

Division of Chemistry

National Science Foundation
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Letter from the Division Director

by Matthew Platz



Greetings from the Division Director:

As you may know, I recently began serving the community as Director of NSF Division of Chemistry. In a short time I came to appreciate the talent and work ethic of a wonderful administrative and scientific staff. From my colleagues, I learn lessons every day ranging from the mundane (navigating DC traffic, the metro, innumerable acronyms) to the critical forces and boundary conditions that shape divisional activities. Most importantly I am constantly reminded of the importance of chemistry and chemists in our complex world.

It is now my pleasure to provide you with this inaugural (for me) newsletter update of NSF-Chemistry activities. Through this newsletter we hope to keep the community informed about changes in grants administration, policies and practices, funding trends and priorities, and of course new opportunities. As detailed elsewhere, there is much for PIs note: the new data management plan requirement, opportunities related to research and education in the area of sustainability, the NSF institutional matching fund policy, how PIs can view the abstracts of proposals funded, by program, and thereby best determine where to submit their own proposal, the International Year of Chemistry and President Obama's FY 12 budget request to congress.

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NSF at the American Chemical Society National Meeting Anaheim March 2011

The Division of Chemistry is pleased to invite you to the inaugural “**FedFunders Town Hall Meeting**” at the National Meeting and Exposition of the American Chemical Society (ACS) in Anaheim, California on **Monday March 28, 2011, from 4:30 p.m. – 6:30 p.m. at the Hilton Anaheim Hotel, Pacific Ballroom C**. The town hall meeting is a partnership between NSF Chemistry, the Department of Energy's Chemical Sciences, Geosciences, and Biosciences Division in the Office of Basic Energy Sciences (DOE BES) and the National Institutes of Health's Division of Pharmacology, Physiology, and Biological Chemistry in the National Institute of General Medical Sciences (NIH NIGMS). Division Directors Matthew Platz (NSF), Michael Rogers (NIH), and Eric Rohlwing (DOE) will share the latest news regarding Fiscal Year 2011 budgets, program updates and opportunities for the research community. Meeting attendees will have an opportunity to meet Program Managers from across NSF, DOE, NIH, and other federal agencies.

We hope you can join us for this very special event in Anaheim!

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In this column I will provide you with some facts at a glance that I hope will be of interest to PIs, thoughts on proposal pressure, the current fiscal year, and two excerpts from the America Competes Act that dictate current practice and describe future opportunities. As always I look forward to receiving your feedback and your perspectives on these issues, and engaging in a healthy discussion, which will benefit researchers and research in the field of chemistry.

Facts at a Glance

In Fiscal (FY) 2010 (October 1, 2009-September 30, 2010) the division funded 384 of the 1644 individual investigator proposals that were received, corresponding to an overall success rate of 23.4%. The average award size was \$152,000/year, a figure that supports roughly 1 month of PI salary, one graduate student, including tuition, about 6 months of post doctoral support, \$14,000 in equipment, \$15,000 in other costs and indirect costs. The success rate of CAREER proposals was 19.2%, renewals were awarded at a 53.9% rate, priors (renewals that were previously declined once, and resubmitted) succeeded at a 44.2% rate and the success rate of new proposals was 16.9% in FY10. Awards to individual investigators accounted for ~70% of the dollars awarded in FY10, support of centers (~10%), instrumentation (~15%) and education (~5%) account for the divisions investment portfolio.

As of the writing of this newsletter we are operating under a continuing budget resolution. Operationally, this means that the division will make awards at ~85% of the FY10 budget level until the FY11 budget is finalized.

Proposal Pressure

In FY10 the division made the largest number of awards in its history yet the success rate was lower than desired. The simple explanation of this apparent disconnect is that inflation in the number of proposals submitted consistently outpaces growth in budget. In fact between 1995 and 2010 there was a 90% increase in the number of proposals submitted to the Division of Chemistry. Maintaining the average historic grant size, corrected for inflation, inevitably led to lower than optimal award rates. The community has not been well served by the increased number of person hours spent preparing proposals or the increased time spent in their review. Please note that neither the increase in the number of proposals submitted, nor the increased number of awards made, translated into an increased number of divisional staff. The result has been a dramatic increase in Program Officer work load over the last 15 years. Although I am constantly impressed by the work ethic of the staff and their commitment to the science of chemistry much of my time as director has been spent seeking increased efficiency and ever more responsive customer service, without compromising the integrity of the review process. Tough decisions about the number of submission windows per year will have to be made if these trends continue.

The America Competes Act: Broader Impacts

Every three years the division is reviewed by a Committee of Visitors (COV). The most recent COV (May 3-5, 2010) can be found at <http://www.nsf.gov/mps/advisory/cov.jsp>. Among its many observations, the COV noted that the community “remains confused about what constitutes Broader Impacts” and recommended that we seek new ways to better inform PIs about “best practices in terms of Broader Impacts. It is important for NSF to work to clarify the intent and meaning of the criterion.” In this spirit, the relevant section of US law governing Broader Impacts” is excerpted.

