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American Recovery and Reinvestment Act and NSF Division of Chemistry

The NSF received \$3B from the American Recovery and Reinvestment Act (ARRA), representing nearly a 50% increase over its Fiscal Year 2009 (FY 09) budget. The Division of Chemistry received an extra \$103M above and beyond its \$211M FY 09 budget. *Continued on page 3.*

Welcome to Washington: NSF at the ACS Washington Meeting

It has been four years since a National Meeting of the American Chemical Society (ACS) was held in Washington, D.C. and much has changed since then. The Chemistry Division (CHE) would like to help the ACS welcome our colleagues to Washington, D.C. and help the community utilize this opportunity to update its knowledge of and contacts with NSF and other Federal funding agencies. We plan a 4-pronged approach to this function:



- 1) On Monday, August 17, we will be providing a half-day symposium on "Interacting with the U.S. National Science Foundation," beginning at 8:00 a.m. in room 146A of the Walter E. Washington Convention Center. The session will touch on the newly realigned Chemistry Division programs and much more; details are provided elsewhere in this Newsletter.
- 2) Following the symposium, several Program Directors will be available to address specific questions one-on-one. If you are coming to D.C. and cannot make the symposium or town hall meeting, but would like to talk with a Program Director, you can use e-mail or telephone to arrange separate meetings; we will be available throughout the conference week.
- 3) We will expand the now-traditional Monday afternoon (4:30 p.m. in room 146AB of the D.C. Convention center) "Town Hall" meeting to include representatives of other Federal granting agencies. See the separate article on page 4 for specific details.
- 4) The NSF Office of Legislative and Public Affairs (OLPA) recognizes that visits to Washington, D.C. provide citizens with opportunities to meet and talk with members of their Congressional delegation. Although Congress is rarely in session in August, legislative offices are open, and staffers may be available. If you would like to meet with someone from your delegation, you can find contact information at the House and Senate websites (www.house.gov and www.senate.gov). An OLPA representative will be available at the town hall meeting to answer questions.

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We hope many of you will be able to take advantage of being in our "back yard" to get a clearer view of how we do business and how you can do business with us. Welcome to Washington!

CHE's New Programs

By Tanja Pietrass

The NSF Division of Chemistry (CHE) is excited to announce a realignment of our programmatic structure to better reflect the way in which modern chemical research is done, and to reduce the likelihood of proposals "falling in the cracks" between traditional subdisciplines (organic, physical, inorganic, analytical).

This realignment is the culmination of a careful and extensive study, prompted and guided by community input. The new structure reflects how chemistry research (not teaching) is currently done, and provides homes for proposals at the interface between chemistry and materials science, biology, engineering and earth sciences.

The realignment has established eight new programs, which will accept proposals starting in July 2009.

Four of these address broad-based fundamental chemistry:	Four others are new, interdisciplinary programs:
Chemical Synthesis	Environmental Chemical Sciences
Chemical Structure, Dynamics and Mechanisms	Chemistry of Life Processes
Chemical Measurement and Imaging	Chemical Catalysis
Theory, Models and Computational Methods	Macromolecular, Supramolecular, and Nanochemistry

Descriptions and contact information for the new programs are provided on the Division of Chemistry website and in a brochure available at <http://www.nsf.gov/mps/che/realign/brochure.pdf>. Each program will be staffed by multiple Program Directors with diverse expertise.

The Integrative Chemistry Activities (ICA) program remains unchanged. The ICA Program comprises Centers for Chemical Innovation (CCI), Chemical Research Infrastructure and Facilities (CRIF), Research Experience for Undergraduates (REU), American Competitiveness in Chemistry Fellowships (ACC-F), and Discovery Corps Fellowships (DCF). Additional information concerning ICA is available at <http://www.nsf.gov/div/index.jsp?div=CHE>.

Funding for the new programs will continue to be allocated according to proposal pressure, portfolio issues, and the quality of proposals. An assessment plan of the realignment is being prepared and will include Principal Investigator surveys. Feedback will be sought from the Committee of Visitors in February 2010, from those that serve on CHE panels in the coming year, and from the community through our email at chemplans@nsf.gov.

A decision tree guiding you through the process of "Finding a Home for an Unsolicited Proposal" has been posted on our web site at <http://www.nsf.gov/mps/che/realign/decisiontree.pdf>. The last "limb" of that tree encourages you to call a Program Director if you need help; we welcome such calls. There is also a list of Frequently Asked Questions at <http://www.nsf.gov/mps/che/realign/faqs.pdf> that we encourage you to visit first.

At the National Meeting of the ACS in Washington, D.C. in August of 2009, there will be a presentation (Monday, Aug. 17, 10:15 am) to walk you through the process of using the decision tree with details on the programs (see the related article titled "NSF at ACS National Meeting in Washington, D.C. on August 17, 2009"). Division Director Luis Echegoyen will provide an update on the realignment at the town hall meeting (4:30 p.m. with talk at 5:00 p.m.).

