

Published by the Office of Foundation, Corporate and Government Relations, *Faculty Grants Quarterly* is an internal newsletter created for Hamilton College faculty members to report on funding and research trends of public and private funding sources, as well as the grant and scholarly activities of their colleagues.

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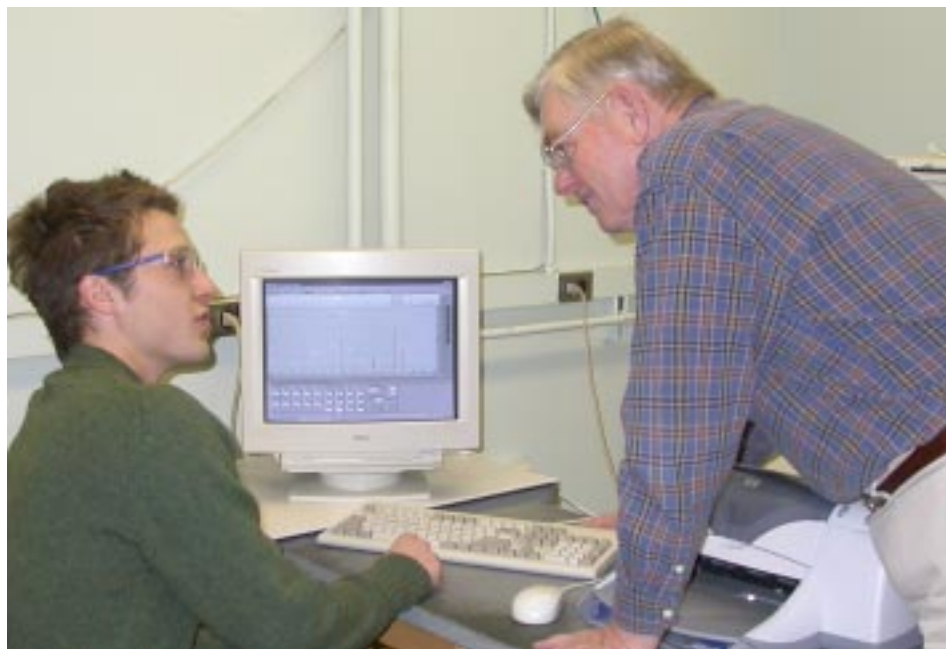
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Hamilton



Robin Kinnel and Matt Himmel '05 discuss results obtained on Hamilton's current NMR

Perseverance Pays Off in Grant for High-Powered NMR

The Chemistry Department, under the leadership of Robin Kinnel, the Silas D. Childs Professor of Chemistry, and with the assistance of Herman Lehman, associate professor of biology, Ian Rosenstein, associate professor of chemistry, and George Shields, Winslow Professor of Chemistry, has been awarded a \$238,356 grant from the National Science Foundation's Major Research Instrumentation (MRI) program. The award will support the purchase of a new 500 Mhz nuclear magnetic resonance (NMR) spectrometer.

The NMR is a versatile yet fundamental piece of equipment for chemists. It helps them unravel the structures of organic molecules and is used to study the physical, chemical and biological properties of a wide variety of compounds, as well as reactions in living tissue. As a result, NMR spectroscopy finds applications in several areas of science.

"The Magnetic Resonance Imaging (MRI) that physicians use to

produce images of the interior of the body uses the same phenomenon," Kinnel explained. "NMR is also used to analyze the physical chemistry of molecular shapes and interactions of protons in space."

This will be the fourth NMR that the College has acquired, and the third that has been procured with the assistance of grant funds from the National Science Foundation (NSF). "We were operating with diminished capacity with the old machine," Kinnel said, "Not only were there persistent maintenance issues, but our students were not always able to do what they need to do and faculty were not able to complete all of their research projects because the old NMR simply didn't have the analytical capability."

The new instrument will provide the improved sensitivity and resolution needed to enhance the research productivity of the faculty members involved in the project. It will also

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provide undergraduate researchers with easy access to two-dimensional experiments. Traditionally, these types of experiments have helped undergraduate researchers develop a better appreciation for the power of the NMR at an earlier stage in their education. In addition, the group felt that a more powerful instrument would allow for the development new interfaces between researchers in the science division.

But the award did not come easily. In fact, it was the result of more than two-and-half years of planning, writing and proposing from the group. Kinnel first began by crafting a proposal for the Course, Curriculum, Laboratory and Instrumentation (CCLI) program in July of 2001. The program is designed to support, among other things, the acquisition of equipment for usage in teaching settings.

"It was a strong proposal, but we primarily needed this piece of equipment for our research programs, rather than for teaching," Kinnel noted. As such, the proposal was declined. While a new NMR would enhance most of the laboratory experiments, the need really was tied to faculty research projects. The group, therefore, decided to find a program whose funding priorities better matched its needs.

