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THE Indicator

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THE Indicator

The monthly newsletter of the New York & North Jersey Sections of the American Chemical Society. Published jointly by the two sections.

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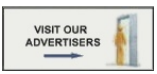

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The Indicator **is posted to the web on the 15th of the previous month at www.TheIndicator.org**

Deadline for items to be included in the December 2013 issue of *The Indicator* is October 20, 2013

THIS MONTH IN CHEMICAL HISTORY

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

"I often think it's comical that nature always does contrive that every boy and every gal that's born into this world alive is either a little liberal, or else a little conservative." So sings Private Willis (in front of London's Houses of Parliament) at the beginning of the second act of "Iolanthe", one of my favorite Gilbert and Sullivan operettas. But perhaps chemists fall into the class of split personalities, for I think that many chemists are liberal (even radical, if you'll pardon the pun) when it comes to enlarging the boundaries of their science, and conservative when it comes to teaching it. And so to the subject of this column; an examination of a century old general chemistry text, "Introduction to Inorganic Chemistry" by Alexander Smith, whose career I described in a recent column. I am looking at the third edition, published in New York in 1919. The first edition was published in 1906.

Smith's Preface has some profound insights into the teaching of chemistry. "The chemistry of the laboratory is, of course, the only real chemistry, and that of the lecture must be somewhere at fault." "No conception is defined, and no generalization or law is developed, until such a point has been reached that applications …have already been encountered..".

After an initial chapter on how chemical phenomena are studied and classified the second chapter is on energy in chemical change, subtitled physics in practical chemistry. Smith quotes Mayer (1842) and Helmholtz (1847) on conservation of energy: "in a limited system no gain or loss of energy is ever observed". This is a quite conservative statement of the first law of thermodynamics, but one that upholds Smith's idea that "Scientific statements of fact can never err by being too conservative". Generally Smith's approach to understanding chemistry, as expounded in this chapter, is more profound, more philosophical, than the usual approach in our current texts, and for me it is that much better.

In his chapter on combining proportions by weight Smith is equally clear on the implications of conservation of mass. "A law is …simply a summary of our experience. As such it is subject to modification …Thus it is perfectly possible that we may yet find cases of demonstrable changes in weight accompanying other physical or chemical changes in a limited system" : Prophetic comments at the beginning of the understanding of radioactive change and mass/energy equivalence. This is a further example of the way in which Smith so carefully picks his words and explanations.

The subjects in this impressive text do not look very different from those in current texts, though the order is somewhat different, in that sections devoted to individual elements and compounds, such as hydrogen, oxygen, and water are interspersed among chapters on theory including the kinetic molecular viewpoint , solution, and molecular and atomic weights. The end-of-chapter exercises seem to me to be more pedestrian than the text material. We teachers of chemistry include much of the same content as Smith, but I believe we are moving in a more liberal direction in our attempts to assess student learning in our courses. And so I return to my opening theme; the blend of conservative and liberal approaches to teaching chemistry, as exemplified in Smith's century old text, still serve us and our students well.

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.

The November 2013 NJACS executive meeting will be held in conjunction with the Chromatography Group monthly meeting.

Date: **Monday, November 18, 2013**
Times: Social/dinner 5:00 - 7:00 PM
Executive Meeting 7:00 PM
Place: to be decided. Please see **www.njacs.org** for details

The New Jersey Pharmaceutical Quality Control Association (NJPQCA) invites you to attend our Lunchtime (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!

November 19, 2013	Validation	Speaker: Jay Rheingold
January through May 2014	Our QA Certification Training Course (evening weekly sessions)	Registration will begin in the Fall of 2013
January 21, 2014	CAPA and Investigations	Speaker: Karen McCullough
February 18, 2014	ICH Q3D Elemental Impurities (lunchtime meeting)	Speaker: Janeen Skutnik-Wilkinson
March 18, 2014	Monograph Harmonization: Throwing Down the Gauntlet	Speaker: Mark Wiggins
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.NJPQCA.org

MASS SPECTROMETRY DISCUSSION GROUP

Sponsored by AB Sciex.

The Role of Bioanalysis in Drug Development

Speakers: Chongwoo Yu, PhD
Senior Clinical Pharmacology Reviewer
Office of Clinical Pharmacology (OCP)
Office of Translational Sciences (OTS)
Center of Drug Evaluation and Research (CDER)
U.S. Food and Drug Administration

Speaker #2 TBA

Clinical Pharmacology plays an important role in drug development, including the evaluation of the drug's pharmacokinetics (PK), pharmacodynamics (PD), drug interaction potential, exposure-response relationship, and safety considerations when being used in specific populations.

Clinical Pharmacology data is pivotal in delivering the right drug, in the right dose, at the right time, to each particular patient and it has significantly influenced the risk/benefit assessment and labeling recommendations. Consequently, the reliability of that data is of considerable importance and bioanalysis is the solid footing in drug development ensuring the reliability. Bioanalytical data and documentation from method validation or clinical trials are critical elements supporting regulatory submissions such as new drug applications (NDAs) or biologics license application (BLAs).

Case examples will be presented to highlight the utility and importance of bioanalysis in drug development to ensure that drug products are safe, effective, and given at the right dose.

Date: **Tuesday, November 5, 2013**
Times: Social and registration 5:30 PM
Complimentary dinner 6:15PM
Welcome and opening remarks 7:00 PM
Dr. Chongwoo Yu 7:05 PM
Speaker #2 8:00 PM
Closing remarks 8:55 PM
Place: Holiday Inn Somerset-Bridgewater
195 Davidson Avenue
Somerset NJ
Cost: Attendance is free of charge, compliments of our sponsors!

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, November 11, 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.