Please spread the word about this important change in the Division of Chemistry. The changes are effective immediately. All proposals submitted to CHE during the July and November 2009 windows must target one of the new programs. Existing awards will remain assigned to their current Program Directors and will remain in the former programs until they expire. We look forward to hearing your feedback at chemplans@nsf.gov.

American Recovery and Reinvestment Act and NSF Division of Chemistry

Continued from page 1

Consistent with NSF policy, the Division is using these one-time ARRA funds to fund excellent proposals that are already in house and reviewed. We therefore anticipate a noticeable increase from the ~25% success rate typical in recent years. Program recommendations were being finalized when this newsletter went to press, with emphasis on conventional (single investigator and small group) proposals, CAREER applicants, instrumentation requests, facilities requests, and fellowships; these priorities match Foundation guidelines to target new investigators and/or high-risk/high-impact research for ARRA funding. **Proposals submitted in the upcoming July window will compete for FY 10 funds and will not be eligible for ARRA funding.** However, ARRA will enable us to fund many of the excellent proposals that have been found worthy but for which we did not have adequate funds. This is good news for our community – we are striving to invest the funds in awards of various durations so as to extend the positive impact for several years to come. Everyone in the Division has been working extremely hard to accomplish this on a very stringent timeline; we expect to have all FY 09 *and* ARRA actions finalized by the time the July proposals arrive. For more information, see www.nsf.gov/recovery.

The NSF is also benefitting from the AMERICA COMPETES ACT, which authorized doubling the budgets of NSF, NIST and DOE BES over the period 2006-2016. In the FY 09 Omnibus Appropriation, NSF received \$6.5B – allowing a 7.4% increase in research funds over FY 08 (CHE received an 8.6% increase). In the President's Request to Congress (submitted on May 7, 2009), NSF is listed for \$7.0B in FY 10 – a 10.6% increase in research dollars over FY 09. CHE is slated for a 12.9% increase if this request is fully funded.

NEW NSF PROPOSAL Requirement! Mentoring for Postdoctoral Researchers

Beginning January 5, 2009, proposals that include funding to support postdoctoral researchers must include a description of the mentoring activities that will be provided for such individuals.

The plan should be included as a supplemental document, no more than one page.

Mentoring activities may include:

- Career counseling;
- Training in preparation of grant proposals;
- Publications and presentations;
- Guidance on ways to improve teaching and mentoring skills;
- Guidance on how to effectively collaborate with researchers from diverse backgrounds and disciplinary areas; and
- Training in responsible professional practices.

- ◆ Proposed mentoring activities will be evaluated as part of the merit review process under the Foundation's broader impacts merit review criterion.
- ◆ Proposals that do not include a supplemental document (no more than one page) will be returned without review.

This was done to address the mentoring requirement of the America COMPETES Act. For additional information about the implementation of this new requirement, please see the NSF Proposal & Award Policies & Procedures Guide (PAPPG) Part I: Grant Proposal Guide (GPG) Chapter II.



<http://www.aoc.gov/cc/capitol>

NSF at ACS National Meeting in Washington, D.C. on August 17, 2009

By Tanja Pietrass

The NSF Division of Chemistry (CHE) is organizing two events at this fall's ACS National Meeting in Washington, D.C. Both events will take place on Monday, August 17 at the Walter E. Washington Convention Center.

We are proud to introduce the first ever NSF CHE Symposium, titled "Interacting with the U.S. National Science Foundation". This event will take place at the Washington Convention Center in the morning from 8 a.m. to 12:30 p.m. There will be two sessions, one dedicated to the career stages of a chemist in academia (from the undergraduate level to the level of senior investigator) and one on the life cycle of a proposal from its inception to post-award duties and responsibilities of the investigator. The "career" session will be from 8 a.m. to 10 a.m., the "proposal" session from 10:15 a.m. to 12:15 p.m. The symposium will be rounded off with concluding remarks by our Division Director, Dr. Luis Echegoyen. During the intermission (10 a.m. - 10:15 a.m.), you are invited to meet with CHE Program Directors.

The "Career Stages of a Chemist" session is composed of four sections - the first three are presentations followed by questions and answers, the last one is an interactive panel discussion with the audience. While all events are open to chemists at all career stages, our target audiences will change with each section from undergraduate students to graduate and postdoctoral students to junior faculty and mid/late career faculty. Each presentation will focus on funding opportunities for the respective target audience. Please encourage your undergraduate, graduate, and postdoctoral students to attend! Program Directors for the individual programs will be present to take questions.

The "Life Cycle of a Proposal" session has three sections: (i) where to submit a proposal in CHE's newly aligned structure; (ii) the proposal review process, confidentiality, bias and diversity issues; and (iii) post-award business such as highlights, supplements, intellectual property, and reporting procedures. The first topic will be delivered in presentation format, the latter two in interactive panel format. This session is targeted at anyone eligible to submit research proposals to NSF, ranging from the beginning investigator to the seasoned veteran.

