Monthly Meeting

The Norris Award Meeting at AstraZeneca
Vicente Talanquer to receive 2012 Norris Award

Molecules on a Cave Wall
By Nicholas B. Tito, Dartmouth College

My German Exchange Experience
By Emily Lewis, Tufts University

2012 Andrew H. Weinberg Memorial Lecture
By Carlos Rodriguez-Galindo, M.D., Harvard Medical School and Dana-Farber Cancer Institute
Evening Graduate Program in Chemistry

All courses meet for a 2.5-hour period one evening per week and carry 3 graduate semester-hours (30 required for a coursework M.S. degree).

May enroll in a single course as special status students.

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<tr>
<th>Course Code</th>
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<tr>
<td>5620</td>
<td>Protein Chemistry</td>
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<td>5621</td>
<td>Principles of Chemical Biology for Chemists</td>
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<td>Spectroscopy of Organic Compounds</td>
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<td>Statistical Thermodynamics</td>
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<td>5637</td>
<td>Foundations of Spectroscopy</td>
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<td>5638</td>
<td>Molecular Modeling</td>
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<td>5645</td>
<td>Drug Discovery and Development</td>
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<td>Materials of Renewable Energy</td>
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<td>Analytical Biochemistry</td>
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<td>5672</td>
<td>Organic Synthesis 2</td>
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<td>5676</td>
<td>Bioorganic Chemistry</td>
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<tr>
<td>7247</td>
<td>Advances in Nano-Materials</td>
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<tr>
<td>7310</td>
<td>Special Topics: Protein Modification and Bioconjugation</td>
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More courses will be offered in the fall semester.

Students new to the program must complete an application for admission.

For additional information contact: Professor Sunny Zhou, Graduate Coordinator  
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Northeastern University, Boston, MA 02115  
z.zhou@neu.edu

www.northeastern.edu/chem/
Contents

Molecules Drawn on a Cave Wall ................................. 4
By Nicholas Tito, Dartmouth College, Hanover, NH.

Monthly Meeting ....................................................... 5
The James Flack Norris Award Meeting at Astra-Zeneca, Waltham, MA.
Vicente Talanquer, University of Arizona, to receive 2012 Norris Award.
Arno Heyn Memorial Book Prize to be awarded to Karen Piper.

Announcements .......................................................... 7
2012 IUPAC Prizes for Young Chemists, Elements 114 and 116 are named.

My German Exchange Experience ................................ 8
By Emily Lewis, Tufts University

The 2012 Andrew H. Weinberg Memorial Lecture ............ 13
A Synopsis by Carlos Rodriguez-Galindo, M.D., Associate Professor,
Department of Pediatrics, Harvard Medical School, and Director, Solid Tumor
Program, Pediatric Oncology, Dana-Farber Cancer Institute.

Historical Note .......................................................... 15
Rudolph D. Deamin, 1921-2011

NESACS Students Chosen for Summit ......................... 15

Cover: 2012 James Flack Norris Award winner Professor Vicente Talanquer,
University of Arizona, Tucson. Photo courtesy of Professor Talanquer.

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Molecules Drawn on a Cave Wall

Reflection on a trip to Germany

By Nicholas B. Tito, Ph. D Candidate in Physical Chemistry, 6128 Burke Labs, Dartmouth College, Hanover, NH 03755

1pm; left Hanover, New Hampshire on the Dartmouth Coach; 4pm; arrived in Boston; 7pm; flight departed; seven hours to London’s Heathrow Airport without sleep, 5am London time; flight lands; 7am; flight to Berlin; arrives 10am at Berlin Tegel; we meet our amiable guide Elisabeth; three hour bus ride to Rostock.

1pm Rostock, Germany time; (6am Boston time, 20 hours without sleep so far); check in to Pentahotel for brief resting time (cheers); take tram to University of Rostock to check in for conference; greeted by conference organisers; walk to docks for boat trip to Warnemünde on the Baltic Sea; arrive at destination and walk along main street; surely we’re still in Boston and my mind has only lost its interpretation of language due to lack of sleep; a fashion show is sighted(!), as is food; boat trip back to Rostock harbour; swaying stroll to University of Rostock; an opening conference social; antisocial in my case—unable to speak proper sentences due to lack of sleep; long chilly walk back to hotel; sleep at 12am.