SEC. 526. BROADER IMPACTS REVIEW CRITERION.

(a) **GOALS.**—*The Foundation shall apply a Broader Impacts Review Criterion to achieve the following goals:*

- (1) *Increased economic competitiveness of the United States.*
- (2) *Development of a globally competitive STEM workforce.*
- (3) *Increased participation of women and underrepresented minorities in STEM.*
- (4) *Increased partnerships between academia and industry.*
- (5) *Improved pre-K–12 STEM education and teacher development.*
- (6) *Improved undergraduate STEM education.*
- (7) *Increased public scientific literacy.*
- (8) *Increased national security.*

The National Science Board has launched a Task Force on Merit Review to consider this critical issue. You can read more about the members and the charge to the Task Force at http://www.nsf.gov/nsb/committees/tskforce_mr.jsp.

PIs should also view

http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=13626&org=CHE&from=home and <http://www.nsf.gov/pubs/gpg/broaderimpacts.pdf> for more information to better understand this criterion.

The America Competes Act: Sustainable Chemistry Basic Research

We are actively planning the implementation of this provision of the America Competes Act and we hope to have much to share with the community in the late spring/early summer. I look forward to hearing from you about the best way to shape the portfolio of this new program.

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SEC. 509. SUSTAINABLE CHEMISTRY BASIC RESEARCH.

The Director shall establish a Green Chemistry Basic Research program to award competitive, merit-based grants to support research into green and sustainable chemistry which will lead to clean, safe, and economical alternatives to traditional chemical products and practices. The research program shall provide sustained support for green chemistry research, education, and technology transfer through—

- (1) merit-reviewed competitive grants to individual investigators and teams of investigators, including, to the extent practicable, young investigators, for research;
- (2) grants to fund collaborative research partnerships among universities, industry, and nonprofit organizations;
- (3) symposia, forums, and conferences to increase outreach, collaboration, and dissemination of green chemistry advances and practices; and
- (4) education, training, and retraining of undergraduate and graduate students and professional chemists and chemical engineers, including through partnerships with industry, in green chemistry science and engineering.

The ARRA Echo

In FY2009, the Division was able to make a larger than usual number of awards to PI's as a result of the American Recovery and Reinvestment Act (ARRA). We expect that the majority of these awards will be submitted for renewal in FY12. Although President Obama's FY12 budget request to Congress calls for a generous increase in the divisional budget, much of this increase is highly targeted. In order to maintain the division's historic success rate of ~50% of renewal proposals, we will suspend the Chemistry Research Instrumentation and Facilities (CRIF) program in FY12. Simply put, we plan to divert funds from CRIF to individual investigator awards by this action. This decision was not made easily since I personally understand and have greatly benefitted from CRIF funding. However, I felt it was better for the community that CRIF take a one year hiatus rather than decrease the success rate of individual investigator awards. We plan to reinstitute CRIF in FY2013.

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Speed Coaching for Success with NSF at ACS

The Division of Chemistry will host its second “speed coaching” event for prospective and existing principal investigators, students, educators, and researchers on **Tuesday March 29, 2011 from 1:00 p.m. – 4:00 p.m. at the Hilton Anaheim Hotel, Pacific Ballroom C**. Participants will spend ten minutes one-on-one with Program Managers from across NSF to discuss any topic related to research and education grants, programs, and funding opportunities available at NSF. While registration is not required, participants can sign up for a preferred time slot on Monday March 28 at the FedFunders Town Hall Meeting between 4:30 p.m. – 6:30 p.m.

NSF Staff Planning to Attend:

Division of Chemistry – Dave Berkowitz (Chemical Synthesis Program and Chemistry of Life Processes Program), **Katharine Covert**, acting Deputy Division Director (Centers/Special Projects/Education), **Bruce Johnson** (Theory, Models, and Computational Methods Program), **Robert Kuczkowski** (Centers, MRI, CRIF), **Tyrone D. Mitchell** (Chemical Structure, Dynamics, and Mechanisms Program and Chemistry of Life Processes Program), **Timothy Patten** (Macromolecular, Supramolecular, & Nanochemistry Program), **Daniel Rabinovich** (Chemistry of Life Processes Program and Chemical Synthesis Program), and **Zeev Rosenzweig** (Environmental Chemical Sciences Program, Macromolecular, Supramolecular, & Nanochemistry Program, and International Collaboration in Chemistry Program), **Division of Materials Research – Janice Hicks**, Deputy Division Director, **Division of Undergraduate Education – Eun-Woo Chang and Bert Holmes** (Transforming Undergraduate Education in Science, Technology, Engineering, and Mathematics (TUES, formerly CCLI), Advanced Technological Education (ATE), Robert Noyce Teacher Scholarship Program, and others

Have a question about NSF? Come see us at Speed Coaching for Success with NSF for the answer!