Dr. Echegoyen will deliver concluding remarks. Program Directors will be available for individual questions. We would like to extend our thanks to Dr. Donovan-Merkert for her help in organizing this symposium, and to all the ACS Divisions who agreed to sponsor this event.

In the afternoon, CHE will hold the traditional town hall meeting. As you may have heard by now (if not, see the related article "CHE's New Programs"), CHE's traditional programs associated with organic, inorganic, physical and analytical chemistry have been replaced. We have created new programs that better reflect how chemistry research is actually being done. These new programs will become effective for CHE's next submission window of July 2009. They will also be offered for CAREER proposals (submission deadline July 23 for Chemistry). Dr. Echegoyen will update the community on the new structure and also provide the annual budget review.

As a special feature, we have planned a joint presentation on funding opportunities from Federal agencies providing support to the chemistry community. With this year's meeting being held in our home town, we hope to attract many representatives from our partner agencies to provide you with a unique "one-stop shopping" experience about Federal funding opportunities.

We hope to see you at the meeting!

Committee of Visitors – February, 2010

By Luis Echegoyen

Every NSF division undergoes a performance assessment every three years by an external Committee of Visitors (COV). The Chemistry Division was assessed in February 2007 by a committee chaired by Geraldine Richmond and composed of approximately 35 members. Therefore CHE will host its next COV in early 2010, so we will start getting ready for this event in the very near future. This is a very important committee given that the findings are seriously reviewed by the Office of Management and Budget (OMB) and the Office of Science & Technology Policy (OSTP) and used in policy and budget decisions that affect the Division and thus the entire chemistry community. The COV reports to the Mathematical and Physical Sciences Directorate Advisory Committee (MPS-AC). During the approximately three day visit, COV members are provided with a randomly selected set of proposals and reviews that fall into one of three groups: highly rated, borderline, or poorly rated, with a larger number in the middle group, where the hard decisions have been made. They are able to see the detailed documentation and reasoning behind declination and award decisions, including numerically highly-rated declinations and not so highly-rated award recommendations. Committee members are also given access to all proposal actions (awards and declinations) made by the Division in the previous three years, starting in FY 2007, beyond those selected for their original packages, but limited by conflict-of-interest rules. A questionnaire is provided to help the COV evaluate items such as portfolio balance, quality of decisions and process matters. It is meant to be a totally open process to provide transparency to this small group that represents the community that we serve.



The composition of the COV is determined by a series of constraints and requirements, from containing a certain percentage of people not funded by the NSF to having geographical, ethnic and gender diversity. These requirements make the selections strategic and enforce a balance in the overall composition. If you are contacted to serve in the next CHE COV, we ask that you please make the effort to serve, given the importance of the committee and the fact that your selection responds to a stringent set of criteria which makes you somewhat uniquely suited for the task.

Broadening Participation for Chemists with Disabilities

By Carol Bessel

The average person lives in denial that at any time they could have a car accident and become paralyzed or brain injured; they could have a stroke, develop an anxiety disorder or become depressed, lose hearing or sight. "Constructive Functional Diversity: A new paradigm beyond disability and impairment" Philip Patston, Disability and Rehabilitation, October-November 2007

The recent NSF-NIH Workshop on Excellence Empowered by a Diverse Academic Workforce: Chemists, Chemical Engineers & Materials Scientists with Disabilities, organized by Kristin Bowman-James and David Benson of the University of Kansas and Thomas Mallouk of the Pennsylvania State University considered the participation of people with both visible (e.g., mobility, sight or hearing impairments) and invisible (learning, emotional, and hidden physical disorders) disabilities in the chemical community.

While many of the attendees (~60 chairs from leading chemistry, materials research, and chemical engineering departments) initially felt the topic had little relevance to their own departments or universities, it quickly became apparent that physical and/or mental impairment can affect anyone at any age, whether caused by disease, accident, or age-related health problems. The participation of people with disabilities has not received as much attention as the inclusion of women and underrepresented ethnic groups, but it is an issue that directly affects many Americans, including many distinguished scientists. Notably, age-related causes are of particular concern for

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NSF Leadership Positions at Many Levels – Opportunities Available Now