Total length of day: 31 hours.

Keep in mind this is just a journal entry for Day 1 of the 2012 NSYCC/JCF German Exchange Program. It was a journey through science and culture in Germany, at versions of light-speed where time somehow manages to impress memories into one’s mind by the nanosecond. For the young chemist looking to find a library of experiences, emotions, and friendships in seven days, look no further.

Sitting here three months after the trip, I’ve reached a stage where some of these memories are resurfacing. One in particular, is the idea of speaking in a common language. The Frühjahrrsymposium is attended by chemists from all over Europe—indeed, the airspace during social functions might as well be a language battleground! But so that science can be conducted amongst all attendees, the conference is formally run in English as it is a language that most scientists have in common.

English is not perfect, but it gets the job done for a scientist-to-scientist conversation. For a scientist speaking to a non-scientist: not so true. At best, a chemist can get an outwardly-enthusiastic inwardly-stupefied glance from a parent or friend when sharing a recent development at the lab. In most other cases, WE are at a loss for words when asked that simple question: “What do you do as a chemist?”

It is through a long-standing
Abstract

Learning Chemistry: Fighting Intuition

Many chemistry students have serious difficulties understanding and applying core chemical ideas and ways of thinking to build explanations and make predictions about the properties of diverse chemical systems. These problems seem to be related to the application of intuitive assumptions and ways of reasoning that may facilitate the generation of quick answers but often lead students astray.

In this presentation I will illustrate how the analysis of chemistry student thinking based on the identification of intuitive assumptions about the nature of chemical substances and processes, together with the elicitation of intuitive reasoning strategies used to make judgments and decisions, can help us better explain the difficulties that students face when learning chemistry. This way of conceptualizing student reasoning has several educational advantages.
To enhance your Pittcon 2013 experience, we will be co-programming with The American Chemical Society’s Division of Analytical Chemistry (ACS-DAC). Attend one of the many ACS-DAC sessions such as:

- Bioanalytical Method Validation: Concepts, Expectations and Challenges in Small Molecule and Macromolecule
- Forensic Science: Preparing Students for the Job
- Mass Spectroscopy of Proteins in the Pharmaceutical Sciences
- Supercritical Fluid Chromatography
- Translating Microfluidics into the Analytical Curriculum: Making Innovation Practical

For more information on technical sessions, exhibitors and short courses, visit www.pittcon.org.
Announcement

2013 IUPAC Prizes for Young Chemists

The IUPAC Prizes for Young Chemists have been established to encourage outstanding young research scientists at the beginning of their careers. The prizes will be given for the most outstanding Ph.D. theses in the general area of the chemical sciences, as described in a 1000-word essay.

IUPAC will award up to five prizes annually; each prize will consist of $1,000 cash and travel expenses to the next IUPAC Congress. In keeping with the status of IUPAC as a global organization, efforts will be made to assure fair geographic distribution of the prizes, which will be presented biennially at the IUPAC Congress. Each awardee will be invited to present a poster on his/her research, participate in a plenary award session, and submit a review article for possible publication in *Pure and Applied Chemistry*.

Applications should be submitted to the IUPAC Secretariat. Applications will be judged by a committee of eminent scientists appointed by the President of IUPAC.