President Obama's Budget Request to Congress

The FY12 budget request asks Congress to increase the budget of the Division of Chemistry by \$24.34M or 10.4% relative to the FY2010 enacted level. This is the largest dollar and the largest percent increase of any division in the Directorate of Mathematical and Physical Sciences, and is a tribute to the tireless efforts of my predecessor, Dr. Luis Echegoyen on our behalf. Please note that nearly \$10M of this increase is targeted to support the SEES initiative (see section 14). I cannot overstate the importance of this initiative to our community and expect to be able to offer more guidance this summer. While this budget news is encouraging, I must emphasize that this is the President's *budget request*. Only Congress can appropriate funds to general agencies.

Final Thoughts

The nation and the world confront a complex set of interrelated challenges. The solution to each and every problem we face as a civilization will require the discovery of fundamental chemistry. Thus, chemistry and chemists have never been more important. The mission of the division is well aligned with enabling US chemists to secure the future. We are proud to work with the community to identify and support the best curiosity and use inspired research proposals in our discipline.

Sincerely,

Matthew Platz, Division Director
NSF Division of Chemistry



SEES and the Chemistry Research Community

by Katharine Covert

You may have missed an email sent out during the December holidays – a Dear Colleague Letter announcing new opportunities in *Science, Engineering and Education for Sustainability (SEES)*. You might want to take a second look at this notice, available at:

<http://www.nsf.gov/pubs/2011/nsf11022/nsf11022.jsp>

The initial focus areas for SEES are climate and energy research. SEES is taking a broad interdisciplinary approach to these challenges, incorporating physical sciences, mathematical sciences, biosciences, geosciences, engineering, and the social sciences as necessary to address these complex challenges. Plans are underway to add new elements, including Sustainable Materials and Chemistry, to the SEES portfolio in FY 2012.

Near term opportunities are SEES-related Research Coordination Networks and Interdisciplinary Workshops. You can find more information about these funding opportunities at

<http://www.nsf.gov/sees>. The solicitation for SEES Research

Coordination Networks (NSF 11-531) is available at:

http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf11531&org=NSF

The NSF Division of Chemistry invites input from the research community. Several recent workshops have informed our current plans. You can find these workshop reports at:

http://www.nsf.gov/mps/che/c_publications_and_reports.jsp

New NSF Proposal Requirements in 2011

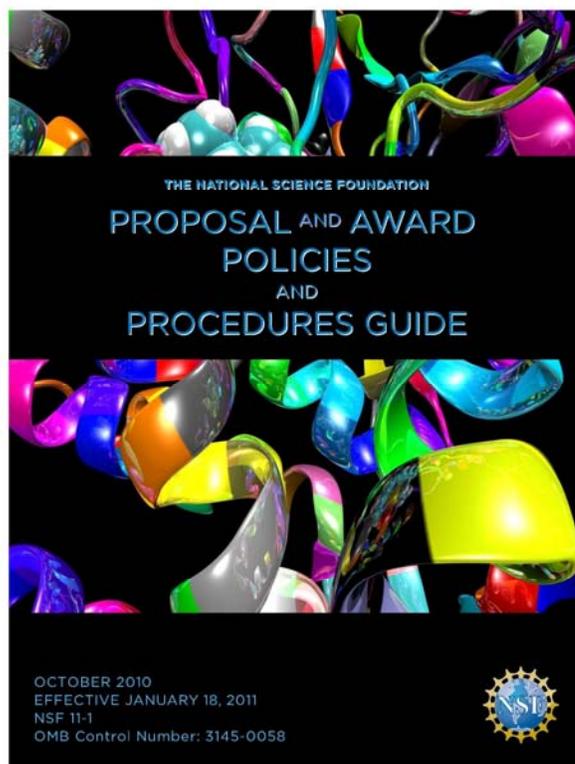
by Colby Foss

The New Year has brought some new requirements for those submitting proposals to the NSF. The first is the *Data Management Plan Requirement*. Here are some excerpts from the guidance offered by the Division of Chemistry:¹

NSF has published a revised version of the NSF Proposal and Award Policies and Procedures Guide (PAPPG) (NSF 11-1) that will be required in all proposals submitted, or due, on or after January 18, 2011, a supplementary document of no more than two pages describing a Data Management Plan for the proposed research. Fastlane will not permit submission of a proposal that is missing the Data Management Plan. The Data Management Plan will be reviewed as part of the intellectual merit or broader impacts of the proposal, or both, as appropriate. The goal is to provide clear, effective, and transparent implementation of the long-standing NSF Policy on Dissemination and Sharing of Research Results, which may be found in the *Award Administration Guide, Section VI.D.4* at http://www.nsf.gov/pubs/policydocs/pappguide/nsf11001/nsf11_1.pdf.