CHROMATOGRAPHY TOPICAL GROUP

The November meeting will be held on:

Date: **Monday, November 18, 2013**
Times: Social/dinner 5:00 - 7:00 PM
Meeting 7:00 PM
Place: to be decided. Please see **www.njacs.org** for details

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NMR TOPICAL GROUP

Protein Dynamics and Biophysical Data Driving Drug Design of Staphylococcus aureus DHFR Inhibitors

Speaker: Parag Sahasrabudhe, PhD
CCIE-Structural Biology & Biophysics
Pfizer Global R&D
Eastern Point Road
Groton, CT 06340

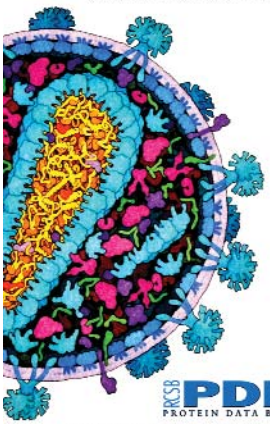
DHFR is a classic chemotherapeutic and antibacterial target which has been the subject of numerous structural, protein dynamic and mechanistic studies for over 20 years. A clinically relevant drug resistant mutant, S1 of the Staphylococcus aureus (Sa) ortholog of DHFR has been identified and DHFR inhibitors such as Trimethoprim are about 100-1000 fold less potent against it compared to the wild-type. A loss of enthalpy of interaction between compounds and S1 mutant is detected by isothermal calorimetry. The source of these potency differences are not clearly evident based solely on the low energy static WT and S1 X-ray structures. To address this issue, biophysical methods including NMR solution dynamic

Working Together to Visualize

A Molecular Structural View of HIV/AIDS

Visualizing structures of biological molecules such as proteins, nucleic acids (DNA, RNA) and their complexes plays a critical role in understanding its function and interactions in health and disease. The RCSB Protein Data Bank (RCSB PDB) provides access to experimentally determined structures of biological macromolecules and their complexes with various drugs or other small molecules.

The PDB faculty and staff at Rutgers University invite you to participate in a collaborative program designed to teach high school teachers and students about a structural view of chemistry and biology. The program will introduce you to the biology of human immunodeficiency virus (HIV) and the structures of its proteins that are involved in infection leading to acquired immunodeficiency syndrome (AIDS). Molecular structure based discussions of treatment strategies, and prevention will also be discussed.



RCSB PDB PROTEIN DATA BANK

Center for Integrative Proteomics Research
Rutgers, the State University of New Jersey
174 Frelinghuysen Rd • Piscataway, NJ 08854
www.rcsb.org • info@rcsb.org

Why should you be interested in this program?

- It provides content that covers various Next Generation Science Standards, such as in:
  - Physical Science: types of interactions, information technologies and instrumentation.
  - Life Sciences: structures and processes, heredity - inheritance and variation of traits biological evolution
- It provides opportunities to interact with authentic data and access to large databases
- It facilitates interdisciplinary study in chemistry, biology, medicine and technology
- It provides teachers with professional development credits for attending hands-on workshops and provides students to participate in a video challenge at the end of the academic year.

Program description:

This program provides high school teachers and students (grades 9-12) exposure to cutting edge science by introducing them to knowledge, skills, resources and data used by scientists in academic and pharmaceutical research. The program has four phases:

1. **Teacher training on use of the PDB**: High school teachers are invited to Rutgers University to participate in hands-on professional development workshops where they will learn to use the PDB, visualize bio-molecular structures (like hemoglobin, GFP and tRNA), and understand their functions in health, disease and biology research. The workshops will be offered as a full-day workshop on a Saturday (November 9, 2013, between 10am and 4pm).
2. **Introduction to the HIV/AIDS biology**: This will be offered as a public symposium in collaboration with the Robert Wood Johnson AIDS Program on December 7, 2013, to mark World AIDS day. In addition to participating teachers, students and all interested community members are invited to the symposium.
3. **Student training and challenge**: Participating teachers will introduce their students to the PDB, and guide their structural exploration of HIV related molecules, leading to participation in the video challenge. The short videos (up to 5 minutes) created by students will be due by May 30, 2014 and will highlight a molecular structural perspective of some aspect of HIV/AIDS. The videos will be judged by experts in the field for both accuracy of scientific content and creative presentation. Winning entries will receive prizes and will also be posted on the RCSB PDB education pages and YouTube.
4. **Teacher feedback**: Towards the end of the school year (in June 2014), all participating teachers will summarize and discuss their experiences in a wrap-up meeting.

Teacher Training Details:

- Teachers will receive instruction materials and suggestions for implementing the program within the framework of their current curriculum.
- All participants are required to bring their own laptops to participate in the workshop.
- Light refreshments (sandwiches, tea/coffee) will be provided for the participants.

Registration:

To register email sdutta@rcsb.rutgers.edu and provide the school name along with name(s) and contact information of participating teacher(s).

studies, in conjunction with thermodynamic, kinetic, computational and structural information are being employed to understand potency differences for both in vitro and whole cell MIC activity studies. Protein dynamics observed by NMR clearly show differences in the binding pockets of WT and S1 proteins as binary and ternary complexes with the cofactor NADPH and Trimethoprim. These differences are not observed in static X-ray structures. Differences observed in us-ms range using relaxation dispersion experiments point to important residues involved in the binding of inhibitor in the substrate binding pocket. Kinetics of binding determined by SPR indicate that the reduction in binding affinities arise from faster off rates and they show correlation to whole cell MICs.

In this presentation, the use of biophysical data to generate hypotheses and to guide chemical design for S1 mutant inhibitors will be highlighted.

(2 door prizes for # of attendees < 20,
3 door prizes for # of attendees > 20)

Date: **Wednesday, November 20, 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 $15.00
(no charge for students / postdoc / retired / unemployed)
No charge for seminar only.

