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Keck gives \$1.5 million to physics and biology center Grant will support new research initiatives and fellows

Rockefeller University has received a \$1.5 million grant from the W. M. Keck Foundation for the Center for Studies in Physics and Biology, established in 1994 to promote collaborations at the interface of physics and the biological sciences. Two-thirds of the grant will support promising new research initiatives at the center, and the remainder will expand the center's fellows program.

According to Torsten N. Wiesel, president of the university, "This generous grant from the W. M. Keck Foundation, which is known for funding only the best and the brightest investigators at the frontiers of biomedical research, is particularly gratifying to all of us in the RU community. The Keck Foundation's endorsement of this innovative venture at an early stage in its development is immensely encouraging."

The Center is dedicated to exploring new approaches to fundamental biological problems by fostering collaborations among physicists and biologists—two scientific communities traditionally separated by steep barriers of language and technique. The revolution in molecular biology and the emergence of powerful new computational and biological imaging technologies are revealing the immense complexity underlying biological processes. Increasingly, biologists are confronted with problems that call for the experimental tools and theoretical and computational perspectives of the physical sciences. The Center for Studies in Physics and Biology was created in response to Rockefeller physicists' and biolo-

gists' shared vision of increased communication and collaboration.

Professor Mitchell Feigenbaum, a mathematical physicist and a co-recipient of the 1986 Wolf Prize in

Physics, directs the center.

Feigenbaum was instrumental in providing the foundation for the

See *Keck*, page 2



Center Director Professor Mitchell Feigenbaum (left) meets with Marcelo Magnasco (center), assistant professor and center member, and Mark Goulian, center fellow.

Foundation president to speak on sustainable development at Cohn forum

Peter C. Goldmark, Jr., president of The Rockefeller Foundation, will discuss "The New Development Paradigm" at the Zanvil A. Cohn Forum on Health Affairs Tues., Feb. 27.

"Peter's diverse roles in government and media have given him a very practical sense of how change can be effected," said Alexander Bearn, chair of the forum selection committee. "He will discuss how a foundation thinks about sustain-

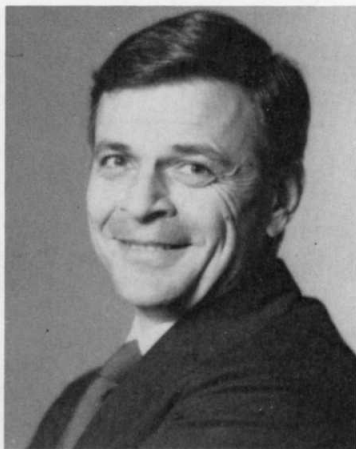
able development and how it conceives of the process of intervention in a world of change."

After graduating from Harvard University in 1962, Goldmark was a program analyst for the Federal Office of Economic Opportunity in Washington, D.C. He held several appointments in the budget office of New York City before becoming executive assistant to Mayor John Lindsay in 1971. Goldmark was secretary of human services for Massachusetts, then returned to New York to serve as budget director for the state from 1975 to 1977.

Goldmark was executive director of The Port Authority of New York and New Jersey for eight years and was senior vice president in charge of five eastern newspapers for the Times Mirror Company. He was appointed the 11th president of The Rockefeller Foundation in 1988.

Goldmark serves on the board of directors of Knight-Ridder, Inc., is a director of the Dreyfus Third Century Fund, and is a member of the Council on Foreign Relations.

The talk will take place at 5:30 P.M. in Abby Aldrich Rockefeller Dining Room. Sherry will be served at 5:00 P.M. All are welcome.



Courtesy of Peter C. Goldmark

Peter C. Goldmark has served as president of The Rockefeller Foundation since 1988.

Molecular geneticist discusses genome stability today

Philip Hieter, professor of molecular biology and genetics at Johns Hopkins University, discusses "Determinants of Genome Stability Conserved in Yeast and Humans" at the Friday lecture today (Feb. 16).

Hieter studies the molecular biology of chromosome transmission in organisms with nucleated cells. He focuses on the determinants that control cell division in the yeast *Saccharomyces cerevisiae*. One study under way is aimed at defining the structural sequences in DNA that are essential to the function of centromeres and identifying genes that encode proteins that directly interact with centromeric DNA. In chromosomes, centromeres join chromatids, the threadlike structures that contain DNA molecules. He and his colleagues have cloned centromere DNA from 10 of the 16 yeast chromosomes and determined their nucleotide sequences.

In other work, Hieter is identifying mutants that are defective in chromosome segregation. He is developing vectors for cloning and manipulating DNA outside the cell as yeast artificial chromosomes (YAC) and methods for transferring modified YACs back into mammalian cells and animals.