Procedures for the 2013 Prizes:

a. Applicants must have received the Ph.D. (or equivalent) degree, or completed all Ph.D. requirements, including successful defense of the doctoral thesis, during calendar 2012 in any of the countries that are Members or Associate Members of IUPAC. Applicants need not be citizens or residents of one of these countries at the time the application is submitted.

b. The research described in the applicant’s thesis must be in the field of the chemical sciences, defined as “chemistry and those disciplines and technologies that make significant use of chemistry.”

c. The IUPAC Prize recognizes only work that was performed while the applicant was a graduate student.

d. Application requires submission of a completed entry form, together with the materials listed in items e and f. The entry form and supporting material should be submitted by e-mail whenever possible. Additional material may be sent as needed by fax or mail.

e. An essay must be submitted by the applicant that describes his or her thesis work and places it in perspective relative to current research in the chemical sciences. The essay must be written in English by the applicant and may not exceed 1000 words.

f. Two supporting letters (sent by e-mail if possible) are required, one from the thesis adviser and/or chairman of the thesis committee, and one from an additional faculty member who is familiar with the applicant’s thesis work. These letters should comment on the qualifications and accomplishments of the applicant and the significance of the thesis work.

g. Complete applications must be received at the IUPAC Secretariat by February 1, 2013. Early submission is strongly encouraged so that any questions may be resolved before the deadline date.

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e-mail: secretariat@iupac.org
internet: www.iupac.org

Your one-stop source to career-related links in the Chemical Sciences
www.nesacs.org/careers

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Elements 114 and 116 are named

IUPAC has officially approved the name flerovium, with symbol Fl, for the element of atomic number 114 and the name livermorium, with symbol Lv, for the element of atomic number 116. Priority for the discovery of these elements was assigned, in accordance with the agreed criteria, to the collaboration between the Joint Institute for Nuclear Research (Dubna, Russia) and the Lawrence Livermore National Laboratory (Livermore, California). The collaborating team proposed the names, which are now official.

The name flerovium and the symbol Fl for element 114 honors the Flerov Laboratory of Nuclear Reactions, where superheavy elements are synthesized. Georgiy N. Flerov (1913-1990) was a renowned physicist, a discoverer of the spontaneous fission of uranium in 1940 (with Konstantin A. Petrozhan), a pioneer in heavy-ion physics, and the founder of the Joint Institute for Nuclear Research. Prof. Flerov is known also for his fundamental work in various fields of physics that resulted in the discovery of new interactions of the atomic nuclei, which have played a key role in the establishment and development of many areas of nuclear research.

The name livermorium and the symbol Lv for element 116 honors the Lawrence Livermore National Laboratory. Over the years, scientists at Livermore have been involved in many areas of nuclear science: the investigation of fission properties of the heaviest elements, including the discovery of bimodal fission; the study of prompt gamma-rays emitted from fission fragments following fission; the investigation of isomers and isomeric levels in many nuclei; the investigation of the chemical properties of the heaviest elements.

This information was published in the July 2012 issue of the IUPAC journal *Pure and Applied Chemistry*. Priority of claims to the discovery of these elements was determined by a Joint Working Party of independent experts drawn from IUPAC and the International Union of Pure and Applied Physics (IUPAP). A new Joint Working Party, appointed by the Presidents of IUPAC and IUPAP, has begun work to assign priority for the discovery of elements 113, 115, 117, and 118.
Welcome to Rostock

After about 8 hours of travelling and very little sleep, we were met at the airport by Elisabeth, a representative from the GDCh and our new lifeline in Germany. She escorted us to our bus where we were shuttled to the Pentahotel in Rostock. However, we weren’t there to settle down – we had to meet in 2 hours for the ferry ride to Warnemünde, to be followed by the conference reception! It was definitely a long haul, but the beach and seaside charm of Warnemünde followed by the acquaintances made at the reception made it well worth it.

The experience of a lifetime!

To start with the ending – we all had a great time. This trip was such an excellent mix of science, history, and culture; I couldn’t have asked for more! Plus, I made so many friends – both with the Germans and the exchange group. I came into this trip hardly knowing anyone, and I left feeling part of a greater community. I also left with a lot of new knowledge and a travel bug. I would recommend this trip to anyone in a heartbeat, and I can’t wait to meet the Germans coming to the US next year!

Fun facts about Rostock…

It’s 800 years old! The city of Rostock was incorporated in 1218 and was part of the Hanseatic League.

It means … broadening of the river. Rostock is at the mouth of the Warnow River at the Baltic Sea.