Register online at
http://www.njacs.org/nmr.html
or via e-mail to **gvts@cabm.rutgers.edu**

2013 LEO HENDRIK BAEKELAND AWARD WINNER

Congratulations to the 2013 Leo Hendrik Baekeland Award Winner!

Professor Christopher Chang
University of California, Berkeley

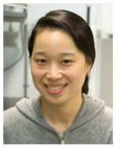
2013 Baekeland Symposium

Date: **Friday, December 6, 2013**

Times: **12:00 noon**

Place: **Center for Integrative Proteomics Research • Room 120**
Rutgers, The State University of New Jersey
174 Frelinghuysen Rd • Piscataway, NJ 08854

Speakers



Prof. Michelle Chang
University of California, Berkeley

Prof. David MacMillan
Princeton University

Prof. Ken Raymond
University of California, Berkeley

Prof. JoAnne Stubbe
Massachusetts Institute of Technology

Registration

Registration fee: $10 professionals
$5 students, retirees, unemployed

Pre-Registration required by November 25, 2013
Register at **www.njacs.org**

The North Jersey Section of the American Chemical Society established the Baekeland Award in 1944 to commemorate the technical and industrial achievements of Leo Hendrik Baekeland and to encourage younger chemists to emulate his example. The award consists of a gold medal and a $5,000 honorarium.

The North Jersey Section presents the Award biennially to a US-based chemist under 40 years of age in recognition of accomplishments in pure or industrial chemistry, as characterized by the initiative, creativeness, leadership, and perseverance of the individual and indicated by published or unpublished evidence.

Questions? Contact Dr. Monica Sekharan (**monicasekharan@njacs.org**), Chair of the Baekeland Award Committee.

www.njacs.org

ACS 2013 New York & North Jersey Fellows

CONGRATULATIONS TO THE 2013 ACS FELLOWS OF THE NEW YORK AND NORTH JERSEY SECTIONS!

The New York Section of the ACS proudly announces that five New York Section members were awarded the honor to become 2013 ACS Fellows. They are:

Dr. James W. Canary, New York University
Dr. Jingguang G. Chen, Columbia University
Dr. Neil D. Jespersen, St. John's University
Dr. Anne T. O'Brien, Wyeth (Retired)
Dr. Erik A. Talley, Weill Cornell Medical College

The North Jersey Section is very proud to announce that Dr. Leslie McQuire from Novartis has been named an ACS Fellow as well. A ceremony to recognize the 2013 ACS Fellows for their outstanding contributions to their professions and service to the American Chemical Society was held at the ACS National Meeting in Indianapolis on September 9, 2013.

Congratulations again, and all the best to all the ACS Fellows in their future endeavors.

ACS Fellows from the NY Section, Dr. Neil D. Jespersen, Dr. Anne T. O'Brien and Dr. Jingguang G. Chen with their awards. Dr. James W. Canary, Dr. Erik. A. Talley and Dr. Leslie McQuire (North Jersey Section) were not present.

(Photo courtesy of Marilyn Jespersen)

New York Meetings

www.newyorkacs.org

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 Meeting will be held on the following Friday at 6:30 PM at St. John's University, D'Angelo Center, Jamaica, NY. Dr. Philip H. Mark will chair the meeting.

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**.

WESTCHESTER CHEMICAL SOCIETY

Members of the American Chemical Society are cordially invited to attend an Information Session at Iona College on November 5 at 6 pm in Ryan Library. This session will provide information on how Iona's graduate business offerings (MBA, MS and certificate programs) can complement and broaden careers in the sciences. To RSVP for this event, visit the Iona website at **www.ionaevents.org**.

Dates: **Tuesday and Wednesday, November 5 and 6, 2013**
Place: Iona College

CHEMICAL MARKETING & ECONOMICS TOPICAL GROUP

Trends in Innovation

Speakers: To be determined.

CM&E, winner of the ACS 2012 Global Engagement ChemLuminary Award, is pleased to announce this discussion on innovation strategies of global corporations.

Host: George Rodriguez
Director
Argeni LLC

Date: **Thursday, November 7, 2013**
Time: 11:00 AM - 2:00 PM
Place: The Yale Club
50 Vanderbilt Avenue
New York, NY
Cost: Luncheon Fee: $90 for non-CM&E members; $70 for 2013 CM&E, ChemPharma members. Early bird discounts apply. Check website **www.cmeacs.org**.
Webcast Fee: $25. Free Webcast Recordings for ACS members.

Registration: **www.cmeacs.org**

LONG ISLAND SUBSECTION

A Facile Synthesis of *N*-Glycooxazolines, *N*-Glycoaminooxazolines and *N*-Glycothiazolines from Glycals

Speaker: Michael DeCastro
Farmingdale State College
SUNY

As part of our ongoing research program aimed at the generation of novel glycosidase inhibitors we became interested in the development of a convergent approach for the synthesis of a small library of carbohydrate fused substituted oxazolines based on the natural product Allosamidin **(I)** and Trahazolin **(II)** (Figure 1). Thus a novel one-pot syntheses of N-glycooxazolines **(IV)** (N at C-1), N-glycothiazolines **(V)** and N-glycoaminooxazolines **(VI)** were synthesized by reacting tri-O-benzyl-D-glucal or tri-O-benzyl-D-galactal with aryl amides, heteroaryl amides, thioamides and substituted ureas in the presence of N-iodosuccinamide (NIS) in dry propionitrile at 45°C (Figure 1). When tris-O-tert-butyldimethylsilyl-D-glucal was employed, the 2-deoxy-2-iodoglycosylamide was isolated instead. Treatment of this newly formed glycosylamide with an anhydrous base afforded the O-glycooxazoline (O at C-1) in high to moderate yields. Product outcomes and overall reaction stereoselectivity were found to be highly dependent on the nature of the sugar protecting group, the nature of the substituent on the amide, and the reaction temperature.