By Janice Hicks

Dr. Arden Bement, Director of the National Science Foundation, is initiating a national search for the **Assistant Director for the Directorate of Mathematical and Physical Sciences (MPS)** and seeks your assistance in the identification of candidates. Dr. Tony Chan has served in this position with great distinction since October 2006. The Assistant Director, MPS, leads a Directorate comprised of five divisions: Astronomical Sciences, Chemistry, Materials Research, Mathematical Sciences, and Physics; as well as the Office of Multidisciplinary Activities. It is a position that affects the Division of Chemistry very significantly. For an information sheet that summarizes the Directorate's activities and the responsibilities of the position, together with the criteria that will be used in the search – see http://www.nsf.gov/od/searches/mps-090504/nsf_admps_search_letter.jsp. Dr. Bement is pleased to announce that Dr. Michael Witherell, Vice Chancellor for Research at the University of California at Santa Barbara, has agreed to head the search committee. The members of the search committee for the new AD in MPS will be Keith Baker (Yale University, Physics), Carl Lineberger (University of Colorado at Boulder, Chemistry), Monica Olvera de la Cruz (Northwestern University, Materials Engineering), Sidney Wolff (LSST Corporation, Astronomy), and Margaret Wright (New York University, Mathematics). We seek your help in identifying candidates with the following qualifications: outstanding leadership; a deep sense of scholarship; a grasp of the issues facing the mathematical and physical science communities in the areas of education and research; and the ability to serve effectively as a key member of the NSF management team. Please send your recommendations, including any supporting information that you can provide, to the AD/MPS Search Committee via e-mail (mpssrch@lists.nsf.gov) or at the following address: National Science Foundation, Office of the Director, Suite 1205, 4201 Wilson Boulevard, Arlington, VA 22230. Your assistance in this very important task is appreciated.

The Division of Chemistry is also planning for a transition of leadership as Dr. Luis Echegoyen ends his term as **Division Director** in August 2010. NSF seeks an individual with demonstrated outstanding leadership and managerial ability of large complex projects and organizations, a deep understanding of scholarship in chemistry, a demonstrated ability to develop and implement an organizational vision, including leveraging diversity and other differences and fostering partnerships and coordination with other scientific organizations. The individual should have a Ph.D. in the chemical sciences or equivalent, substantial research contributions in the chemical sciences and innovative leadership in research administration. We are pleased to announce that the chemists who serve on the MPS Advisory Committee have agreed to serve as a search committee. They include: Professor Hector Abruna (hda1@cornell.edu), Professor Sharon Neal (sneal@udel.edu), Professor Bill Jorgensen (william.jorgensen@yale.edu) and Professor Barbara Finlayson-Pitts (bjfinlay@uci.edu). Please send your recommendations, including any supporting information that you can provide, to any member of the CHE DD Search Committee via e-mail. The announcement for this position will be posted in August 2009.

The management of CHE's programs involves a team approach by **Program Directors** within the Division to reflect disciplinary topics as well as interdisciplinary approaches to new areas. Because roughly half of our program directors are rotators, we are often recruiting in many areas of chemistry, so please feel free to contact the Division Director if you are interested in any position. In particular this summer, CHE announces a nationwide search for a senior-level researcher to serve as program director in the new Environmental Chemical Sciences Program. Consideration of interested applicants will begin June 30, 2009 and the position will remain open until filled. For further information, please see <http://www.nsf.gov/pubs/2009/che0902a/che0902a.jsp?org=nsf>.

The Program Director opportunity within the Environmental Chemical Sciences Program requires an individual with broad expertise and demonstrated experience in the molecular understanding of natural and anthropogenic chemical processes in our environment, including relevant aspects of energy research. Applicants must have a Ph.D. or equivalent experience in chemistry or a closely-related field, demonstrated expertise in Environmental Chemical Sciences, plus six or more years of successful research, research administration and/or managerial experience pertinent to the position. Should you or your colleagues be interested in this position, or wish to nominate suitable candidates, please contact the Division Director, Dr. Luis Echegoyen, (lechegoy@nsf.gov), and forward curriculum vitae to him. *Continued on page 7*

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For all of the positions listed above, employment may be on a temporary or permanent basis in the Federal Service or by temporary assignment under provisions of the Intergovernmental Personnel Act. We are especially interested in identifying women, members of minority groups, and persons with disabilities for consideration. Recommendations of individuals from any sector - academic, industry, or government - are welcome. All options include generous support to allow the holders to maintain active research programs at their home institutions. For additional information on NSF's rotational programs, please see "Programs for Science, Engineering and Science Education Positions" on the NSF website at: http://www.nsf.gov/about/career_opps/. If you are a person with a disability who may need accommodations in the application process, please contact Lindsey Boswell at leboswel@nsf.gov.

Personnel Changes within the Division of Chemistry

The Division welcomes both Timothy Patten and Daniel Rabinovich as rotating Program Directors in the former Inorganic, Bioinorganic, and Organometallic (IBO) program. Professor Patten joins the Division from the University of California-Davis; he will work with the new Macromolecular, Supramolecular, and Nanochemistry program and the Chemical Synthesis (SYN) program. Professor Rabinovich joins the Division from the University of North Carolina at Charlotte. He will work with the SYN and Chemistry of Life Processes (CLP) programs. The Division welcomes in advance the following rotators who will be joining CHE in the near future: Suk-Wah Tam-Chang and Estella Blaisten-Barojas. Professor Tam-Chang will be working with the SYN and CLP programs; she will join the Division from the University of Nevada-Reno. Professor Blaisten-Barojas will join the Division from George Mason University; she will work with the new Chemical Structure, Dynamics, and Mechanisms (CSDM) program and the CLP program.

