebois, NoJ-ACS Past Chair, in the following photos.

(All photos courtesy of Tom Krone)



Francis (CK) Chan



Albert Chen



Robert Dworkin



Willis Hammond



Deran Hanesian



John Hodgkiss



Anthony Scerbo



Joseph Tajar



Deger Tunc



David Vickroy



Stanley Wanat



Jay Weinstein

Call for Nominations

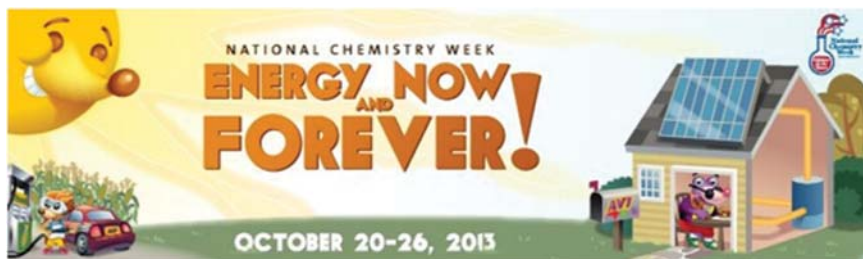
2014 ESSELEN AWARD FOR CHEMISTRY IN THE PUBLIC INTEREST

The Northeastern Section of the American Chemical Society is pleased to invite nominations of worthy candidates for the Gustavus John Esselen Award for Chemistry in the Public Interest. This award recognizes a chemist for outstanding achievement in scientific and technical work that contributes to the public well-being. The award consists of a \$5000 prize and a medal of recognition. The presentation takes place at an award ceremony in April at

Harvard University followed by a formal address by the awardee. The tentative date for this ceremony is April 10, 2014.

The award was established in 1987 to honor the memory of Gustavus John Esselen, a distinguished member of the Northeastern Section. The first awardees were F. Sherwood Rowland and Mario J. Molina, who subsequently received the Nobel Prize. Several other recipients of the Esselen Award have also been Nobel awardees.

Further information is available at www.nesacs.org/awards_esselen.html. The announcement details the nature of the award and the criteria and purpose of the award. The deadline for nominations is **October 15, 2013**.



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Call for Volunteers

Come Join Us at the Liberty Science Center

Last year The North Jersey Section celebrated National Chemistry Week at the Liberty Science Center. We had a great time and the attendees really appreciated our efforts. Why don't you join us this year? On **Saturday, October 26, 2013** the North Jersey Section will be holding its annual **ChemExpo** in celebration of National Chemistry Week. As usual we will have many tables offering all kinds of hands-on activities for budding scientists. You can set up your own table or help out at another table. We need you to help us make a difference!

The theme for this year is "ENERGY: Now and Forever!" Engage visitors in exploring the positive impacts of chemistry as it relates to all types of energy especially renewable energy. Check out the National Chemistry Week web page at <http://portal.acs.org/> to get some ideas for hands-on activities that you might want to present.

Your activities should be geared for 8 to 12 year olds. As usual our first priority is safety. Preferably presenters should use household materials to demonstrate a scientific principle. We would like the students to be able to repeat these experiments at home and at school so it would be very helpful if you had handout instructions to distribute.

To minimize duplication of the presentations, we will need to know by October 1 the activity you would like to conduct at your table. Individuals contacting us first with their idea(s) will be given priority, so please let us hear from you as soon as possible. Contact Bobbi Gorman at rosellerams@yahoo.com or Mita Chaki at mitachaki@gmail.com and let us know what activities you will be doing at your table or if you want to volunteer at the Expo.

We also value and look forward to receiving financial support to help cover many of the expenses associated with the Section's NCW activities. If you would contact the appropriate individuals at your company, the Section would be most grateful. A donation of \$500.00 indicates Gold Sponsorship, a \$250.00 gift indicates Silver Sponsorship and a \$100.00 gift indicates a Bronze

Sponsorship. Checks should be made out to the North Jersey ACS Section with a memo of "NCW" and sent to Jacqueline Erickson, 33 Ronald Road, Lake Hiawatha, N, 07034-1121.