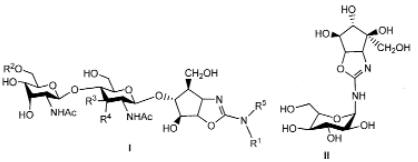


Figure 1. Carbohydrate Based Natural Products.

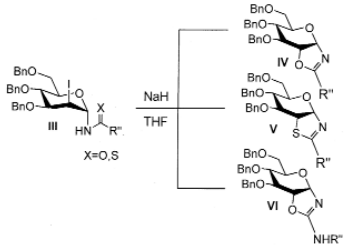


Figure 2: Targeted N-glycooxazoline, N-glycothiazoline and N-glycoaminooxazoline.

Date: **Thursday, November 7, 2013**
Times: Coffee/Social 5:30 PM
Seminar 6:00 PM
Place: Queensborough Community College
Science Building, S-111
Times: Dinner 7:00 PM
Place: Neighboring restaurant
Cost: Dinner $25.00 per person

WESTCHESTER CHEMICAL SOCIETY

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

Speaker: Irina Belozerova, PhD
Postdoctoral Research Associate
Department of Applied Physics
Polytechnic Institute of
New York University
Brooklyn, NY

The mechanism of action of certain antibiotic and anticancer drugs is based on binding of these small molecules to DNA and interfering with its normal function and bioprocesses. Diverse solution methods exist for analysis of drug-DNA interactions, how-

ever multiplexing such assays remains challenging. Surface-based approaches pave the way to time- and cost-efficient detection platforms enabling high-throughput assays for drug candidate screening and selection.

The focus of this research is on development of a surface assay for thermodynamic characterization of drug-DNA interactions by analyzing changes in DNA duplex thermal stability. Electrochemical methods were used to monitor DNA thermal state transitions, in particular DNA melting – reversible duplex strand dissociation upon heating. "Probe" DNA molecules were immobilized on a solid support and immersed in a solution containing complementary "target" DNA strands, labeled with a redox tag. Probe-target association (hybridization) and dissociation (melting) were recorded as a function of temperature due to label electroactivity to generate a DNA melting curve. Such curves shifted to higher temperatures in the presence of a minor groove-binding drug, netropsin, due to stabilization of the double-stranded DNA state by the ligand. Analysis of the change in resistance of DNA duplex to denaturation allowed for determination of thermodynamic parameters of netropsin-DNA interactions, which were in good agreement with solution-phase results, hence validating the approach to studying small molecule drug binding to DNA. Multiplexing of surface assays can be accomplished through implementation of multiple DNA sequences on microelectrode arrays manufactured via photolithography. This approach can be also applied to covalently binding drugs, e.g., cisplatin, that typically reduce DNA melting temperature due to distortion of helical structure.

Irina Belozerova received a B.A. in Chemistry and Biology from Dowling College, located in Long Island, New York. She then continued her education by pursuing M.S. and Ph.D. degrees in Chemical Engineering at Polytechnic Institute of New York University, formerly known as Polytechnic University. Her research has focused on the analysis of DNA monolayers on surfaces, in particular state transitions of DNA from a double-stranded helix to single-stranded coils, with increasing temperature, known as DNA melting. Using DNA helix denaturation approach she also researched drug binding to DNA at surfaces.

She successfully completed her Ph.D. program in May 2013 and is currently holding a postdoctoral position in the department of Applied Physics at NYU-Poly researching effects of application of electric fields on polymer systems adhesion and viscosity.

Date: Wednesday, November 13, 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 – "DNA: Not Merely the Secret of Life"

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

Date: Wednesday, December 4, 2013
Times, Place, Cost same as November.
(See pages 15-16.)

* * * * *

Special Seminar – "VETI-GEL: A Novel and Biocompatible Hemostatic Agent that Stops Bleeding in Seconds"

Speaker: Joseph Landolina
Suneris

Date: Tuesday, February 4, 2014
Times, Place, Cost same as November.

HIGH SCHOOL TEACHERS TOPICAL GROUP

Photovoltaic

Speaker: Omer Yaffe
Department of Physics and Energy
Frontier Research Center
Columbia University

This talk will be about the speaker's research on photovoltaic cells. He will begin his talk with a basic review of the principles of solar cells and the P-N junction before launching into his own research.

Date: Friday, November 22, 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
No reservations required

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HIGH SCHOOL TEACHERS TOPICAL GROUP

(continued from page 13)

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

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 9:00 AM and 2:00 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.

HUDSON-BERGEN CHEMICAL SOCIETY — JOINT MEETING WITH THE SIGMA XI CHAPTER OF RAMAPO COLLEGE OF NEW JERSEY

New Strategies for α-Hydroxytropolone Synthesis

Speaker: Ryan P. Murelli, Ph.D.
City University of New York
at Brooklyn College

α-Hydroxytropolones are a subclass of the troponoid family of natural products that have demonstrated a broad range of biological activity that could be leveraged for therapeutic purposes. However, in order to meet this potential, structure-function studies are needed to increase both potency and selectivity toward a particular role. To date there have been scarce examples of such studies in the literature, in no small part due to a dearth of synthetic methods available to access them. The following talk will describe our lab's work on an oxidopyrylium cycloaddition/ ring-expansion strategy for accessing polysubstituted α-hydroxytropolones. We will also outline some of the exciting directions that we are heading in with collaborators both nationally and internationally to meet current needs in medicine.

Ryan obtained his Ph.D. degree in Organic Chemistry in the laboratory of Prof. Marc Snapper at Boston College and performed postdoctoral training in Chemical Biology at Yale University in Dr. David Spiegel's group. Following his postdoctoral appointment, Ryan accepted an assistant professor position at Brooklyn College in 2010. Over the past 3 years, he has been pursuing new chemical methods and strategies that can be leveraged in medicinal chemistry and chemical biology pursuits.