It’s home to… one of the oldest universities in the world. Rostock University was founded in 1419.
The Frühjahrssymposium
Walking into this conference you would never guess that it was run by students. With a turnout of nearly 400 international young chemists, this was not an event to be missed!

The exchange team presentations
Both Jason and I gave our oral presentations on Monday. Mine was first in the midday session, and his was the last talk of the day. This was probably the largest audience I had ever had for a talk – fortunately that fact didn’t occur to me until after I presented. I was very nervous, but I think the talk went well. Jason also gave a superb talk. Although neither of us won the student talk award, I think we were both happy that we did our best. We were also both glad to have our work as scientists done: now we could focus on networking with the other students without the looming stress of the presentations.

Rostock city tour
Immediately following the conference program on Monday, the JCF hosted a city tour. We ended up with a very knowledgeable tour guide who shepherded us around the Rostock city center, telling us the history of the University, the convent, and General Blücher. The tour was great, but at the end, he ran off and left our group, leaving us lost in the Easter market carnival!

Conference party
After the city tour, a group of us ate dinner at an Italian restaurant and headed over to the conference party. Although the building seemed deserted from the outside, on the inside the party was roaring. It was great having this event so early in the week, as it gave everyone time to meet and socialize – something we hadn’t had too much time to do yet. It turned out that our group was pretty cool, and Andreas from the conference knew how to throw a party.
Rounding out the conference: chickens, fireworks, and posters

The whole trip was wrapped up in a surreal haze of time, going by so slowly, but so quickly at the same time. The combination of jetlag and constant activity led to my complete inability to tell time. The final two days of the conference were much more enjoyable after having given my talk. On Tuesday and Wednesday, there were the two poster sessions. It was great to see such diversity of research, and, despite my lack of understanding of organic chemistry, it was great to talk to other students about their work. Tuesday rounded out with the “15 years of JCF” symposium, where we heard Profs. Albert and Koch enumerate their views on young chemists and observed a very unique talk about egg chemistry that was given in German. Fortunately our new friend Isabelle was kind enough to translate for us! The conference dinner and fireworks followed this unusual session. The fireworks were a bit close for comfort, but were still a nice touch to end the evening. Wednesday we finished up the last session of the conference and took tours of the local St. Mary’s church and the convent of St. Catherine. Then a few of us climbed to the top of the Rostock medieval tower. Wednesday night we had dinner at Braugathaus “Zum alten Fritz” where we tried some more traditional German food and enjoyed house-brewed beers, including a traditional sweet porter.

St. Mary’s Church

During the RAF attack on Rostock, this church remained standing, and it has become an icon of the city.

*St. Mary’s church was saved during WWII by the pastor and his daughter, who managed to throw sand and water on the fire, keeping the flames at bay. The church contains many one-of-a-kind artifacts: the world’s oldest wind up cuckoo clock – which barely describes this floor-to-ceiling piece that can not only tell you the time, but also your zodiac sign, planting time tables, and when to pay your taxes – a baptismal from the 13th century, which was actually removed from the church during the war and hidden in fear that the Russians would melt it down, an enormous baroque pipe organ with 5,700 pipes, and one of the largest single stained glass windows in Europe.*
JungChemikerForum Excursions

Educational chemistry
Our first outing was to the University of Rostock, where we saw Prof. Flint give an experimental lecture that outlined his work in developing programs for teaching chemistry in secondary schools to entice young students into the STEM fields. Prof. Flint’s experiments use household items, such as oxy clean or lighter fluid, to demonstrate chemical decomposition or the fluid flow of gases.

World-class research
Our second stop was at the Leibniz-Institüt für Katalyse. This is a research facility dedicated entirely to catalysis – basically my dream institution. The environment here is highly collaborative and the facilities are extraordinary. It was great to see the research of a few students up close, as well as to understand their working environment.

Energy production
We were taken on tours of two facilities: a coal power plant, Kraftwerk, and a wind turbine factory, Nordex. It was interesting to see the inner workings of both and compare them. Although coal is not necessarily a clean energy, it seemed as though the plant tried to keep its environmental impact low. In contrast, the turbine factory, a maker of clean energy technology, seemed to be less conscious of its impact in terms of chemical use and VOCs.