In January of 2002, Kinnel and his collaborators turned their attention to the MRI program, which is primarily focused on the research of faculty and, as such, the proposal that was eventually submitted highlighted the exceptionally active research program of the department. The proposal was reviewed favorably, but was not recommended at the highest level, and an award was not granted.

"Fundamentally, we were attempting to justify purchasing a powerful instrument not found widely in small liberal arts colleges," Kinnel said. "These types of instruments are typically found primarily in research institutions. We needed to justify better to the reviewers that we actually needed such a powerful piece of equipment."

Additionally, the reviewers asked the chemists for clarification on a handful of items, including the provision of an estimate of the total numbers of users and an explanation of how a higher end piece of equipment would provide significantly better data.

The group was not deterred. They decided to rewrite the proposal once again and resubmit it to the MRI program. The feedback from the reviewers of the first MRI proposal was, overall, positive. Kinnel felt that NSF was sympathetic and that with some minor revisions, they would be successful. "We didn't rewrite the entire proposal. We kept what worked and restructured the proposal to directly answer the reviewer's comments and concerns." The revised proposal was submitted in January of 2003. In late May, the group was notified that the grant had been approved; an award letter was issued in early July.

"The award was particularly gratifying because it not only allowed us to move forward with the acquisition of the new NMR, but it also was an endorsement of our research projects. It was energizing," Kinnel said. Moreover, the group felt a sense of satisfaction; they were able to help equip the new science facility without having to rely entirely on institutional funding. "Clearly, this award would not have been made without institutional support," Kinnel said, noting that the award will be matched with more than \$300,000 from an en-

dowed fund designed to assist the College replace outdated equipment, "But we earned this, and that is very satisfying for the group involved in the development of the proposal as well as for the department."

Kinnel and Rosenstein are currently visiting NMR vendors, testing samples on their machines and are in the process of deciding which machine they will ultimately purchase. The new NMR will be installed directly into the new science building and should be operational by next summer. The department expects that 50 to 60 students will use the machine in any given semester.

The Major Research Instrumentation Program of the NSF is designed to improve the scientific and engineering equipment for research and research training in academic institutions. This program seeks to improve the quality and expand the scope of research and research training in science and engineering, and to foster the integration of research and education by providing instrumentation for research-intensive learning environments. The CCLI program seeks to improve the quality of science, technology, engineering and mathematics education for all students, based on research concerning the needs and opportunities that exist and effective ways to address them. It targets activities affecting learning environments, course content, curricula and educational practices, with the aim of contributing to the relevant research base.

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Feds move forward with electronic grants initiative

For some time, federal agencies that make grants have been experimenting with electronic grants systems, but their efforts have been inconsistent. Electronic grants systems allow prospective and current grantees to find grant opportunities, apply for such funding opportunities and manage their grants on-line through a Web-based interface. Some agencies have developed sophisticated systems that have been in place for years, most notably the National Science Foundation's *Fastlane*, which is widely regarded as the first and most comprehensive on-line system. Meanwhile, other agencies, such as the National Endowment for the Humanities, have just recently started piloting their own e-grants systems in selected program areas.

The lack of uniformity and the confusion it has caused prompted the Office of Management and Budget (OMB) to undertake the Federal Electronic Grants Initiative, which had the central goal of creating a "one-stop-shopping" Web-based interface for all federal grant programs. The result of the initiative is www.grants.gov, a Web site that has been developed over the past year and is now being unveiled gradually. The Department of Health and Human Services, the lead agency in the initiative, launched the site in October. Shortly thereafter, OMB ordered that all agencies use grants.gov to post notices, or synopses of notices, of opportunities for grants or cooperative agreements in the interest of "maintaining transparency." OMB does not require that the grants.gov posting be the first or only posting of the notices, therefore grant opportunities will still be listed in traditional locations, such as the agency's Web site or the *Federal Register*.

Currently, users can only browse funding opportunities on grants.gov, but the application modules are

expected to be operational some time next year. Once the application modules are launched, grants.gov will not only allow prospective grantees to access all federal funding opportunities, but it will also provide direct links to application information, including downloadable instructions permitting applicants to submit their proposal electronically. Agencies that have been deemed "e-application-ready" include: The Department of Health and Human Services, The Education Department, The Health Resources and Services Administration, The Agricultural Department, The Environmental Protection Agency, The Energy Department and The Justice Department.

Tony Chauveaux to serve as NEA deputy chairman

National Endowment for the Arts (NEA) Chairman Dana Gioia announced in late September that Texas Arts Commission (TAC) Chairman Tony Chauveaux will serve as the agency's deputy chairman for grants and awards. Chauveaux will be responsible for the planning and management of all discipline-based grants and awards, and will serve as principal adviser to the chairman and senior deputy chairman on the development and management of grant categories and related agency activities. He will participate with top-level agency officials in formulation of arts endowment policies and programs in support of the arts.