Date: **Friday, November 22, 2013**
Times: Social 5:30 PM
Dinner 6:00 PM
Lecture 7:00 PM
Place: Ramapo College of New Jersey
Alumni Lounge, SC-138
Mahwah, NJ
Cost: $20.00 for dinner (dinner cost for students is $10.00)

Reservations: Dr. Jay R. Carreon (201) 684-7710, e-mail: **jcarreon@ramapo.edu** **by Friday, November 15, 2013**.

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, 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

WESTCHESTER CHEMICAL SOCIETY

Special Seminar – "DNA: Not Merely the Secret of Life"

Speaker: Nadrian C. (Ned) Seeman, PhD
New York University
New York, NY

We build branched DNA species that can be joined using Watson-Crick base pairing to produce multiply-connected objects and lattices. We have used ligation to construct DNA topological targets, such as knots, polyhedral catenanes, Borromean rings and a Solomon's knot. Branched junctions with up to 12 arms have been made.

Nanorobotics is a key area of application. We have made robust 2-state and 3-state sequence-dependent devices and bipedal walkers. We have constructed a molecular assembly line using a DNA origami layer and three 2-state devices, so that there are eight different states represented by their arrangements. We have demonstrated that all eight products can be built from this system.

A central goal of DNA nanotechnology is the self-assembly of periodic matter. We have constructed 2-dimensional DNA arrays with designed patterns from many different motifs. We have used DNA scaffolding to organize active DNA components. We have used pairs of 2-state devices to capture a variety of different DNA targets.

One of the key aims of DNA-based materials research is to construct complex material patterns that can be reproduced. We have built such a system from bent TX molecules (which have three DNA double helices whose helix axes are not coplanar). These can reach 2 generations of replication. This system represents a first step in self-reproducing materials.

Recently, we have self-assembled a 3D crystalline array and have solved its crystal structure to 4 Å resolution, using unbiased crystallographic methods. We can use crystals with two molecules in the crystallographic repeat to control the color of the crystals. Thus, structural DNA nanotechnology has fulfilled its initial goal of controlling the structure of DNA in three dimensions. A new era in nanoscale control awaits us.

This research has been supported by the NIGMS, NSF, ARO, ONR and DOE.

Nadrian C. Seeman was born in Chicago in 1945. Following a BS in biochemistry from the University of Chicago, he received his Ph.D. in biological crystallography from the University of Pittsburgh in 1970. His postdoctoral training, at Columbia and MIT, emphasized nucleic acid crystallography. He obtained his first independent position at SUNY/Albany, where his frustrations with macromolecular crystallization experiments led him to the campus pub one day in the fall of 1980. There, he realized that the similarity between 6-arm DNA branched junctions and the flying fish in the periodic array of Escher's 'Depth' might lead to a rational approach to the organization of matter on the nanometer scale, particularly crystallization. Ever since, he has been trying to implement this approach and its spin-offs, such as nanorobotics and the organization of nanoelectronics. Since 1988 he has worked at New York University, where he is the Margaret and Herman Sokol Professor of Chemistry. When told in the mid-1980s that he was doing nanotechnology, his response was similar to that of M. Jourdain, the title

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WESTCHESTER CHEMICAL SOCIETY

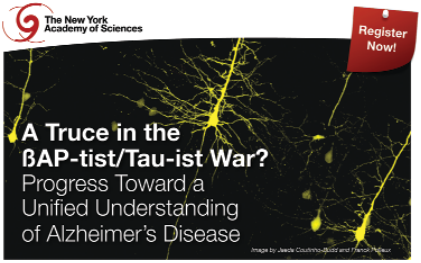
(continued from page 15)

character of Moliere's *Bourgeois Gentilehomme*, who was delighted to discover that he had been speaking prose all his life. He was the founding president of the International Society for Nanoscale Science, Computation and Engineering (ISNSCE). He has published over 270 papers, and has won the Sidhu Award, the Feynman Prize, the Emerging Technologies Award, the Rozenberg Tulip Award in DNA Computing, the World Technology Network Award in Biotechnology, the NYACS Nichols Medal, the SCC Frontiers of Science Award, the ISNSCE Nanoscience Prize, the Kavli Prize in Nanoscience, the Einstein Professorship of the Chinese Academy of Sciences and a Distinguished Alumnus Award from the University of Pittsburgh.

Date: **Wednesday, December 4, 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

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



A Truce in the βAP-tist/Tau-ist War? Progress Toward A Unified Understanding of Alzheimer's Disease

Organizers: Ken Jones, PhD
Forest Research Institute

Robert Martone
Covance Biomarker Center of Excellence

Robert B. Nelson, PhD
Lundbeck Research USA

Jennifer Henry, PhD
The New York Academy of Sciences

Speakers: Terrence Town, PhD
University of Southern California

Lennart Mucke, MD
Gladstone Institute of Neurological Disease

Bingwei Lu, PhD
Stanford University School of Medicine

Franck Polleux, PhD
The Scripps Research Institute

Sylvain E. Lesné, PhD, MSc
University of Minnesota

Frank LaFerla, PhD
University of California Irvine

Ralph A. Nixon, MD, PhD
Nathan Kline Institute

Tony Wyss-Coray, PhD
Stanford University School of Medicine

This symposium explores how efforts to better integrate our understanding of neuritic plaques and neurofibrillary tangles—the two hallmark pathologies of Alzheimer's disease—are leading to a 'truce' between former rivals in the quest for therapies.

Date: **Tuesday, December 10, 2013**
Times: 8:30 AM – 4:30 PM
(reception to follow)
Place: The New York Academy of Sciences
7 World Trade Center
250 Greenwich Street – 40th Floor
New York, NY 10007
Cost: This event is 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/BAPvsTau**

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

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.