The Baltic Sea
Our final excursion was back to Warnemünde, the seaside port of Rostock. We were taken on a historic tour of the village, which was once an autonomous fishing town, but the highlight of the trip was testing the waters of the Baltic. A few of us were brave enough to dip our toes in, but only Colin and Chris had the gall to go in all the way.
The grande finale

The trip concluded with a day at the Easter Market, which was followed by the farewell dinner at Amberg 13 and a night out with the JCF crew. The market was a lot of fun. Most of the exchangers went off in smaller groups that aggregated and dispersed again throughout the day. It was nice to see all the local wares being sold in the shops, and it was a great opportunity to pick up souvenirs. The dinner was magnificent! The restaurant had a great ambience, and the staff was very friendly and patient with our inability to speak German. Finally, it was great to end the trip with a night out with the JCF team. With their work being done, they seemed to cut loose a bit and have fun with us on our last night. This last day was the icing on an already delicious cake.

This trip has definitely fostered many personal relationships that will be long lasting. Andreas, who is finishing his Ph.D. at Berkeley, is already planning a stopover in Boston. Additionally, many of the younger JCF members are excited about coming to Boston in 2013, and the YCC team is excited to meet them. Finally, at the very least, we have all become friends via LinkedIn and Facebook, where we can continue to be in touch, and it is great knowing that there will be friendly faces abroad once I get a chance to return.

Thank you, NESACS!

Written by Emily Lewis
Dr. James R. Downing, Deputy Director and Scientific Director of St. Jude Children's Research Hospital, was the invited speaker at the 2012 Andrew H. Weinberg Memorial Lecture and presented “Whole Genome Sequencing (WGS) of Pediatric Cancers: The Pediatric Cancer Genome Project”.

In January 2010, St. Jude Children’s Research Hospital and Washington University School of Medicine in St. Louis announced an unprecedented effort to identify the key genetic changes that give rise to childhood cancers. The St. Jude Children’s Research Hospital – Washington University Pediatric Cancer Genome Project (PCGP) is the largest investment to date aimed at understanding the genetic origins of childhood cancers. In his presentation, Dr. Downing, the leader of this outstanding effort, provided an update of the status of this initiative and discussed the implications of whole genome sequencing of pediatric cancers in our understanding and treatment of childhood malignancies.

The goal of this 3-year, $65-million privately funded initiative is to sequence at 30-fold haploid coverage the whole genome of 600 pediatric tumors and matched non-tumor germline samples (1,200 total genomes) and to define the landscape of somatic mutations that underlie major subtypes of pediatric cancer. Two years into the project, the effort has generated one of the largest high-coverage whole-genome DNA sequence databases in cancer.

Several important findings have emerged from these studies. First and foremost is the importance of using the WGS approach to identify mutations in pediatric cancers. Analysis of an aggressive subtype of pediatric ALL known as early T-cell precursor leukemia, identified complex structural variations, focal deletions and sequence mutations of genes encoding key hematopoietic regulators that act as driver lesions in these leukemias. The exceedingly complex nature of some of these structural alterations would make it impossible to accurately identify them using more targeted sequencing approaches, such as exome or transcriptome sequencing. This observation has important implications for the application of next-generation sequencing-based assays in the clinic.

A second important lesson is that the spectrum of mutations that occur in pediatric cancers can be remarkably different than that seen in adult cancers, even in tumors with very similar histology. A specific example of this is afforded by a recent study from the PCGP on pediatric glioblastomas. In children but not adults, a substantial proportion of glioblastomas arise in the brainstem as diffuse intrinsic pontine gliomas (DIPGs). Of the DIPGs analyzed by the PCGP, 78% were found to have missense mutations in a key regulatory site of genes encoding 2 of the 16 different histone H3 isoforms. This is the first demonstration of a cancer-associated mutation in a key histone modification site. Notably, the mutation was only detected in DIPGs and, at a lower frequency, in pediatric glioblastomas arising outside the brainstem, but not in any adult glioblastoma.