"Philip has made important contributions to our understanding of the function of centromeres in cell differentiation," said Professor Jeffrey Friedman, who will introduce Hieter. "He has pioneered efforts to cross-reference the yeast, mouse, and human genomes."

Hieter received his doctoral degree from Johns Hopkins in 1981, working with Philip Leder of the National Institutes of Health. He was a postdoctoral fellow in Ronald Davis' lab at Stanford University from 1982 to 1985. He joined the faculty of Johns Hopkins School of Medicine in 1985 as an assistant professor. He became associate professor in 1990 and

See *Hieter*, page 2

2 That butterfly
again

3 Science on the
midway

4 Maria Rudzinska
(1904 - 1996)

For the Friday lecture
next week, see page 2

Biochemist to lecture on normal and diseased myelination

Wilhelm Stoffel, professor of biochemistry at the University of Cologne, will discuss "Molecular Biology of Normal and Diseased Myelination of Central Nervous System of Mouse and Man" at the Friday lecture next week (Feb. 23).

Stoffel studies the molecular biology of the formation of myelin, the membrane that surrounds nerve fibers. He focuses on the primary structure of proteolipid protein (PLP), the main integral membrane protein, and its isoform DM20. He and his colleagues isolated the nucleotide sequences of

rat and human PLP-specific cDNAs and confirmed the amino acid sequence. They also cloned the human genes of PLP and myelin basic protein.

In recent work, Stoffel used animal models for the functional analysis of the genes expressed during myelination in mice. With a gene-targeting strategy, he developed a PLP-deficient line of mice and a ceramide galactosyl transferase—deficient mouse devoid of the key enzyme responsible for the synthesis of the myelin lipid bilayer.

"Willy has made fundamental contributions to our understanding of myelination of the CNS," said Professor Günter Blobel, who will host next week's lecture.

Stoffel received his medical degree in 1952 from the University of Cologne. He continued his studies in chemistry at the University of Bonn from 1953 to 1957. From 1957 to 1959 he was a research fellow and assistant in the Rockefeller laboratories of Professor Emeritus E. H. Ahrens and the late Lyman Craig.

Stoffel received a Ph.D. in chemistry in 1959 from the University of Bonn, which he followed with a postdoctoral appointment at the Institute of Biochemistry at ETH Zurich. He joined the University of Cologne in 1960 as an assistant and became professor of biochemistry and director of its Institute of Biochemistry in 1967. He was named chairman of the university's Center of Molecular Medicine in 1995.

Stoffel received many awards, including the Heinrich Wieland Prize, the Otto Warburg Medal, and the Max Planck Research

Courtesy of Wilhelm Stoffel



Early in his career, Wilhelm Stoffel worked at RU with Edward Ahrens, professor emeritus, and the late Lyman Craig.

Hieter

(continued from page 1)

professor in 1994. Hieter, a former instructor of the yeast genetics course at Cold Spring Harbor Laboratory, is instructor of the short course in medical and experimental genetics at the Jackson Laboratory in Bar Harbor.

Hieter was a Damon Runyon Cancer Fund postdoctoral fellow, an American Cancer Society (ACS) senior postdoctoral fellow, and a Pew Scholar in the

Biomedical Sciences. He received the ACS Faculty Research Award in 1991 and was elected to the Board of Directors of the Genetics Society of America in 1994. Hieter serves on several editorial and advisory boards.

The lecture will be held in Caspary Auditorium at 3:45 P.M. and preceded by tea at 3:15 P.M. in Abby Aldrich Rockefeller Lounge. All are welcome.

Prize. He was a Fogarty scholar and received an honorary degree from the University of Hamburg in 1994.

The lecture will be held at 3:45 P.M. in Caspary Auditorium and preceded by tea at 3:15 P.M. in Abby Aldrich Rockefeller Lounge. All are welcome.

Keck grant brings total to \$59 million in RU faculty development campaign

(continued from page 1)

recent revolution in nonlinear dynamics, or "chaos" theory.

Feigenbaum stressed the importance of the Keck Foundation grant for opening new avenues of investigation and launching unconventional scientific partnerships: "This funding will help us draw more biologists and physicists into productive new collaborations. Our goal, in particular, is to help make conceptual leaps in the biological sciences and to push at the limits of currently available imaging technology."

Another guiding force behind the center is Professor Albert Libchaber, co-recipient of the 1986 Wolf Prize with Feigenbaum and an experimental condensed-matter physicist whose long-standing interest in the behavior of dynamical systems has led him to explore the physical bases of fundamental biological phenomena.