MPS Divisions will rely heavily on the merit review process in this initial phase to determine those types of plan that best serve each community and update the information accordingly. The Division of Chemistry recognizes that in most cases, principal investigators will publish data (and relevant supplementary information) in peer-reviewed journal articles within a reasonable time, and that the chemistry research community maintains a significant number of databases that provide for access to data. Such disclosure of data meets the majority of needs for robust and open scientific discourse. The purpose of the Data Management Plan is to provide a means for highlighting the existing practices of the principal investigator's laboratory and larger research community, and to encourage innovations that, where appropriate and practical, take advantage of emerging information technologies and cyber-infrastructure.

Links to information provided by other Directorates and Divisions are also available.²



In response to recent National Science Board recommendations,³ the NSF revised its *Cost Sharing Policy*. With the exception of a very limited number of programs where cost-sharing is required, perhaps the most important change is that the “inclusion of voluntary committed cost sharing is prohibited.”⁴ While institutional resources must still be described in the Facilities, Equipment and Other Resources section of the proposal (see NSF *Grant Proposal Guide* (GPG) Chapter II.C.2.i for more information⁵), “the description should be narrative in nature and must not include any quantifiable financial information.”⁴ The text quoted here comes from a FAQ document, which the Chemistry community is encouraged to read.⁴

1. <http://www.nsf.gov/bfa/dias/policy/dmpdocs/che.pdf>
2. <http://www.nsf.gov/bfa/dias/policy/dmp.jsp>
3. <http://www.nsf.gov/pubs/2009/nsb0920/index.jsp>
4. http://www.nsf.gov/publications/pub_summ.jsp?ods_key=costsharefaqs
5. http://www.nsf.gov/pubs/policydocs/pappguide/nsf11001/gpg_2.jsp#IIC2i



International Year of **CHEMISTRY** 2011

International Year of Chemistry

by Charles Pibel

The United Nations, in response to a petition by the International Union of Pure and Applied Chemistry (IUPAC), has designated 2011 as the International Year of Chemistry (IYC). The year marks the centennial anniversary of Madame Marie Curie's award of the Nobel Prize in Chemistry. Many of the stated goals of IUPAC for the International Year of Chemistry are in consonance with the goals of the Chemistry Division of NSF, as outlined in our Strategic Directions. The stated IYC goals include increasing public appreciation of chemistry in meeting world needs, increasing the interest of young people in chemistry, generating enthusiasm for the creative future of chemistry, and celebrating the centenary of the award of the Nobel Prize to Madame Curie.

The Division would like to encourage the community to actively engage in any opportunities for outreach in your own community to share your passion for the chemical sciences with the broader public. [This is one type of a broader impact!] This is an excellent opportunity to engage with the public and show them the ways in which chemistry will play a major role in solving the major societal problems that we are facing.

A number of National and International organizations are acting as hubs for information and ideas for interested groups to engage in public outreach. Some of these include:

The American Chemical Society: <http://iyc2011.acs.org/>

The National Academies of Science: <http://www.iyc2011-us.org/>

and The IUPAC (in concert with UNESCO):

<http://www.chemistry2011.org/>

The Division put out a call to the community for projects, both small and large, to engage in public outreach during the International Year of Chemistry

(http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf10072) and we have already received a number of interesting ideas from the community.

In addition to supporting these ideas for engagement from the community, the National Science Foundation (through its Office of Legislative and Public Affairs) is working with NBCLearn and other partners (the Chemical Heritage Foundation, Scientific American, and the National Science Teachers Association) to produce "Chemistry NOW" a weekly online series of material for students, teachers and the larger public as part of the IYC celebration. The series will explain the chemistry behind things that people encounter everyday -- from foods to natural and synthetic materials. The series will also introduce members of the public to NSF-supported educators and researchers, through profiles of their work and their lives.

http://www.nsf.gov/news/news_summ.jsp?cntn_id=118468

The Chemistry Division urges each and every one of you to participate in IYC activities this year, educating the community about our vibrant, exciting discipline.