DR. AMOS B. SMITH III IS THE WILLIAM H. NICHOLS MEDALIST FOR 2014

The New York Section is pleased to announce that the Nichols Jury chose Dr. Amos B. Smith III to be the William H. Nichols Medalist for 2014. Dr. Smith is the Rhodes-Thompson Professor of Chemistry at the University of Pennsylvania. The Nichols Distinguished Symposium and Medal Award Dinner will be held on Friday, March 28, 2014 at the Crowne Plaza Hotel, 66 Hale Avenue, White Plains, NY.

The title of the Distinguished Symposium is New Strategies and Tactics for Complex Molecule Synthesis. The symposium will feature internationally known chemists – Dr. Karl J. Hale (Queens University, Belfast, Northern Ireland), Dr. Yoshito Kishi (Harvard University), Dr. John L. Wood (Baylor University) along with Medalist Dr. Smith. Dr. Carl R. Johnson of Wayne State University will introduce the Medalist.

Dr. Paris Svoronos, Chair-elect of the New York Section in 2014, will conduct the Distinguished Symposium and Dr. Pamela K. Kerrigan, Chair of the New York Section in 2014, will present the Nichols Medal Award to Dr. Amos B. Smith III at the dinner that follows.

The entire program and reservation form will appear in the January, February and March *Indicators* and on the New York Section website at **http://www.NewYorkACS.org**

NOMINATING COMMITTEE MEETS IN DECEMBER

The Nominating Committee of the New York Section will meet in December to select candidates for the 2014 elections.

Positions available are:

Chair-elect for 2015

Secretary for 2015 - 2016

Directors-at-Large for 2015

Councilors and Alternate Councilors for 2015 - 2017

If a member of the New York Section wishes to run for office or to suggest a member for consideration by the Nominating Committee, please write to the American Chemical Society, New York Section, Inc., St. John's University, Department of Chemistry, 8000 Utopia Parkway, Jamaica, NY 11439 or send an e-mail to the New York Section office at **njesper1@optonline.net by November 30**. Thank you.

15TH ANNUAL CHEMLUMINARY AWARDS CELEBRATION

The New York Section was honored with three awards at the 15th Annual ACS Chemluminary Awards held on Tuesday, Sept 7, 2013 as part of the 246th ACS National Meeting in Indianapolis. The three Chemluminary awards included: Outstanding Very Large Section, Outstanding Global Engagement and Outstanding High School Chemistry Programs. Dr. JaimeLee Iolani Rizzo chaired the New York Section in 2012. Dr. Hiroko I. Karan (2011 New York Section Chair) and Mr. George Rodriguez accepted the awards on behalf of the Section.

The New York Section, with its 6 subsections, 11 topical groups and 32 committees,

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15TH ANNUAL CHEMLUMINARY AWARDS CELEBRATION

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held numerous programs that benefited students, teachers, industrial chemists and the public. These included the William H. Nichols Medal Symposium and Award Dinner, the Undergraduate Research Symposium, the Global Leadership Awards Event, the Historic Chemical Landmark Designation of Brookhaven Laboratory's Chemistry Department, a High School Research Poster Session, Chemistry Olympiad, Project SEED, Earth Day parade on the Brooklyn Bridge, National Chemistry Week at the NY Hall of Science, along with numerous seminars, symposia and award programs.

The New York Section thanks its many volunteers who contributed their time and talents to the Section's programs that were so specially recognized.

(Photos courtesy of Marilyn Jespersen)

Outstanding high school programs for the year 2012.

Outstanding global engagement for the year 2012.

Outstanding very large section for the year 2012.

INORGANIC AND ORGANOMETALLIC TOPICAL GROUP

The Inorganic and Organometallic Topical Group hosted the second annual Frontiers of Inorganic and Organometallic Chemistry lecture symposium on Friday, September 20, 2013 on the campus of Columbia University. The symposium attracted more than 60 academic and industrial chemists, including graduate and undergraduate students, to hear about new developments in inorganic chemistry from chemists in the NY metro area. The symposium featured presentations by Mark Biscoe (CCNY), Lynn Francesconi (Hunter College), Ahmad Moini (BASF), and Jack Norton (Columbia University). Pat Holland (Yale University) delivered the keynote address entitled "Nitrogen Fixation Using Low Coordinate Iron Complexes". The Topical Group co-chairs James Camara and Kathleen Kristian served as session chairs for the symposium.

The Inorganic and Organometallic Topical Group is committed to supporting the mission of NY-ACS by providing programming that encourages the formation of a strong scientific community through lectures, symposia, and other events on all topics related to Inorganic and Organometallic Chemistry. If you would like get involved, or have questions, comments or suggestions, please visit the NY ACS web site and contact the chairs.

The invited speakers of the 2012 Frontiers of Inorganic and Organometallic Chemistry Lecture Series. Left to right: Dr. Ahmad Moini, Prof. Lynn Francesconi, Prof. Pat Holland, Prof. Jack Norton, Prof. Mark Biscoe.

Keynote speaker Pat Holland addresses attendees at the 2013 Frontiers of Inorganic and Organometallic Chemistry Lecture Series.

(Photos courtesy of Kathleen Kristian)

Others

AIChE — CHEMICAL ENGINEERING CONFERENCE IN SAN FRANCISCO

Highlights Sustainability, Waste Management, Water Use, and Bioengineering

AIChE's Annual Meeting is expected to draw 6,000 engineers and undergraduate engineering students with plenary lectures, 2 broad congresses, 8 topical conferences, more than 750 technical sessions, and special events.

The national Chem-E-Car Competition will feature international collegiate teams racing small, shoebox-sized cars powered by alternative fuels that the students created.

HIGHLIGHTS: Presentations cover all aspects of chemical engineering, from sustainability to alternative energy, bioengineering and nanotechnology.