Please fill out the following forms and return them to Bobbi Gorman at rosellerams@yahoo.com

Form 1. Count me in.

My name is: _____

I am volunteering to work on: **Saturday,**

October 26 (Check appropriate box)

10:00 AM-11:30 AM,

11:30 AM – 2:00 PM,

10:00 AM-2:00 PM

I can be reached at:
(work phone number) _____

My complete address is: _____

I am an employee at: _____

The activities at my table will be: _____

In addition to a table, I also need: _____

I will be bringing handouts on activities that the students can do at home.
(Circle) Yes No

I will need more than one table. Yes No
How many additional tables will you need?

Form 2. My company would like to support these efforts.

The following company/individuals are willing to help defray the costs of these events:

An acknowledgement letter for this contribution should be sent to (name and full address):

Form 3.

I will be joined at my table by the following volunteers.

Complete Name: _____ Institution: _____ Address (snail mail): _____

Activity _____ Time Volunteering _____

Complete Name: _____ Institution: _____ Address (snail mail): _____

Activity _____ Time Volunteering _____

Complete Name: _____ Institution: _____ Address (snail mail): _____

Activity _____ Time Volunteering _____

Acknowledge letters should be sent to: _____

Thanks very much for all of your help. The Section is most appreciative of your efforts.
Mita Chaki and Valerie Kuck

Call for Demonstrators

National Chemistry Week 2013



Sister Marian Jose Smith Undergraduate Outreach Competition

ATTENTION STUDENT CHAPTERS

"Energy: Now and Forever!"

Come to the Chemistry Expo at the Liberty Science Center
Saturday, October 26th from 10:00 AM - 2:00 PM with your best
Undergraduate Hands-on-Demonstration.

The Student Chapter with **the best** interactive demonstration that
applies to the theme of energy will receive a \$175 cash prize and the
title of

"NCW Undergraduate Student Chapter 2013"
(second place gets \$75).

For details check the website
<http://www.acs.org/content/acs/en/education/outreach/ncw.html>
Student Chapters must register by October 12th to be considered for
the title and the cash awards. If interested send an email to
rosellerams@yahoo.com

National

ACS GREEN CHEMISTRY INSTITUTE

PHARMACEUTICAL ROUNDTABLE CHEMISTRY SYMPOSIUM — Catalysis in Green Chemistry

Co-Hosted by: ACS GCI Pharmaceutical
Roundtable
Rutgers University

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Speakers: Scott Miller
Yale University
Gary Molander
University of Pennsylvania
Greg Hughes
Merck
Paul Chirik
Princeton University
Dalibor Sams
Columbia University
Michael Krische
The University of Texas
at Austin

Date: Friday, October 4, 2013

Times: All day

Place: Rutgers University
Busch Campus
Piscataway, NJ

Cost: \$75.00; Free for students who
present posters

Additional Sponsorship Opportunities
Available. Contact J_Manley@acs.org,
[http://chem.rutgers.edu/acs-
pharmaceutical-roundtable-green-
chemistry-symposium](http://chem.rutgers.edu/acs-pharmaceutical-roundtable-green-chemistry-symposium)

Others

2013 EASTERN ANALYTICAL SYMPOSIUM — ANALYTICAL IN MOTION KNOWLEDGE CAREER!

November is just around the corner and so is the Eastern Analytical Symposium and Exposition (EAS). EAS will be held in Somerset, NJ, **November 18-20, 2013**. If you did not have the opportunity to attend a

conference this year, or would like to end the year rounding out your professional development, exploring new skill sets and technology for this ever changing environment, or need to plan and budget for next year's laboratory needs, this is a perfect opportunity to do so.

The 2013 EAS provides ample opportunities to attend technical sessions keeping up with the latest trends or interacting and making connections with fellow professionals at the poster sessions. For those looking for the latest equipment or are trying to solve a pressing laboratory issue, the Exposition offers a great opportunity to visit a tremendous group of vendors ready to help your needs with cutting-edge technology. For those in transition or seeking advancement, there will be an Employment Bureau where you can connect with potential employers that are actively seeking candidates.