A third major lesson is the importance of integrating genome-level data with epigenetic and RNA expression data to fully explore the abnormalities that drive cancer. Unexpectedly, the PCGP found that retinoblastoma, a
friendship with a grade-school friend of mine that I first encountered the challenge of communicating science. Bryant had his sights set on a career in politics, and soon after we both began our college studies, frequent lively debates became a staple of our friendship. Like all political science college students, Bryant had no difficulty presenting a convincing argument. He was a sturdy wall, thick with ideas painted onto the surface in rich colour, and my viewpoints like feather duster assaults.

The fact that I couldn’t make headway in proving an opposing point during our debates didn’t feel too threatening; that is, until the day that science was our topic of discussion. The subject was global warming, and Bryant was telling me about his field studies on carbon dioxide levels in Antarctica since the last ice age—well, he was recounting sections from a book that he had read, but his eloquence nearly convinced me that he had sailed down to the ice cap and done the studies himself! He was a politician disguised as a scientist: he had discovered his results; he had formed his conclusions; and then that sense of having unearthed a new relic had urged him onto the podium to tell the world about it. He could spin an enthralling tale about global warming, regardless of whether there was underlying science or not.

That was threatening, and it caused me to reflect on my own obligations as a scientist just having begun graduate study. Perhaps the brainstorming, the research, the gathering of data, the putting it together into a theory, and the publishing of it into a journal, is all just Step 1? Perhaps science is also a subscription to sharing one’s findings, so that they can contribute towards a collective objective? Scientists are diverse in their expertise, but one commonality that connects them is willingness to learn new things. Moreover, scientists all have stories to share: stories that are growing daily with each incremental or revolutionary discovery. Step 2, I came to believe, is the challenge of tying these two together. It is telling a truthful, objective, relevant story of one’s scientific ideas to other scientists, as a means of contributing one’s knowledge toward a central problem at hand.

In fact, it’s the NSYCC/JCF Exchange and Frühjahrssymposium, where science, culture, and society are woven together so tightly that one wonders how they could ever be imagined as separate.

And that’s because they’re not separate. Reflecting on the trip across the Atlantic has convinced me that there is one more step for the scientist: contributing our discoveries to society via a common language. We live in a world that has needs, and seeks progress. The obligation of the scientist in this context is, I feel, to understand the nature of our current challenges and propose thoughtful solutions. Step 3 is convincing everybody else beyond science—the public, political, and commercial sectors—that science is worthwhile. It is seeding a sense that scientists can be trusted: to deliver on the funding they receive; to consider the possible solutions and outcomes of the problem at hand; and to give advice grounded in objective facts. But science is not going to gain trust by sending around its latest spreadsheets of results. Those beyond science don’t speak this language. Rather, science needs to tell a compelling and relevant story—a language that has been intrinsic to the human experience since days of the cavemen.

American politicians figured out how to leverage the tools of Story long ago; however, science should be cautious not to follow the trajectory of that field. Bryant and I recently discussed what distinguishes a “policy” from a “theory”. A theory begins when a scientist has an idea; so too a policy begins when a politician has an idea. But if a scientist is a proper scientist, the theory must change as supporting or contrary facts arise. Scientists must be willing to admit they were in error, misled by an anomaly in their data, or so on. A scientist who does the reverse—alteration of facts to fit the theory in its preconception—is a mythologist.

On the other hand, a policy appears to be about defining a structure that is sturdy and un-changing, then...
NESACS Students Chosen for Summit

Two Dartmouth College chemistry graduate students, Xin Su and Justin Foy, were selected to attend the ACS International-Domestic Student Summit (IDSS) 2012 that will be held on November 11-17 in conjunction with the Southeast Regional Meeting (SERMACS) in Raleigh, NC.