The fellows program, modeled after a similar initiative at the Institute for Advanced Study in Princeton, N.J., brings advanced postdoctoral scientists to the center for multiyear appointments and encourages them to apply their expertise to the study of biological problems.

The first center fellow, John Marko, applies polymer physics to the study of DNA supercoiling. He recently began collaborative experiments making use of advanced imaging technology to manipulate and measure the physical properties of chromosomes. The second fellow, Mark Goulian, a theorist interested in the physical properties of biological membranes and complex fluids, joined the center in September 1995. Another fellow will be appointed in September 1996. Ultimately, the center plans

to have at least three fellows in residence.

The recent \$1.5 million grant is the third and largest grant from the W. M. Keck Foundation to Rockefeller. Based in Los Angeles, the foundation supports innovative, imaginative research and technology development at leading universities and research institutions across the United States.

Marnie Imhoff, vice president for development, said that the Keck grant "represents a major step in the three-year Rockefeller

Campaign for Faculty Development, which began in fiscal year 1995 with a goal of raising \$82 million by June 1997. The Keck grant brings the total raised so far to \$59 million—and also brings us to a total of \$19.9 million toward our 1996 goal of \$21 million."

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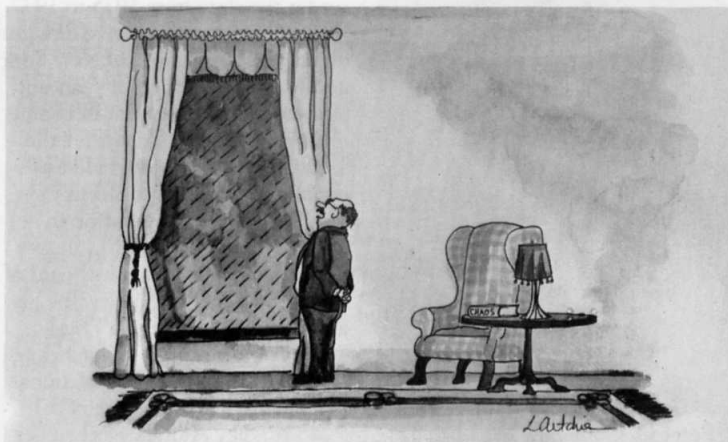
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Leslie Atchison



"Looks like that butterfly in Hong Kong has flapped its damn wings again."

RU program for teens and teachers imparts love of scientific inquiry

by Kay Locitzer

Out of 300 semifinalists in the prestigious Westinghouse Science Talent Search this year, 10 conducted research projects in Rockefeller labs. Of those 10 teens, who rose from a pool of 1,896 entrants nationwide, two became finalists.

"One minute I am delighted with this unprecedented achievement, the next I'm overwhelmed and impressed by what these young scientists accomplish given the chance," said Bonnie Kaiser, director of RU's Science Outreach Programs, which among other activities brings high school students to campus labs to gain research experience.

"I'm very excited," said finalist Aaron Einbond of Hunter College High School, who pursued his project on a "New Proline-rich Binding Motif and Its Signalling Role in Muscular Dystrophy and Other Genetic Disorders" in the Hanafusa lab, mentored by adjunct faculty member Marius Sudol. The 40 finalists nationwide will compete in Washington, D.C. in March.

The other finalist, Ting Luo, of Stuyvesant High School, studied a novel transcription factor with postdoc Zhengxin Wang in the Roeder lab. The Asanuma, Breslow, Chua, Cowburn, Desplan, Hanafusa, McEwen, and Simon labs hosted semifinalists.

Westinghouse projects, which may be in mathematics or the natural or social sciences, must evidence students' research ability, scientific independence, and creativity.

The competition, now in its 55th year, unquestionably nurtures talent. Westinghouse alumni include five Nobel laureates, three National Medal of Science recipients, nine MacArthur Foundation fellows, and 30 members of the National Academy of Sciences. Among RU's finalists from earlier competitions are Professor Mary Jeanne Kreek and Professor Emeritus Paul Crane, both of whom attended the competition's 50th anniversary party in 1992.

Program fosters love of science

High school students often have the Westinghouse in mind when they apply to Rockefeller's Science Outreach Programs, created by the university in 1992 to formalize individual efforts to enhance science education in the area's high schools. Kaiser, who has a doctorate in biochemistry, said, "We want to foster a love of and commitment to science."

Initially, with a steering committee, Kaiser selected five high school teachers to gain two summers of mentored laboratory experience that could inform and inspire their teaching. Ten students from groups

underrepresented in science apprenticed in RU labs during the first summer.