Dates: Sunday, November 3 through Friday, November 8, 2013
Place: Hilton San Francisco
Union Square
San Francisco, CA

* * * * *

15th National College Chem-E-Car Competition to be held

Chem-E-Car College teams race shoebox-size cars powered by alternative fuels in carefully calculated chemical reactions. The cars must carry a small payload a certain distance. Adding to the tension of the competition, the weight of the payload and distance are not revealed to the competitors until one hour before the contest begins. Teams must quickly make calculations about their fuel use.

Date: Sunday, November 3
Time: 2:00 PM

* * * * *

Fundamentals of Nuclear Environmental Engineering / Waste Management

Time: 3:30 PM

* *

Achieving Sustainable Buildings Through Chemical Engineering

Date: Monday, November 4
Time: 8:30 AM

* * * * *

2013 Annual Meeting Plenary: Chemical Engineering Expertise: In Academe and as Sought by Industry

Times: 11:00 AM – 12:15 PM

* * * * *

Advanced Treatment for Water Reuse and Recycling I

Times: 12:30 PM – 3:00 PM

* *

AIChE-IChemE Joint Session: Energy, Water, Food, Materials: An Interconnected Global Challenge (see following article)

Date: Tuesday, November 5
Times: 8:30AM – 11:00AM

* * * * *

2013 Professional Progress Award Lecture, At Least 1,000 Times Thinner than a Human Hair

Times: 11:15AM – 12:15PM

* * * * *

James E. Bailey Award Lecture Sponsored by the Society for Biological Engineering

Times: 6:00 PM – 7:00 PM

* *

Biosensor Devices I

Date: Wednesday, November 6
Times: 8:30 AM – 11:15 AM

* * * * *

65th AIChE Institute Lecture, Theory and Computation in Modern Chemical Engineering, a Thermodynamicist's Perspective

Times: 11:15 AM – 12:15 PM

* * * * *

AGILE Award Lecture, Strategic Imperatives for the Hydrocarbon Industries

Times: 6:00 PM – 7:00 PM

* *

Nanostructured Biomimetic and Biohybrid Materials and Devices I

Date: Thursday, November 7

Times: 8:30 AM – 11:00 AM

2012 Professional Progress Award Lecture (postponed from last year's Annual Meeting due to Super Storm Sandy), Clicking Polymers Together: Assembly of Complex, Controlled Polymer Structures from Efficient Chemistries

Times: 11:15AM – 12:15PM

* *

Carbon Dioxide Capture, Control and Sequestration I

Date: Friday, November 8
Times: 8:30 AM – 11:00 AM

For more information on all the activities surrounding the AIChE Annual Meeting, please visit **www.aiche.org/annual**.

More information about AIChE is available at **www.aiche.org**.

AIChE AND INSTITUTION OF CHEMICAL ENGINEERS

Partner to Address Interconnected Global Challenge

Societies create working group to respond to issues at the nexus of water, energy, and food supplies.

NEW YORK AND RUGBY, UK – Two of the world's largest organizations of chemical engineers are creating a joint working group to respond to the technology challenges presented where issues surrounding water, energy, and food supplies overlap. This effort will kick-off with a special workshop in November in San Francisco during the 2013 Annual Meeting of the American Institute of Chemical Engineers (AIChE), which is co-sponsoring the effort with the Institution of Chemical Engineers (IChemE).

The two organizations believe that issues at the nexus of increasing demands for water, energy, and food deserve special focus given the expected addition of three billion more consumers by 2030. While water, energy, and food supplies have traditionally been dealt with as independent concerns, in the 21st Century, they have come to be seen as more complex and interconnected in ways that will change and challenge organizations, markets, and nations.

Dale Keairns, a former president of AIChE and the chair of its Center for Energy Initiatives, in explaining the undertaking, said, "The integrated systems analysis needed to understand these overlapping issues is at the core of the approach chemical engineers learn and put into practice." He believes the working group's findings should "enable evidence-based policy discussions and decisions."

Desmond King, a former president of IChemE, said the workshop "Will allow for a full exchange of views on which issues should receive priority and which approaches will be useful in engaging beyond the usual technology boundaries. Chemical engineering matters and this joint initiative will help to set research priorities and provide a framework for chemical engineers to make a major contribution to these global challenges."

The workshop will be held on **Thursday, November 5**, beginning at 8:30 a.m. in Room Continental 9 of the San Francisco Hilton.

NJIT — OTTO H. YORK DEPARTMENT OF CHEMICAL, BIOLOGICAL AND PHARMACEUTICAL ENGINEERING

Graduate Seminar Series – Fall 2013

October 28
Intermetallic Base-metal Catalysts for Chemoselective Reactions: Truly Viable Replacements for Precious Metal Catalysts?
Prof. Robert M. Rioux
Pennsylvania State University

November 25
TBA
Dr. Paul Papas
United Technologies Research Center
East Hartford, CT

December 2
Nanoparticle Self- and Directed-Assembly.
Prof. Eric Furst
University of Delaware

Times: Refreshments 2:30 PM
Seminars 2:45 PM
Place: Room 118, Kupfrian Hall
Cost: OPEN TO PUBLIC

Seminar Coordinator: Professor Edward Dreizin (973) 596-5751, **dreizin@njit.edu**

Call for Nominations

THE SOCIETY FOR APPLIED SPECTROSCOPY — NEW YORK SECTION

2014 Gold Medal Award

Nominations are being sought for the 2014 Gold Medal Award of the New York Section of the Society for Applied Spectroscopy. This coveted award was established in 1952 to recognize outstanding contributions to the field of Applied Spectroscopy. The Gold Medal will be presented at a special award symposium, arranged in honor of the awardee, at the 2014 Eastern Analytical Symposium. A nominating letter describing the nominee's specific accomplishments should be submitted along with a biographical sketch and list of publications **by January 3, 2014**. Please email all materials to **Debbie_Peru@colpal.com** or mail to Deborah A. Peru, Colgate Palmolive Co., 909 River Road, Piscataway, NJ 08855.