The Division welcomes Maxine Jefferson Brown as the new Program Support Manager (PSM). As a PSM, Mrs. Brown's role is to supervise the administrative staff and to perform activities that contribute to the Division's success such as forecasting workload, participating in long-term planning, and improving administrative processes and policies. The Division also welcomes Estha Jane Montgomery, who recently joined the Division as a Program Assistant. The Division offers congratulations to Melyni McGriff-Williams, former Division secretary, on her promotion as the Secretary to the Assistant Director of the NSF Directorate for Social, Behavioral and Economic Sciences (SBE). A search is underway for a new Chemistry secretary.

The Division of Chemistry is pleased to announce that two former rotators are now permanent Program Directors: Kelsey Cook and Colby Foss. Dr. Cook, formerly of the Analytical and Surface Chemistry program, will serve as the lead program contact for the Chemical Measurement and Imaging program. Dr. Foss, formerly of the Experimental Physical Chemistry (EPC) program, will serve as the lead contact for the CSDM program.

Tanja Pietrass, rotator in the former EPC program, has accepted a position at the National Renewable Energy Laboratory (NREL) and will leave NSF September 2009. Gerald 'GB' Hammond, rotator in the former Organic and Macromolecular Chemistry program will be returning to the University of Louisville in September. Luigi 'Lui' Marzilli, rotator in the former IBO program will return to Louisiana State University. We bid Tanja, GB and Lui a fond farewell and thank them for their distinguished service to the chemistry community and to the NSF.

A complete listing of current staff is available at http://www.nsf.gov/staff/staff_list.jsp?org=CHE&from_org=CHE.

Budget Mysteries Revealed (and why you should care)

By Kelsey Cook

Where does the money come from? How is it allocated?

Establishing a budget for the NSF Chemistry Division programs is a complex and convoluted process.¹ It begins each January, roughly 21 months before the start of the relevant fiscal year (FY). Phase 1 entails Divisional development and assessment of ideas for consideration within the Mathematics and Physical Sciences Directorate (MPS). Inputs include various community priorities, as outlined in workshop reports, program reviews, and other sources. This process continues through the spring (See Budget Timeline on page 9).

The head of MPS (an NSF Assistant Director) creates a Directorate draft request which then is folded into priorities across the Foundation, with input as appropriate from the National Science Board (NSB). A complete NSF budget request for a given fiscal year, enumerating priorities and illustrated with Highlights provided by our Principal Investigators (we really do use these to help make the case for funding!) is sent to the Office of Management and Budget (OMB, a part of the Executive Branch) in the first week of September, about 13 months before the start of the relevant FY. Typically in late November, OMB provides feedback (called a "passback") to the NSF request, enumerating questions, priorities, and required changes to better fit the Administration's priorities. The Foundation then has a few days to discuss the passback with OMB and come to agreement. The final request is prepared during December and January, again with NSB input, as appropriate.

After final OMB approval, the "NSF Budget Request to Congress" is submitted to Congress during the first week in February, at which point it becomes public as part of the overall Presidential budget request. Congress may then pass a non-binding Concurrent Resolution which outlines total levels of spending and revenues, and broad spending priorities. Various sections of the request are next discussed in hearings by appropriate Congressional subcommittees and/or committees, "marking up" (modifying) the requests and ultimately creating twelve detailed appropriation bills for passage by the House and Senate, ideally in time for expenditures to commence with the start of the fiscal year on October 1. During this process, the Foundation may receive and respond to numerous "questions for the record" – questions from the Hill requiring written answers.

In many years, the appropriations bills do not pass by October 1; in such cases, bills called Continuing Resolutions are needed to extend spending authority in the absence of specific appropriations. Full-year Continuing Resolutions occasionally happen, freezing spending at prior year levels or assigning a fixed increment or cut across all agencies.

The process isn't quite finished even once an appropriation is passed. Since appropriations rarely match requests, NSF must prepare an OMB-approved "current plan letter" to Senate and House Appropriation Committees, outlining how appropriated funds will be allocated across the agency. Since a year or more may have passed since the request was initially assembled, priorities have sometimes shifted by this stage. The final allocations require OMB and Congressional approval; it therefore can take a while even after passage of an appropriations bill for individual Programs to know what funds they have available to invest. Within the Chemistry Division, ultimate allocations reflect a combination of proposal pressure, technical priorities, and portfolio balance.

Note that at any given time, there is work under way involving at least three different fiscal years – we began developing the FY 2011 plan while we were spending FY 2009 funds and shepherding the FY 2010 budget through the appropriations process.