"Teaching and learning at Rockefeller have traditionally occurred at the bench, through intense mentoring rather than through formal lectures and seminars," pointed out Professor Bruce McEwen, faculty chair of the outreach programs. "The program just applies this same method to younger students."

In a recent report, SUNY Science Policy Institute Director Henry Etzkowitz and his student Joseph Alonzo placed the program in a larger social context: "Increasing public support for higher education by contributing to a broader range of societal goals is a common theme at many universities. The Rockefeller outreach program is part of this trend toward extending traditional academic activities in ways that fulfill new economic, social, and educational objectives."

The outreach program now hosts 12 teachers each summer. And in 1995, 100 students worked here, 36 supported by outreach grants.

The program evolves as well. Teachers and students enter with diverse goals, and different supporters fund an array of means to improve science education. Popular speakers lecture, RU faculty visit high schools, teachers develop workshops for peers based on their RU experiences. Kaiser noted simply: "We are interested in what works."

For example, two years ago, she began asking students to meet weekly for discussions with Rockefeller scientists during the summer. Kaiser said, "Explaining their research to their peers helps students prepare to write their papers. Questions by experienced researchers help them home in on what they do and don't understand." Faculty who have served as facilitators include Professors Vincent Fischetti, Bruce McEwen, and Ralph Steinman.

Kaiser adopted this pedagogical exercise from Richard Lee, a Bronx High School of Science teacher who required weekly meetings and presentations of his 24 students one summer. All 24 entered the Westinghouse, and nine became semifinalists.

This year, Aaron Wong, a student at Stuyvesant High School, which specializes in math and science, earned semifinalist rank with a project in developmental genetics. A year ago, after initial discussions with Claude Desplan, head of lab and Howard Hughes Medical Institute associate investigator, Wong chose to try to tease apart the roles of two genes in the determination of the *Drosophila* embryo's anterior section. He worked with



At a City Hall ceremony Tues., Feb. 13 to honor high school students who ranked as semifinalists and finalists in the annual Westinghouse Science Talent Search, Mayor Rudolph Giuliani congratulated finalist Ting Luo, who did her project in the Roeder lab.

graduate fellow Marcia Simpson-Brose (who has since graduated) and postdoc Ernst Wimmer.

"I offered Aaron much simpler topics, but he chose this one because of its breadth and importance," recalled Desplan. "He demonstrated commitment and intelligence and truly understood the conceptual aspects of our work. And he quickly learned to do experiments alone."

Such independence is central to a Westinghouse submission. But, noted Kaiser, "The Westinghouse competition only allows individual projects, not team projects that foster collaboration. And collaboration is a big part of the culture of biomedical science."

Fair offers opportunity and fun

Because of this, the outreach steering committee recommended reviving a local International Science and Engineering Fair (ISEF). Organized by the Science Service, the national group that administers the Westinghouse search with the Westinghouse Foundation, the local ISEF had not been held for Manhattan and Bronx students in several years.

"The fair allows students to credit mentors and co-workers—not to steal any limelight from students, but to acknowledge collaboration," said Kaiser. "The committee, as well as a group of faculty and teacher mentors, also believed that a fair would encourage team projects and opportunities for participation."

The fair, coming to Weiss Café Fri., Mar. 15 and Sat., Mar. 16, is a

competitive poster session covering 20 categories of biomedical and physical science. "About 30 people have volunteered to be judges so far. I could use more. The more judges, the better the feedback for the students," said Kaiser.

The three dozen or so students exhibiting at the fair have either done their research in campus labs or attend schools associated with the outreach program. Almost 500 local ISEF fairs take place across the country, with winners presenting at the international competition in Arizona in May.

Wong, who is recasting his project from the Desplan lab as an ISEF entry, said, "It's nice to enter another contest. I'm hoping for a scholarship award. And I wouldn't mind going to Arizona. It would be a good reason to miss some school." Einbond said, "Entering the fair seems like a fun thing to do. It's fun to explain my project, to be judged, to have another chance to win."

Teens see method and magic

Kaiser's office is supplying entrants with posterboard and lettering. "They are busy enough without having to chase around the city buying this stuff," she pointed out.

In matters small and large, students preparing to compete in the fair and the Westinghouse learn about being professional scientists. Einbond noted, "I was working in Marius' lab at Mt. Sinai as he prepared an NIH grant. In addition to his science, he considered practical things—what can we get funding for, what can his current lab members do, what will lead to new and important problems with ramifications for medicine."

They learn about—and develop—commitment. Antara Prasad, a semifinalist from the Bronx High School of Science who worked in the McEwen lab with visiting assistant professor Karen Bulloch on a new estrogen marker in the rat hippocampus, said "I reached levels of dedication I never knew I had. Sometimes I would spend 10 or 12 hours here." Andrew Tom, also from the Bronx school, completed his Westinghouse project weeks ago but is still coming in regularly, said host and Associate Professor Sandy Simon, who listed Tom as a co-author on a recently submitted paper.