Xin, who is from China, and Justin, who is a 2008 graduate from St. Michael’s College in Colchester, VT, are students in the research laboratory of Prof. Ivan Aprahamian; they will comprise the NESACS-nominated team of an international and a domestic student, respectively, to attend IDSS in order to meet other enterprising teams and discuss the promotion of cross-cultural understanding toward an increase in international collaboration. In addition to taking part in the Summit, the NESACS team will also participate in skill-building workshops and attend SERMACS, where they will present a poster describing their research on coordination-coupled deprotonation mechanisms in hydrazone-based molecular switches.

Xin is the Dartmouth representative to the NESACS Younger Chemists Committee (NSYCC); he was also a participant in the German Exchange to Rostock earlier this year. Justin is the chemistry representative to the Dartmouth Graduate Student Council. In their application for nomination to the Summit, they wrote, “Dartmouth is far away from most of the NESACS member schools, so we will encourage our students to be actively involved in NESACS/NSYCC research symposia and career events, mainly by providing transportation support. Through NESACS and its YCC, we will try to organize social events that provide both international and domestic students the opportunity to interact, exchange ideas, and network.”

Historical Note
Rudolph D. Deanin 1921 – 2011

We regret to inform you that Dr. Rudolph D. Deanin died on August 7, 2011 in Lowell, MA at the age of 90 years. He was born June 7, 1921, the son of Zalman and Sonya (Dreskin) Deanin and is survived by Joan, his wife of 44 years, two daughters, Nancy and Alice, and three grandsons.

Deanin earned a B.S. degree at Cornell in 1941 and his Ph.D. in chemistry at the University of Illinois. He joined Allied Chemical Corp. in New Jersey in 1947 and left in 1960 to become Director of Chemical Research and Development at DeBell and Richardson Corp. in Hazardville, CT. He had been a member of the Society of Plastic Engineers since 1962.

His academic career as Professor of Plastic Engineering began at the University of Massachusetts at Lowell in 1967. He started a graduate studies program in 1969 and remained director of the graduate program until his retirement in 2008. His legacy is “the hundreds of graduates on the B.S., M.S. and Ph.D. levels that have entered industry and academia.” He was a member of the Plastics Hall of Fame, Leominster, MA.

Cave Wall Drawing
continued from page 14

working to nourish it by supporting evidence while relegating the unsupportive evidence to the proverbial paper shredder. In fact, it’s almost the polar opposite of scientific method. I questioned Bryant: is this so that the politician can, in the long run, avoid saying that torturous self-deprecating phrase: “I’m sorry, but I was wrong”?

At least for wedge issues such as global climate change, it seems that the mythologists of the scientific community—those who are most willing to turn their theories into policies—occupy a dangerously large proportion
pediatric eye tumor characterized by inactivating mutation of RB1, had very few mutations across the genome. However, a detailed analysis of epigenetic and expression data revealed aberrant expression of SYK, encoding a cytoplasmic tyrosine kinase, in every retinoblastoma analyzed. Notably, inhibition of this kinase resulted in apoptosis of retinoblastoma tumor cells, both in vitro and in vivo, suggesting a possible new therapeutic approach. Because clear benefits can be achieved by combining whole-genome with transcriptome sequencing, going forward, the PCGP will perform transcriptome sequencing on all tumors from which sufficient RNA is available.

In summary, the detailed information emerging on the genomics of pediatric cancers will open a new era in cancer medicine, in which the definition and classification of diseases, as well as treatment paradigms, will be reaching a new level of complexity. Understanding the functional and clinical relevance of the identified mutations in cancer will require bringing together dedicated teams of genomic and computational experts, oncologists, pathologists, molecular and cellular biologists, chemists, pharmacologists and others in order to translate these descriptive data into effective clinical use.

Calendar continued from page 20

Nov 27
Prof. Kevin Cavicchi (Univ. of Akron)
Univ. New Hampshire, Room N104 (L103)
11:10 am

Nov 28
Prof. David Lambright (U Mass Medical School)
“Structural Insights into Trafficking Regulation and Manipulation by Pathogens”
Northeastern, 129 Hurtig Hall
12:00 pm

Nov 30
Prof. Mary Shultz (Tufts)
“Peering into the Ultrananoscopic World: Activating Molecular Oxygen”
U Mass Lowell, Alumni Hall
3:00 p.m.