Chauveaux assumed his new position on Oct. 20, 2003. A member of the Texas Commission on the Arts since 1997, he has served as commission chair since his appointment by then-Governor Bush in June 2000. Chauveaux's public service also includes board membership on numerous other arts organizations, including the Mid-America Arts Alliance, the National Assembly of State Arts Agencies and the Institute

of Texan Cultures at the University of Texas at San Antonio. In his hometown of Beaumont, he has served as vice president of the Jefferson Theater for the Performing Arts, president of the Art Museum of Southeast Texas, vice president of the Symphony of Southeast Texas and president of Friends of the Arts at Lamar University.

Federal grant programs continue to grow

The federal grants business is big and, by all accounts, appears as if it is only going to get bigger. The Office of Management and Budget (OMB) recently reported that during the 2003 fiscal year, grant funding totaled \$400 billion — more than double the amount that the federal government spent on grant programs in 1994. Moreover, grant funding far exceeded the monies spent on general procurement or contracts. Procurement dollars, for example, totaled \$250 billion in 2003.

States receive a clear majority, approximately 80 percent, of the grants. Universities and colleges were the third largest group of grantees, receiving seven percent of the funds. The vast majority of those grants were awarded by the Department of Health and Human Services, which doled out more than \$220 billion in awards.

The Catalog of Federal Domestic Assistance lists more than 700 grant opportunities, however many have multiple programs within the overarching legislation. Almost every agency, from the Department of Education to the Internal Revenue Service, has at least one grant program. Few believe that the number of federal granting opportunities will decrease for the simple reason that these grant programs are created by Congress and are extremely popular with voters.

A Sampling of Awards and Submissions

Please join the Office of Foundation, Corporate and Government Relations as we extend congratulations to the following faculty members who have recently received awards or submitted proposals.

Vivyan Adair, assistant professor of women's studies, was awarded a \$30,000 grant from the Charles A. Frueauff Foundation, Inc. for continued support of the ACCESS Project.

Eugene W. Domack, professor of geology, submitted, along with a colleague from Harvard University, a proposal to the National Science Foundation's Office of Polar Programs requesting \$88,955 to support *Glacial History of Snowball Earth*.

Timothy E. Elgren, associate professor of chemistry and associate dean of the faculty, was awarded a \$35,000 grant from the Research Corporation for his project, *Sol-Gel Encapsulation of Metalloproteins*. Elgren was also awarded a \$50,000 grant from the American Chemical Society's Petroleum Research Fund to support *Characterization of Intermediates in the Catalytic Cycle of Amine Oxidases*.

Stephen M. Festin, assistant professor of biology, along with **Herman K. Lehman**, associate professor of biology, **Jinnie M. Garrett**, professor of biology, **Patrick D. Reynolds**, associate professor of biology, and **Kenneth M. Bart**, lecturer in biology and director of the electron microscopy facility, have been awarded a \$188,130 grant from the National Science Foundation's Course, Curriculum and Laboratory Improvement program for their project, *Bioinformatic Technology in Biology Education*.

George A. Gescheider, professor of psychology, was awarded a grant from the National Institutes of Health for \$1,037,578 for his research project, *A Psychological Study of Vibrotactile Summation*.

John R. LaGraff, assistant professor of chemistry, was awarded a \$100,000 grant from the National Science Foundation's Nanotechnology Undergraduate Education Program to support

his project, *Integrating Nanoscience into the Undergraduate Liberal Arts Curriculum*. LaGraff was also awarded a \$35,000 grant from the American Chemical Society's Petroleum Research Fund that will support *In situ Scanning Force Microscopy of Microcontact Printed Protein Structure*.

Seth Major, assistant professor of physics, has submitted a proposal to the National Science Foundation's Gravitational Theory Program requesting \$90,927 in support of his project, *Discrete Structure and Micro-Dynamics: Studies in Quantum Gravity*.

Nancy Sorkin Rabinowitz, Margaret Bundy Scott Professor of Comparative Literature, submitted a proposal to the National Endowment of Humanities' Collaborative Research Program requesting \$233,740 to support her project, *Among Women: Representations in Greek Vase Paintings*.

Sharon Werning Rivera, assistant professor of government, submitted a proposal to The German Marshall Fund of the United States, requesting support for her project, *Russia's Integration into Europe: Prospects, Pitfalls, and Political Elites*.

George C. Shields, Winslow Professor of Chemistry, was awarded a \$35,000 grant from The Camille and Henry Dreyfus Foundation, Inc. to support his project, *The Development of a National Model for Increasing the Number of Chemistry Majors*.

Lisa N. Trivedi, assistant professor of history, was awarded a Senior Long Term Research Fellowship from the American Institute of Indian Studies to support her project, *Bound By Cloth: Women Textile Workers in Bombay and Lancashire, 1860-1940*.

Ernest Williams, Leonard C. Ferguson Professor Biology, was awarded a \$7,000 grant from the National Wildlife Federation's *Keep the Wild Alive Species Recovery Fund* for his project, *Restoration of Lupine Populations for the Reintroduction of the Karner Blue Butterfly*.