As most people know, FY 2009 and FY 2010 have been highly atypical years, in part because of the Presidential transition, and in part because of the "stimulus" package (the American Recovery and Reinvestment Act – Public Law 111-5 – a parallel process superimposed on the "usual" process).

¹More detail about this process can be found at various web sites, such as the Congressional Budget office (<http://www.cbo.gov/aboutcbo/budgetprocess.shtml>) or BudgetAnalyst.com (<http://www.budgetanalyst.com/Process.htm>). The OMB web site (<http://www.whitehouse.gov/omb/>) provides links to individual budgets.

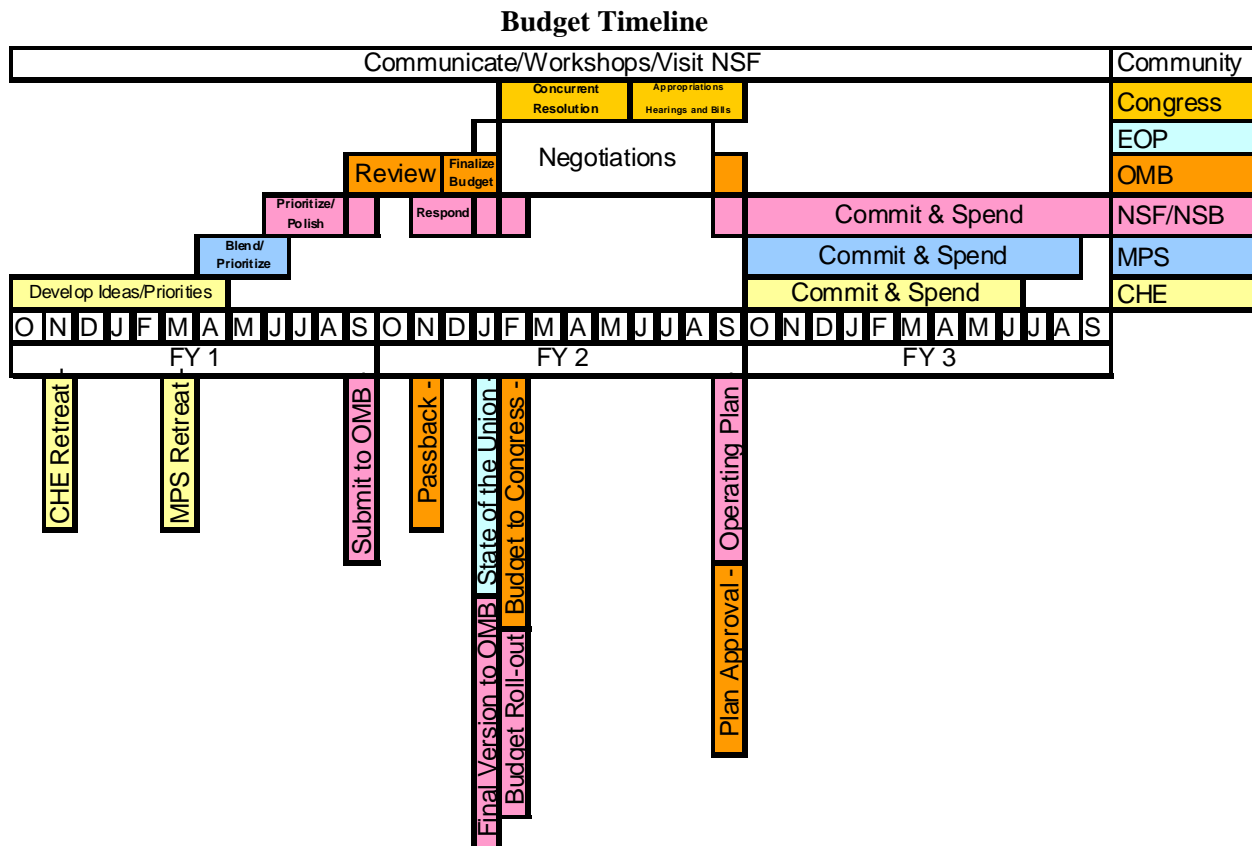
Statistics describing the end results delivered to our Division are generally reported at our town hall meetings; recent specifics are summarized below in Table 1 for your information.

Why should you care? There are several points in this process where individuals can have an influence. At the earliest stages, you can help develop Divisional priorities simply by communicating with us or by participating in and organizing workshops. Your highlights help us make the case for why our priorities should be the Directorate's, the Foundation's, and the Government's priorities as the process moves forward. As a citizen, you may also make your opinions known to your legislators, who ultimately determine what gets appropriated.

Table 1. Recent NSF and Division of Chemistry Budget Data

FY	NSF Request	NSF Appropriation	CHE Request	CHE Appropriation
2008	\$6.43B	\$6.08B	\$210.54M	\$194.62M
2009	\$6.85B	\$6.49B	\$244.67M	\$211.35M
ARRA*	N/A	\$3.00B	N/A	\$103.00M
2010	\$7.045B	(by 10/09?)	\$238.60M	???
2011	(Due to OMB ~ 9/09; to Congress by 2/10)	(by 10/10?)	(Due ~ 7/09)	???