If you have any questions or require more information, you may contact me at (732) 878-7295.

Thank you for your consideration.

Sincerely,
Deborah Peru
NYSAS Secretary
Website: **http://www.nysas.org/**

Call for Volunteers

LIBERTY SCIENCE CENTER

FREE Community Evenings

Volunteers are needed to host a table or do a demo at this event. The dates selected are the prime dates for these events as they are near National Chemistry Week and Earth Day. If we have more volunteers, we can go more days.

Community Evenings are exclusive events hosted throughout the year for all students, teachers and families from NJ's 31 former Abbott Districts. Held from 5:30 PM until 9:00 PM, families are invited to explore the Science Center's themed exhibition galleries; experience the excitement of IMAX films* and RealD 3D shows*; and engage in special family programming, live demonstrations and hands-on activities – all at no cost.

Dates
November 20, 2013
January 22, 2014
February 19, 2014
March 19, 2014
April 30, 2014
May 21, 2014

To Volunteer or if you have questions contact Miriam Gulotta **mirjet2@yahoo.com** or Jeannette Brown **Jebrown@infionline.net**.

Grant Available

BRIDGING THE GAP NANO-GRANT: PLANNING FOR SUCCESS

Dear ACS Local Section Officer,

If you have not done so already, please consider applying for the second round of the Bridging the Gap Nano-Grant: Planning for Success.

This $250 nano-grant is sponsored by the Local Section Activities Committee (LSAC) and provides funding for local sections to critically assess and address local section organization and planning. Areas of potential focus might be (but are not limited by) bylaw review and revision (for example, setting up electronic elections/balloting), annual budget development or an open-ended Strategy Café.

The deadline for applications for this nano-grant is October 31, 2013.

If you have any questions, please contact Kate Sellar at **k_sellar@acs.org** or (202) 872-6149.

Sincerely,
Martin Rudd, Chair
Alliance & Partnerships – a Subcommittee of LSAC

Press Releases

AGC CHEMICALS AMERICAS

To Feature Specialty FKM Fluoroelastomer at 2013 Chem Show

EXTON, Pa., — AGC Chemicals Americas Inc. will be featuring its new peroxide-curable specialty FKM, AFLAS® 200P, in booth 451 at this year's Chem Show. The event takes place **December 10 to 12** at New York's Javits Center.

AFLAS 200P performs better than conventional FKM-type fluoroelastomers for applications that need to withstand aggressive oils containing antioxidants, solvents, ozone, acids and bases. It is ideal for oil seals, shaft seals, O-rings, gaskets and a variety of other parts and fittings, including oil seals for automotive and heavy-duty diesel engines. AFLAS 200P can also be solvated and applied as a coating.

Classified as Type 4 FKMs by ASTM standards, AFLAS 200P fluoroelastomers offer improved performance at cold temperatures (Tg = -13 °C, TR-10 = -8 °C).

"This specialty FKM maintains good base resistance and offers improved performance at cold temperatures," said Drew D'Agosta, AGC sales and marketing manager for AFLAS.

For more information about AGC Chemicals Americas Inc. go to **www.agcchem.com**

DOW INTRODUCES MOISTURE AND CHEMICAL REPELLANT POLYOLS

For High-Performance CASE Applications

MIDLAND, Mich. – Protecting pipes and tanks from the effects of water damage can lengthen the lifespan of expensive equipment and extend capital investments. Dow Polyurethanes has created VORAPEL™ Moisture and Chemical Repellant Polyols, a novel new family of hydrophobic polyols for applications that require increased moisture and chemical resistance, including infrastructure, secondary containment, chemical tanks and electronic components.

Designed to meet the demand for high-performance, moisture-resistant coatings, adhesives, sealants and elastomers (CASE) polyurethanes, VORAPEL Polyols are low viscosity, clear liquids that can be tailored to a wide range of molecular weight and functionality. VORAPEL Polyols offer the following advantages:

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- Resistance to a broad range of chemicals, including organic solvents, hydrocarbon fuels and inorganic acids
- Low viscosity for processing and storage freedom
- Broad formulation compatibility with other polyols and chain extenders

The low viscosity and miscibility with multiple families of polyols help contribute to excellent wettability and moisture resistance for coatings and adhesives used in electronic components.

For more information about VORAPEL™ Polyols, visit **www.dowpolyurethanes.com**.

INTELLIGRATED ROBOTIC MIXED-LOAD ORDER FULFILLMENT SOLUTIONS

Flexible robotic palletizing and variety pack solutions meet mixed-SKU fulfillment requirements

Intelligrated® (**www.intelligrated.com**), a North American-based automated material handling solutions provider, introduced two new capabilities to its range of mixed-load automated order fulfillment solutions at PACK EXPO Las Vegas 2013. Intelligrated's mixed-load palletizing and variety pack solutions utilize advanced robotics and software technology to automate the creation of mixed-SKU pallet loads, retail-ready displays and variety pack cases. Both solutions integrate with other automated system components including software, conveyor, sortation and order picking systems. Intelligrated's booth (#2036) featured an interactive robotic mixed-load palletizing display and variety pack video demonstration.

Intelligrated's Alvey® robotic mixed-load palletizing solution utilizes configurable end-of-arm tooling, software and controls to handle multiple product types. These features enable manufacturers and distributors to replace manual handling processes with the efficiency, accuracy and cost-saving benefits of automation.

Professional/Product Directory

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There are several web sites that may help you search for these open positions.

- www.mboservices.net
- http://newyorkacs.org/jobs.html
- http://njacs.org/jobs.html

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