

Division of Chemistry (CHE)

Mission

The mission of the Division of Chemistry is to promote the health of academic chemistry and to enable basic research and education in the chemical sciences. The Division also supports projects that help build infrastructure and workforce and partnerships that advance the chemical sciences.

Funding Modalities

Research projects (individual investigators and small teams) remain the dominant funding modality in CHE, reflecting 70% of the division budget in FY 2009. The research projects portfolio has recently been realigned into eight focused programs in Chemical Catalysis; Chemical Measurement and Imaging; Chemical Structure, Dynamics and Mechanism; Chemical Synthesis; Chemistry of Life Processes; Environmental Chemical Sciences; Macromolecular, Supramolecular and Nanochemistry; and Theory, Models and Computational Methods.

CHE also invests in research centers (7%), shared instrumentation (17%), and education (6%).

Workforce Development and Broadening Participation

CHE supports roughly 60 Research Experiences for Undergraduates (REU) sites reflecting many different models of undergraduate research. An exciting part of the portfolio is the international REU Sites, that which U.S. undergraduate students the opportunity to live and conduct research abroad for 8-10 weeks. CHE supports iREU sites in Europe, South America and Asia.

CHE also offers a signature postdoctoral fellowship program, the American Competitiveness in Chemistry (ACC) Fellowship. Successful ACC Fellowships integrate a strong research program, a plan to broaden participation, and an effective partnership with a government laboratory, industry research effort, or CHE-supported research center.

Contact Information

Division Director

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Deputy Division Director (Acting)

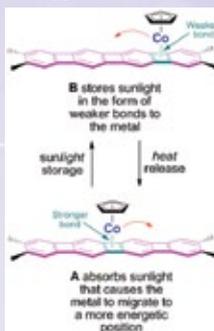
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Credit: K.P.C. Vollhardt

Professor Vollhardt and his research group have found organometallic molecules that store sunlight in the form of usable thermal energy. Form B can return to A by simple thermal reversal, giving off the stored energy as heat. The molecules under investigation constitute prototypes of structures that may eventually be utilizable in "thermal batteries" that are rechargeable by sunlight.

Programs in Chemistry

Individual Investigator Programs

Chemical Catalysis
Chemical Measurement and Imaging
Chemical Structure, Dynamics and Mechanism
Chemical Synthesis
Chemistry of Life Processes
Environmental Chemical Sciences
Macromolecular, Supramolecular and Nanochemistry
Theory, Models and Computational Methods.

Integrative Chemistry Activities

Centers for Chemical Innovation
Chemical Research and Instrumentation and Facilities
Research Experiences for Undergraduates
American Competitiveness in Chemistry Fellowships (postdoc fellowship)

A Guide to Programs / Browse Funding Opportunities is available at http://www.nsf.gov/funding/browse_all_funding.jsp.

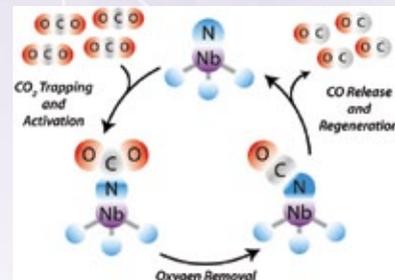
The Centers for Chemical Innovation (CCI) Program supports research centers focused on major, long-term fundamental chemical research challenges. CCIs that address these challenges will produce transformative research, lead to innovation, and attract broad scientific and public interest.

Chemistry and the Global Community

CHE has developed effective partnerships with our partner funding agencies in several other countries that allow joint review and funding of collaborative international research projects. Proposals submitted to the "International Collaboration in Chemistry" program feature a joint, synergistic research project as well as opportunities for postdoctoral researchers, graduate students and/or undergraduate students to participate in extended research visits to the collaborator's laboratory abroad. The program also encourages the development and use of cyber infrastructure to increase the level of synergy of the proposed projects.

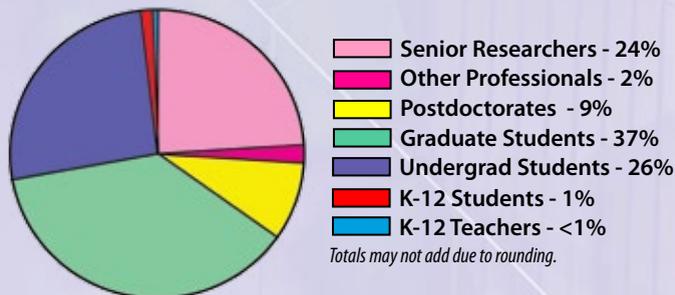
The conversion of CO₂, a greenhouse gas, to CO, a useful commodity chemical, is performed in a three-step cycle. The transformation is mediated by a unique niobium based molecule that is able to serve as a molecular harpoon, trapping and activating CO₂ through formation of a carbon-nitrogen bond. MIT Professor Christopher Cummins and his group discovered this novel conversion method as part of the Caltech-based CCI Phase II Center, Powering the Planet. <http://www.ccisolar.caltech.edu/>

Credit: Jared Silva, MIT

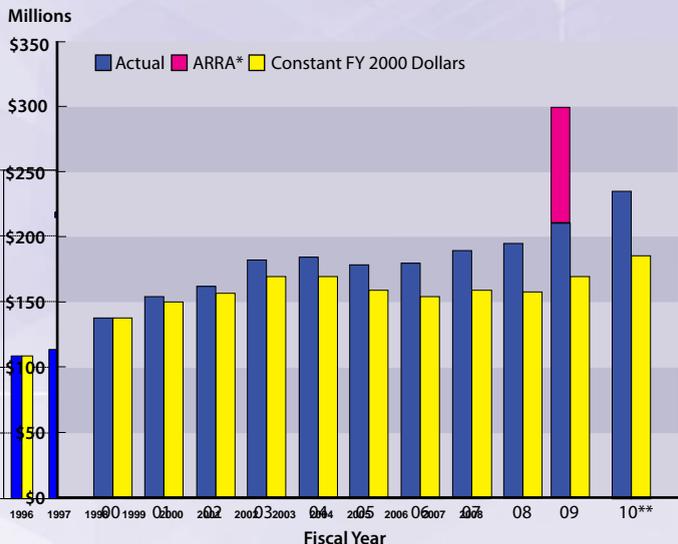


Human Resources FY 2009

Pie chart showing total number of people involved in CHE.



Budget in Actual and Constant FY 2000 Dollars



CHE annual budgets in actual and constant FY 2000 dollars. Constant dollars show the purchasing power of the CHE budget. Over this 11-year period, the constant dollar budget for CHE has increased 34%.

*ARRA - American Recovery and Reinvestment Act of FY 2009. ** Current Plan

Data provided from FY 2000 to 2011 NSF Budget Requests to Congress, <http://www.nsf.gov/about/budget/>.

Funding Rates and Number of Actions



Graph shows number of proposals submitted versus awarded for Research Grants as defined by NSF and resultant success rates. Success rate is defined as the number of new or renewal proposals awarded funding divided by the total number of proposals received.

* FY 2009 funding rate includes awards made with ARRA funds.

Note: the distribution of success rates reflects the average for the Chemistry Division and may not represent success rates in individual programs.

Modes of Support FY 2009