Cultural Heritage Science

by Zeev Rosenzweig & Amy Jacobson

In 2009, a partnership between the Andrew W. Mellon Foundation and NSF resulted in the organization of a workshop that focused on defining grand challenges, identifying major research areas and specific research needs, and outlining resources needed for advancing chemistry and materials research in the field of cultural heritage science. As a direct outcome of this workshop, NSF formed the Cultural Heritage Science (CHS) Program (formerly known as SCIART), which has solicited collaborative proposals between researchers in US museums and academic institutions to address grand challenges in the field of cultural heritage science. In response to the first NSF CHS solicitation in 2010, 39 collaborative proposals were submitted. Eight 3-year projects were funded at levels ranging from \$270,000 to \$495,000. These projects cover a broad range of research projects with some focus on the development of new chemical imaging methods for high sensitivity analysis of cultural heritage objects while other focus on studying materials degradation mechanisms and on developing new materials for the conservation of cultural heritage objects. It is anticipated that these NSF-funded projects will have high public appeal due to their connection to art and their visibility at museums.

Subject to the availability of funds, the CHS Program will continue to fund projects in materials research and chemistry for an additional two competitions, with possible expansions to other disciplines and internationally. The next competition deadline is set for May 11, 2011. As the CHS program grows, the program plans to convene NSF awardees at regular intervals to review both results and challenges.

NSF's support for scientific research in the field of cultural heritage has been significantly expanded through the CHS Program. Although two of the CHS non-academic researchers have previously been recipients of NSF instrumentation awards, neither were a PI nor co-PI on a previous NSF research grant. In one case, a museum had not previously received an NSF award. One goal of the CHS Program is for PIs to use the program solicitation as an opportunity to determine the relevancy of their work to various NSF programs and divisions. After a few years of the CHS solicitation, NSF expects the research will segue to various unsolicited programs and divisions at the Foundation. This will provide a continued base of support for research activities in cultural heritage science.

Interested in more details about CHS? LiveScience.com will be featuring the first competition awardees March 28-April 1, 2011 in pieces they call "Behind the Scenes" at <http://www.livescience.com/>. A full day symposium on chemistry aspects of cultural heritage science will be held on March 28, 2011 as a part of the National ACS Meeting in Anaheim, CA. The symposium will feature the current state-of-the-art in the field and some of the speakers are recent CHS awardees. For additional information regarding the CHS program please visit http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=503478.

Finding the Right CHE Programs for Your Project

by Katharine Covert

If you haven't submitted a proposal to NSF Chemistry in the last 18 months, you might not be aware of the "realigned" programs for individual and collaborative research projects. So, how can you find out which program is the best fit for YOUR project? Or perhaps your work is in mechanistic enzymology or solid-state chemistry, and you've heard that there are other programs at NSF that a better fit. How can you find out?

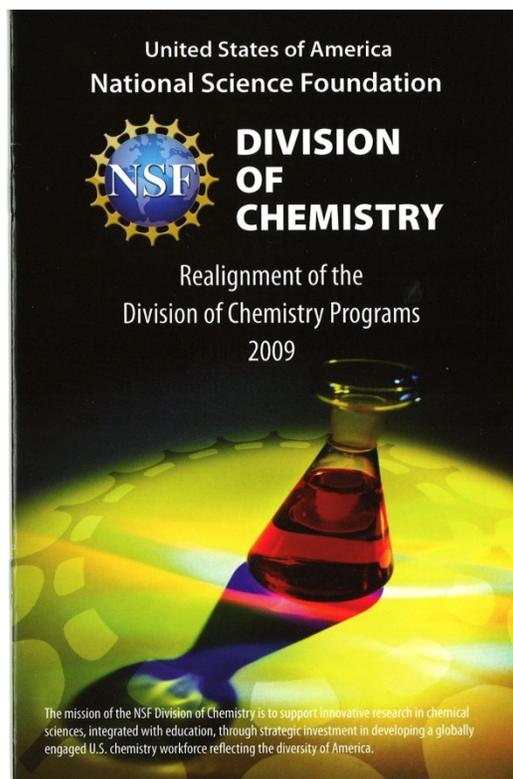
One of the fastest ways to find a "fit" at NSF is to use the NSF Award Abstracts

<http://www.nsf.gov/awardsearch/index.jsp>

If there is a keyword that describes your project, try putting that in the first search box, and click "Search" at the bottom of the page. The search engine will return a list of all the active awards that have that keyword ("stereoselective" got 35 hits and "Raman" got 247). Look at the list of Principal Investigators – are these people in your research community? Look in the Program Column to see what programs are supporting this kind of science. Or click on the "NSF Organization" column header to sort the entries by NSF Division, for a quick survey of who is funding this area. (Tip: For CHE awards, look for award numbers starting above 0940000 – they are the most recent awards and will be the most helpful for tracking into the new programs)

Find a few awards/principal investigators that look close to your project? Click on the award number to get the entire abstract describing the award. Looking at a few abstracts gives you a quick sense of who is supported to do work related to your own project, and what divisions/programs are potential fits.

Another approach is to use the Program Descriptions posted on the NSF Chemistry webpage: <http://www.nsf.gov/chem>. Each of the current eight programs has a page with a description of their interests. At the bottom of each program page is a link that will take you to the abstracts in each program – these abstracts will include awards made last year and the first set of awards made in FY 2011.