Notices for The Nucleus Calendar of Seminars should be sent to:
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**Index of Advertisers**

Eastern Scientific Co. .................4
Front Run OrganX, Inc ............17
Huffman Laboratories, Inc .......17
Mass-Vac, Inc .........................14
Micron Inc ................................17
New Era Enterprises, Inc ..........17
Northeastern University ............2,19
NuMega Resonance Labs ............17
Organix, Inc ..........................17
PCI Synthesis ..........................17
Pittcon 2013 ............................6
PolyOrg, Inc ............................18
Rilas Technologies, Inc ............15
Robertson Microlit Labs ..........17
Vacuubrand, Inc .......................16
Waters Corporation .................18

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Note also the Chemistry Department web pages for travel directions and updates. These include:
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Nov 01
R.B. Woodward Lectures in the Chemical Sciences
Prof. Chad Mirkin (Northwestern Univ.)
Harvard, Pfizer Lecture Hall
5:00 pm

Nov 02 & 03
Bristol-Myers Squibb Lecturer
Prof. Hisashi Yamamoto (Univ. Chicago)
“Asymmetric Catalysis”
Boston College, Merkert 130
4:00 pm

Nov 02
Prof. Arthur Greenberg (Univ. New Hampshire)
“Don’t Phlog Phlogiston”
U Mass Lowell, Olney 218
3:30 p.m.

Nov 05
Prof. Stephen Cramer (UCal, Davis and LBNL)
“Spectroscopy of Nitrogenase Intermediates — Nature’s Haber-Bosch Fischer-Tropsch Hydrogenase Catalyst”
MIT, 56-114
4 pm

Nov 06
Prof. Ivan Aprahamian (Dartmouth)
“Hydrazone-based switches, fluorophores and sensors”
Boston College, Merkert 130
4:00 pm

Nov 07
Prof. Peter Wolynes (Rice Univ.)
“Theories of Supercooled Liquids, Glasses and their Ultimate Fates”
MIT, 6-120
4:30 pm

Nov 08
Prof. Craig Williams (Queensland University)
Univ New Hampshire, Room N104 (L103)
11:10 am

Nov 09
Prof. Peter Wolynes (Rice Univ.)
“Protein Folding: An Integrated Approach”
MIT, 2-346
12:30 pm

Nov 10
Prof. David Walt (Tufts Univ.)
“Single Molecule Arrays for Fundamentals Enzyme Studies and Ultra-Sensitive Diagnostics”
U Mass. Lowell, Alumni Hall
3:00 p.m.

Nov 11
Prof. Nan Zheng (Univ. of Arkansas)
Brandeis, Gerstenzang 121
4:00 pm

Nov 12
Prof. Nan Zheng (Univ. of Arkansas)
Brandeis, Gerstenzang 121
4:00 pm

Nov 13
Prof. Emily Scott (Kansas Univ.)
“Structure and Function of Cytochrome P450 17A1: Prostate Cancer Drug Target”
Brandeis, Gerstenzang 121
4:00 pm

Nov 14
Prof. Nan Zheng, (Univ. of Arkansas)
Northeastern, 129 Hurtig Hall
12:00 pm

Prof. David Giedroc, (Indiana University)
WPI, Gateway Park, Rm. 1002
12:00 Noon

Nov 15
Prof. Thomas Russell (UMass, Amherst)
“From Ultradense Arrays of Nanodots to Nanolines: A Route to Addressable Media”
U Mass. Lowell, Olney 218
3:30 p.m.

Nov 19
Prof. Alan West (Columbia Univ.)
Tufts, SciTech Center Room 136
12:00 Noon

Nov 20
Prof. David Walt (Tufts Univ.)
“From Ultradense Arrays of Nanodots to Nanolines: A Route to Addressable Media”
U Mass. Lowell, Olney 218
3:30 p.m.