Glancing through the program, it's amazing how much is packed into just 3 short days! There will be 50 technical sessions, over 25 short courses, seminars, and workshops. This includes EAS award sessions recognizing the many outstanding achievements of distinguished scientists from across the USA and around the world. On Monday, November 18, 2013 at 4:30 PM there will be a Plenary Lecture at the Double Tree Hotel, Grand Ballroom by Dr. Irving Wainer, National Institutes of Health, and winner of the EAS Award for Outstanding Achievements in the Fields of Analytical Chemistry. Networking and refreshments to follow the lecture.

Eastern Analytical Symposium and Exposition is a volunteer organization that sponsors a scientific conference and exposition, held at the Garden State Expo Center and hotels in Somerset NJ every November. The annual symposium is attended by over 2500 scientists from industry, academia and government.

For more information please visit
<http://www.eas.org/>

Learn more about
The Indicator at
www.TheIndicator.org

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14. Issue Date for Circulation Data Below: June 2013.
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- 15B. Paid and/or Requested Circulation: 1. Paid/Requested Outside-County Mail Subscriptions Stated on Form 3541. (*Include advertiser's proof and exchange copies*): Average No. Copies Each Issue During Preceding 12 Months 1,070. No. Copies of Single Issue Published Nearest to Filing Date 1,056. 2. Paid In-County Subscriptions (*Include advertiser's proof and exchange copies*): Average No. Copies Each Issue During Preceding 12 Months 27. No. Copies of Single Issue Published Nearest to Filing Date 27. 3. Sales Through Dealers and Carriers, Street Vendors, Counter Sales, and Other Non-USPS Paid Distribution: Average No. Copies Each Issue During Preceding 12 Months N/A. No. Copies of Single Issue Published Nearest to Filing Date N/A 4. Other Classes Mailed Through the USPS: Average No. Copies Each Issue During Preceding 12 Months 0. No. Copies of Single Issue Published Nearest to Filing Date 0.
- 15C. Total Paid and/or Requested Circulation (*Sum of 15B1, B2, B3 and B4*): Average No. Copies Each Issue During Preceding 12 Months 1,097. No. Copies of Single Issue Published Nearest to Filing Date 1,083.
- 15D. Free or Nominal Rate Distribution (*By Mail and Outside the Mail*): 1. Outside-County as Stated on Form 3541. Average No. Copies Each Issue During Preceding 12 Months 0. No. Copies of Single Issue Published Nearest to Filing Date 0. 2. In-County as Stated on Form 3541. Average No. Copies Each Issue During Preceding 12 Months 0. No. Copies of Single Issue Published Nearest to Filing Date 0. 3. Other Classes Mailed Through the USPS. Average No. Copies Each Issue During Preceding 12 Months 12. No. Copies of Single Issue Published Nearest to Filing Date 12.
- 15E. Total Free Distribution (*Sum of 15D(1), (2), (3) and (4)*): Average No. Copies Each Issue During Preceding 12 Months 12. No. Copies of Single Issue Published Nearest to Filing Date 12.
- 15F. Total Distribution (*Sum of 15C and 15E*): Average No. Copies Each Issue During Preceding 12 Months 1,109. No. Copies of Single Issue Published Nearest to Filing Date 1,095.
- 15G. Copies Not Distributed: Average No. Copies Each Issue During Preceding 12 Months 151. No. Copies of Single Issue Published Nearest to Filing Date 205.
- 15H. Total (*Sum of 15F and G*): Average No. Copies Each Issue During Preceding 12 Months 1,260. No. Copies of Single Issue Published Nearest to Filing Date 1,300.
- 15I. Percent Paid and/or Requested Circulation (*15C divided by 15F times 100*): Average No. Copies Each Issue During Preceding 12 Months 98.9%. No. Copies of Single Issue Published Nearest to Filing Date 98.9%.
16. Publication of Statement of Ownership. Publication required. Will be printed in the October 2013 issue of this publication.
17. Signature and Title of Editor, Publisher, Business Manager, or Owner
Linda R. Atkins, Editor

I certify that the statements made by me above are correct and complete.

PS Form 3526, September 2007

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