Yet a third approach is to use the "decision tree" found at <http://www.nsf.gov/mps/che/realign/decisiontree.pdf>

This document guides you through an ordered series of questions designed to rapidly "sort" projects into the eight programs.

There are always grey areas and judgment calls – is a particular project a better fit for the Chemistry of Life Processes Program in CHE or the Biochemistry Program in MCB? What is the difference between the Macromolecular, Supramolecular and Nanochemistry Program in CHE and the Solid State and Materials Chemistry Program in DMR? Is my project a better fit to Chemical Catalysis or Chemical Synthesis? At this point, you'll want to contact a Program Director (see contact information on the Program Pages) and have a deeper discussion.

We look forward to hearing from you!



© Press Photo: BASF SE

NSF Awardee Brings Graduate Research Seminar to the Faraday Discussion

by Evelyn Goldfied & Amy Jacobson

The first Faraday Discussion (FD146) held in the United States since 1963 took place on April 12-14, 2010. Hosted by the Royal Society of Chemistry and Virginia Commonwealth University, the topic of the Discussion was "Wetting Dynamics of Hydrophobic and Structured Surfaces. Although Faraday discussions are usually very interesting and exciting, they may also be intimidating to more junior scientists.

Thus, the Discussion was preceded by another inaugural event—the **Faraday Discussion Graduate Research Seminar on Wetting of Structured Surfaces (FD-GRS)**--intended to prepare graduate and postgraduate students to participate more fully in the Discussion, in order to create a more inclusive meeting and provide a more positive experience for the young scientists who attended. In the tradition of supporting graduate research seminars and other similar pre-meeting events, this research seminar was supported in part by an award from the National Science Foundation and specifically from the following programs: the Theory, Models and Computational Methods program in the Division of Chemistry; the Condensed Matter and Materials Theory program and Polymer program in the Division of Materials Research; and the Interfacial Processes and Thermodynamics program in the Division of Chemical, Bioengineering, Environmental and Transport Systems. The 43 students (30 graduate and 13 postgraduate) who were selected to participate from the United States, the United Kingdom, Italy, Israel, Australia, Spain and Austria, represented diverse areas of interest from Engineering, Chemistry, Materials Research, Applied Physics, and Nanoscience.

This seminar was the inspiration of Dr. Alenka Luzar, a Professor at Virginia Commonwealth University, who realized the importance of helping prepare students attending the Faraday Discussion so that they “would not be intimidated when interacting with their peers whom they admire during the main event, and to engage them more fully during the public discussion.” The NSF award helped make possible the attendance by students and postdocs studying at institutions in the United States.

The seminar was designed to introduce and prepare these students for the scope of topics that would be covered in the FD146, including discussion on 23 papers. Students also had the opportunity to present research, receive feedback, network and share ideas with peers and to interact with their mentors.

Academic Research Infrastructure Awards

by Tanja Pietrass

The American Recovery and Reinvestment Act of 2009 provided \$200 million for NSF to fund the Academic Research Infrastructure – Recovery and Reinvestment (ARI-R²) Program, which is designed to support 21st century research and research training infrastructure in our Nation's academic and other institutions. The goal is to enable the transformation of the science and engineering research enterprise at many institutions. The program encompasses improvement of research facilities, i.e., repair or renovation or, in exceptional cases, replacement of shared scientific and engineering research and research training space, and its underlying infrastructure.

Aside from intellectual merit and broader impacts, the solicitation added review criteria on: the need for the facility enhancement; the breadth and immediacy of the project towards transforming science and engineering at the institution; improving the science and engineering infrastructure while broadening participation; and improving quality, effectiveness, and distribution or capacity of the Nation's science and engineering enterprise; and the soundness of project management.

The solicitation was managed by the various directorates and research offices, and coordinated by the Office of Integrative Activities (OIA), an office that is dedicated to support cross-cutting efforts. With a submission deadline of August 24, 2009, 495 proposals were received, with 78 in chemistry and closely related fields. After the review process had been completed, awards were sub-divided into two groupings: those above and those at or below a total award size of \$2.0 M. This resulted in 136 awards, with 13 of these exceeding \$2.0 M.

The Division of Chemistry was delighted by the high level of participation from chemistry departments, and the large number of awards (22) in our field, with one award over \$2.0 M for a total of \$24.6 M. The awards were matched to the requests, and each sub-field received a proportionate share of the total funds based on the requests made, resulting in a fair and even distribution across disciplines. For example, the success rate for chemistry proposals was 28.2%, similar to the overall success rate of 27.5%.

The awardee institutions in chemistry range from large research institutions such as the University of North Carolina, Chapel Hill, to predominantly undergraduate institutions such as Trinity College. For some of our awardees, this was their first NSF grant!