- Of the \$3B NSF ARRA funding, the Act designates \$25M for the Math and Science Partnership program, \$60M for the Robert Noyce Teacher Scholarship Program, \$400M for Major Research Equipment and Facilities Construction, \$200M for the Academic Research Infrastructure (ARI) program, \$15M for the Science Masters program, and \$300M for the Major Research Instrumentation Program (MRI). The remaining \$2B is to be allocated mainly to proposals already in house at the time of enactment. More information is available at <http://recovery.gov> and <http://nsf.gov/recovery/>. The full text of the American Recovery and Reinvestment Act of 2009 is available electronically at: http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=111_cong_bills&docid=f:h1enr.pdf



Instrument Development in the Chemical Sciences - Effects of ARRA and the CHE Realignment

By Kelsey Cook

Instrumentation has long been recognized as a critical tool for chemists – the Chemical Research Instrumentation and Facilities (CRIF) Program is one of the most enduring solicitations in our Division. The American Recovery and Reinvestment Act (ARRA) apportioned an extra \$300 M for the Major Research Instrumentation (MRI) Program, impacting success rates in the regular FY 09 competition, and spurring a special solicitation (NSF 09-561; see discussion in a separate article in this Newsletter). This ARRA funding had and will have both direct and indirect effects on CRIF, which traditionally has provided opportunities beyond those afforded by MRI (partly in recognition of the fact that institutional limitations on MRI proposals have left some chemists' needs unfilled). The Division allocated some ARRA funds to enhance the FY 09 success rate of CRIF proposals. With only minor modification to accommodate the Division's realignment, CHE will proceed with a regular CRIF competition in FY 10.

Historically, it has been difficult to distinguish between unsolicited instrument (ID) proposals and proposals submitted under the CRIF:ID solicitation (NSF 04-534; http://nsf.gov/funding/pgm_summ.jsp?pims_id=6167). A *de facto* but informal distinction has been based on the scope of the equipment request, which is usually larger in CRIF:ID proposals. Distinction between CRIF: ID and MRI ID Programs has been similarly vague; MRI budgets tend to be even larger than CRIF budgets.

The Division realignment has afforded an opportunity to rationalize and clarify the relationship among these programs. CRIF:ID will be managed within the new Chemical Measurements and Imaging Program along with unsolicited ID proposals. This should facilitate coordination of review of these proposals, which have more in common with one another than they do with multi-user (CRIF:MU) proposals. MU and MRI proposals will remain in the Integrative Chemistry Activities Program.

Revision of the CRIF:ID solicitation is anticipated, with an aim of clarifying which proposals are more appropriate for this program, which belong in MRI, and which should be submitted outside either solicitation. Until a new solicitation is released, NSF 04-534 remains in effect.

Graduate Research Fellowship Program (GRFP)

The funding level for the NSF Graduate Research Fellowship Program is slated by the new administration to be tripled over the next three years. Students in their senior year of college or during their first year of graduate school may apply for this fellowship. The fellowship is for US citizens, nationals or permanent residents and provides three years of support. For more information, see http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=6201&org=DGE&from=home.

We encourage chemists to use this program, as the dollars allotted by discipline are based on the number of applicants in each field. The fraction of awardees who are chemists has declined over the decade due to the diminishing number of applications. Please forward this information to students who may qualify.

American Competitiveness in Chemistry Fellowship (ACC-F) Program

The Chemistry Division has a two-year-old post-doctoral fellowship program that allows postdoctoral fellows to combine academic research with research in an industrial/national laboratory setting. In addition, fellows must engage in activities that promote the participation of under-represented groups in the sciences.

(<http://www.nsf.gov/pubs/2008/nsf08541/nsf08541.pdf>) In 2008, four awards were made out of 23 eligible applications. In 2009, the Division anticipates making around 10 awards out of 36 eligible applications. The primary reason for the increase in the number of awards is due to the infusion of funds into the program from the American Recovery and Reinvestment Act. Three of 2008's fellows Takiya Ahmed (University of Washington), Andrea Munro (University of Arizona), and Diane Hinkens (University of South Dakota) are pursuing research with an energy or sustainability focus, while one, Jonathan Raff (UC Irvine) is conducting research in atmospheric chemistry. The ACC-F Program will continue next year, with a full proposal deadline of April 1, 2010.

Broadening Participation for Chemists with Disabilities

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STEM faculty because data show that doctoral science and engineering faculty are older than the general working population. This fact increases the likelihood that STEM departments will have disabled faculty. In regard to mental health issues, Workshop speaker Victor W. Day, Director of the X-Ray Crystallography Laboratory at the University of Kansas noted that it can take 10 to 15 years after symptoms appear before the problem is diagnosed, and the median age for the onset of major depressive disorders is 32. This is a particularly important statistic for academics because it coincides with stressful pre-tenure periods. Day also noted that creating an environment where those diagnosed with disabilities can openly talk about their disorder is important.