In accordance with all federal rules and regulations as well as the specific rules associated with ARRA funds, Chemistry is closely overseeing the renovation projects. Some of the projects are in full swing, while others are still busy procuring competitive bids.

We are delighted about the opportunities that these awards present in research and research training, impacting a large number of faculty, postdoctoral, graduate and undergraduate students. We will keep you informed about these exciting developments.

Special Recognitions

By Tingyu Li & George Janini



The Division of Chemistry congratulates NSF awardees, Professor Richard F. Heck of the Department of Chemistry and Biochemistry of the University of Delaware and Professor Ei-ichi Negishi of the Department of Chemistry of Purdue University for sharing the **2010 Nobel Prize in Chemistry** with Professor Akira Suzuki of Hokkaido University. The award recognized the discovery and development of palladium-catalyzed cross-coupling reactions, which are now widely used in the synthesis of complex molecular structures including materials, pharmaceuticals, and other biologically active compounds.



The Division of Chemistry congratulates NSF awardee, Professor Ahmed Zewail, the Linus Pauling Professor of Chemical Physics & Professor of Physics at California Institute of Technology, for receiving the **2011 Priestley Medal by the American Chemical Society**. Professor Zewail is a pioneer in the development of revolutionary methods for the study of ultrafast processes in chemistry, biology, and materials science.



The Division of Chemistry congratulates Professor Jayne Garno for receiving the **2010 PECASE (Presidential Early Career Award for Scientists and Engineers)** award. Dr. Jayne C. Garno, Assistant Professor of Chemistry at Louisiana State University, is recognized for the development of new approaches for measurements and imaging of magnetic nanoparticles with scanning probe microscopy. She is also recognized for her exemplary efforts to enhance undergraduate research and increase the participation of underrepresented minorities in science, particularly African Americans.



The Division of Chemistry congratulates Professor Gerard F. R. Parkin, Department of Chemistry, Columbia University, for being named by President Obama on January 21, 2011 as one of 11 individual recipients of this year's prestigious **Presidential Awards for Excellence in Science, Mathematics, and Engineering Mentoring**.

2011 American Chemical Society Awards Recognition

The Division of Chemistry wants to extend congratulations to the following NSF current awardees for receiving ACS 2011 national awards: Thom H. Dunning, Jr., Francois Morel, Viktor V. Zhdankin, Gregory J. Grant, Krzysztof Matyjaszewski, Wilfredo Colón, Purnendu Dasgupta, Robert J. Cava, Peter T. Wolczanski, Melanie S. Sanford, Robin D. Rogers, Robert H. Grubbs, Nicholas J. Turro, Zhenan Bao, Martin D. Burke, Craig J. Hawker, Seth R. Marder, Tobin J. Marks, Andrew J. Phillips, Jeffrey W. Bode, Alan L. Balch, Sherry Y. Yennello, Geraldine L. Richmond, Weston T. Borden, Lawrence T. Scott, David J. Morrissey, Veronica Vaida, and Charles B. Harris.

The Division of Chemistry also wants to extend congratulations to our current awardees, Richard P. Van Duyne and Lingjun Li, for receiving 2011 Pittcon Conference awards.

Staff Changes in the Division of Chemistry

The Division welcomes the following distinguished scientists who have joined the Division of Chemistry:

Dr. Lin He, Professor, North Carolina State University has joined the Chemical Measurement and Imaging Program (CMI)

Dr. Julio de Paula, Professor, Lewis & Clark College has joined the Chemical Structure, Dynamics and Mechanisms Program (CSDM)

Dr. Steven Bernasek, Professor, Princeton University has joined the Chemical Catalysis Program (CAT)

Dr. Michael Clarke, Professor, Boston College, has also joined the Chemical Catalysis Program. (CAT)

Share a recent outcome from your Chemistry Division grant.

Send us a Research or Education Highlight to chemhighlights@nsf.gov

Join Us - Becoming a Rotator at NSF

The Chemistry Division at NSF usually has 18 full-time program directors. Nine of these are currently permanent NSF employees and the rest (plus the Division Director) are rotators who come to NSF for 1-3 years. Most rotators are tenured faculty with well-established research records. Rotators from industry and other government agencies with equivalent research experience provide additional perspective. The Division is constantly looking for new rotators to replace those scheduled to rotate back to their home institutions. Share in the discovery by serving as an NSF Rotator. To learn more, go to:

http://www.nsf.gov/about/career_opps/rotators/index.jsp. NSF is an equal opportunity provider and employer.

A rotator position is challenging and interesting. It provides an opportunity to broaden science perspective and to participate in shaping the future of academic research in chemistry. The associated managerial skills can be invaluable for rotators interested in administrative career paths. NSF is very sensitive to the research needs of rotators and provides the resources necessary to maintain active research programs. Support for a residence in the Washington DC area is also provided. Interested individuals should contact the Division Director, Dr. Matt Platz at mplatz@nsf.gov to discuss the opportunities and responsibilities of the position. Alternatively, they should contact the program directors in their particular subfield for further information on what the job entails. See the following link for contact information:

http://www.nsf.gov/staff/staff_list.jsp?org=CHE



Access to TeraGrid

The TeraGrid is an open scientific discovery cyberinfrastructure funded by the National Science Foundation to combine advanced computational resources at several partner sites with an allocations process, an advanced user support program and a comprehensive training, education and outreach program. The TeraGrid consortium integrates high-performance computers, data resources and tools, and high-end experimental facilities around the country. Currently, TeraGrid resources include more than 2.5 petaflops of computing capability and more than 50 petabytes of online and archival data storage, with rapid access and retrieval over high-performance networks. Researchers can also access more than 100 discipline-specific databases. With this combination of resources, the TeraGrid is the world's largest, most comprehensive distributed cyberinfrastructure for open scientific research.

Highlights of the TeraGrid:

- The TeraGrid is the organization which provides the high level services needed to manage the computational resources which have been funded by the NSF via other mechanisms. While the resources are varied, they include very large clusters with specialized interconnects (Kraken, Athena and Ranger), large shared memory systems (Ember and Blacklight), loosely coupled systems suited for applications not requiring fast interconnects (Steele) and machines dedicated to data intensive applications (Trestles and eventually Gordan) and remote visualization (Longhorn and Nautilus).
- The TG is an open resource. There are no charges for using it and you do NOT have to be an NSF funded researcher to get access. 50% of the TG cycles are used by non-NSF funded researchers, although the allocations policy tries to ensure that NSF researchers receive some preferential treatment once the intellectual merit of the requests are examined. Since TG requests typically run a factor of two higher than what is available, this sometimes becomes a necessity.
- The allocations committee, which is populated by scientists external to NSF, meets quarterly to consider requests. Medium and large requests require proposals from 10-15 pages and get a serious review by the allocations committee. However, startup accounts, which range from 30,000 to 200,000 service units, are considered at any time and require no proposal. All requests must be made via the POPS system. Details can be found on the web page.
- TG supports a Scientific Gateways program where communities who use a common set of codes can set up a portal which facilitates job submission and workflows. Users enter the gateway as part of the group and allocations go to the Scientific Gateway not to the individual

In the near future, the TG program will be replaced by the eXtremeDigital (XD) program. The XD program will fully support everything that is currently in TG in order to have a minimal impact on users. However, XD will be far more than TG as time goes on.

For those interested in the details see, eXtreme Digital (XD) at <https://www.teragrid.org/web/about/XDTransition>

Please contact the following Program Directors for additional information regarding access to TeraGrid: Barry Schneider, Cyberinfrastructure Program Director, bschneid@nsf.gov or Evelyn Goldfield, Chemistry Program Director, egoldfie@nsf.gov

Upcoming Proposal Deadlines

All deadlines are 5 p.m., submitter's local time, unless otherwise noted

American Competitiveness in Chemistry Fellowship (ACC-F)

Full Proposal: April 4, 2011

[NSF 10-535](#)

Chemistry and Materials Research in Cultural Heritage Science

Full Proposal: May 11, 2011

[NSF 11-528](#)

Research Coordination Networks (RCN) – SEES TRACK

Full Proposal: May 24, 2011

[NSF 11-531](#)

Faculty Early Career Development (CAREER)

Full Proposal: July 27, 2011 (for MPS, GEO, SBE, OPP)

*Deadlines vary for other Directorates

[NSF 11-690](#)

Research Experiences for Undergraduates (REU)

Full Proposal: August 24, 2011

[NSF 09-598](#)

CHE Proposal Submission Windows

July 1 – August 1, 2011

November 1- 30, 2011

*Applies to unsolicited individual and collaborative proposals, Grant Opportunities for Academic Liaison with Industry-GOALI ([NSF 10-580](#)), and Research in Undergraduate Institutions-RUI ([NSF 00-144](#))

Supplements (including GOALI supplements), EAGERS, and RAPIDS are considered anytime. Please contact a Program Director in the appropriate program. For a full list of programs and more information on GOALI and RUI submissions, please visit: <http://www.nsf.gov/chemistry>

****PLEASE NOTE****

The Chemistry Research Instrumentation and Facilities: Departmental Multiuser Instrumentation (CRIF: MU) program will be suspended for the present fiscal year (2011). The investigator community is encouraged to use the Major Research Instrumentation (MRI) program for infrastructure needs at this time.

[CRIF proposals submitted in June 2011 will be returned.](#)

For more information please reference the "Letter from the Division Director" newsletter article on pages 1-4.