Kathie L. Olsen, Senior Adviser for the Office of Information & Resource Management at NSF, gave the opening address with the statement, "People with disabilities not only have the same general spectrum of talents as any other group, they also add unique perspectives and often bring incredible energy and determination to the workforce." For example, disabled people find ways to do things differently to overcome challenges on a daily basis. They are extremely creative people with great problem-solving skills.

The Disability Workshop has been summarized in the March 16, 2009 issue of Chemical and Engineering News (pages 44-47). The final report will soon be posted on the University of Kansas website. Please note the NSF's Facilitation Awards for Scientists and Engineers with Disabilities (FASED) provide funding for special assistance or equipment to enable people with disabilities (investigators and other staff, including student research assistants) to work on an NSF project. For more information, see the FASED announcement, NSF 02-115: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf02115 or contact your Program Director.

Highlight Spotlight

By C. Renee Wilkerson

The Division of Chemistry's mission is to support innovative research in chemical sciences, integrated with education, through strategic investment in developing a globally engaged U.S. chemistry workforce reflecting the diversity of America. Related to our mission is the goal of communicating the value and articulating the impact and importance of chemistry as not only the central science, but as an essential science for addressing important questions and challenges facing the 21st century. Towards this goal, the Division of Chemistry requests "highlights", from Chemistry Principal Investigators to inform us about recent research and education outcomes and accomplishments stemming from NSF supported work. Highlights are requested Division-wide once per year and are also requested by Program Directors, for example, as part of annual and final project reports or to highlight recent research findings. Research highlights offer *at-a-glance*- snapshots of the Foundation's investments in research and education activities, are shared through various media, and serve multiple purposes for informing Foundation stakeholders about our progress in advancing discovery, innovation, and education beyond the frontiers of current knowledge.

Examples of how research highlights are utilized include the following:

- To communicate and inform the general public, Federal, state, and local governments, and other organizations about research and education results achieved by NSF-funded researchers, especially those results that generate significant discoveries, advances in a scientific area, and lead to new technology.
- To provide support for Federal funding of basic science research.
- To provide evidence of NSF performance in relation to long-term strategic goals.

Highlights are accepted from current and past investigators of NSF Chemistry supported projects via e-mail to Chemistry staff or through the chemistry highlights email address at anytime: chemhighlights@nsf.gov.

Additional information on highlights may be found in a December 2008 Dear Colleague Letter from the Division Director at <http://www.nsf.gov/pubs/2008/nsf08073/nsf08073.jsp>.

Several highlights from Division of Chemistry supported projects were included in the NSF FY 2010 Budget Request to Congress (<http://www.nsf.gov/about/budget/fy2010/index.jsp>).

Upcoming Proposal Deadlines

Academic Research Infrastructure Program: Recovery and Reinvestment (ARI-R²) (NSF 09-562)

Letter of Intent: July 1, 2009
Full Proposal: August 24, 2009

Faculty Early Career Development (CAREER) Program (NSF 08-557)

July 23, 2009 (MPS Deadline)

Unsolicited Disciplinary Research Proposals

Grant Proposal Guide, GPG (NSF 09-29)

July 1 - July 31, 2009
(CHE Window)

NOTE: The Chemistry Division has a new program structure. Please review the new program descriptions on the Chemistry website and contact a member of the Division staff for questions or additional information.

Grant Opportunities for Academic Liaison with Industry (GOALI) (NSF 09-516)

July 1 - July 31, 2009
(CHE Window)

Research in Undergraduate Institutions (RUI) (NSF 00-144)

July 1 - July 31, 2009
(CHE Window)

Major Research Instrumentation (MRI) (NSF 09-502)

August 10, 2009

NOTE: Please see the MRI solicitation for cost-sharing instructions, as they have changed for this special American Recovery and Reinvestment Act (ARRA) competition..

Graduate Research Fellowship Program (GRFP) (formerly NSF 08-593)

fall 2009, exact date tba

International Collaboration in Chemistry Program (ICC) (formerly NSF 08-602)

fall 2009, exact date tba

Research Experiences for Undergraduates (REU) (formerly NSF 07-569)

summer/fall 2009 for full proposals and REU site proposals

Unsolicited Disciplinary Research Proposals

Grant Proposal Guide, GPG (NSF 09-29)

November 1 - November 30, 2009
(CHE Window)

Research in Undergraduate Institutions (RUI) (NSF 00-144)

November 1 - November 30, 2009
(CHE Window)

Grant Opportunities for Academic Liaison with Industry (GOALI) (NSF 09-516)

November 1 - November 30, 2009
(CHE Window)

Centers for Chemical Innovation (CCI) (formerly NSF 09-503)

winter 2010, exact dates tba