And they get excited. Said Prasad, "Science isn't about sitting at a lab bench making discoveries. It requires creativity. You have to know an area so well that you are able to see something no one else sees. In a way, research is like magic, the way you find something you didn't expect, something new."

Protozoologist Maria Rudzinska, best known for research on malaria, dies at 92

Professor Emerita Maria Rudzinska died at her home in New York on Fri., Feb. 9 at the age of 92.

In her career of more than 40 years at Rockefeller, Rudzinska made numerous important contributions to understanding the cell biology of protozoa. Best known is her discovery of how malaria parasites feed within their host red blood cells. She was among the first to apply electron microscopy to malaria parasites and in a classic paper in 1957 showed the details of ingestion of red cell contents by intracellular phagotrophy by the parasites.

Her own favorite organism, however, was a free-living predacious protozoan called *Tokophrya*. She found that this organism had a defined individual life cycle

marked by youth, a reproductive period, and senescence. This work attracted the attention of gerontologists. Most recently, Rudzinska collaborated with Andrew Spielman and his associates at Harvard on studies of the development in the deer tick of the spirochete of Lyme disease.

Rudzinska was born in Poland and was in the early stages of an academic career in Lvov when the Second World War began. She and her husband, Alexander Rudzinski, an international lawyer, managed to elude both the Nazis and the Russians through the course of the war. Shortly after the war, they came to the United States when her husband became a member of the first Polish delegation to the newly formed United Nations.

Very soon, however, the Communists took over the Polish government. Rudzinski refused to vote as instructed. He resigned, and he and his wife received asylum in the United States.

Professor Rudzinska worked for a few years at New York University, then came in 1951 to the Rockefeller Institute for Medical Research (now Rockefeller University), where she was associated first with cell biologists Keith Porter and George Palade and later with parasitologist William Trager. She participated in the graduate teaching program of the university. She loved and enjoyed the scientific enterprise, and continued to come to the lab until nearly her last days. A memorial service is being planned and will be announced.

Courtesy of RU Faculty Administration



Maria Rudzinska joined RU in 1951, became emerita in 1979, and worked in the lab until nearly her last days.

Potpourri

Steve Sherman



Millennium performs at the noon recital today (Feb. 16).

Tri-Institutional Noon Recitals

Millennium (Scott St. John, violin/viola, Robert Chen, violin, Amadi Hummings, viola, Jan Vogler, cello, and Stephen Prutsman, piano) performs works by Beethoven, John Novacek, and Dvorak at the Tri-Institutional Noon Recital today (Feb. 16). Jennifer Lane, mezzo-soprano, and Timothy Burris, theorbo, perform "Lagime Mie," songs by Claudio Monteverdi, Giulio Caccini, Johann Heironymus Kapsberger, Barbara Strozzi and Girolamo Frescobaldi, and Sigismondo d'India Fri., Feb. 23. The concerts, to be held in Caspary Auditorium at noon, are free. All are welcome.

Dress rehearsal

An open dress rehearsal will be held for *My Mother Kept Telling Me It Wouldn't Rain* today (Feb. 16) at

7:45 P.M. in Caspary Auditorium. The play, written by Arnold Rabin and directed by John Raymond, features actors Maggie Burke and Peter Van Wagner. Admission is free.

Friday film

Young Mr. Lincoln (USA, 1939), directed by John Ford, will be shown today (Feb. 16) at 8:00 P.M. in Caspary Auditorium. The film, a restrained and powerful celebration of American values, is free.

Clinical Research Seminars

Michael Pack, instructor in medicine at Harvard Medical School, discusses "Genetic Approach to Digestive Organ Development Using Zebrafish" Wed., Feb. 21. Andrew Dannenberg, associate professor of medicine at Cornell University Medical College, and

director of the Strang-Cornell Gastrointestinal Cancer Prevention Center, discusses "Inhibition of Cyclooxygenase-2: A Novel Approach to Cancer Prevention" Wed., Feb. 28. The seminars take place at noon in Nurses Residence 110B.

Sigma Xi lecture

Lawrence Crocket, professor emeritus at City College of New York, discusses "Medieval Symbolism of the Flora in the Unicorn Tapestries as It Relates to the Developmental Science" at the Sigma Xi lecture Thurs., Feb. 22 at noon in Nurses Residence 110B. For further information contact Michael Anzeloni, x8091.

Divorce support group

The Employee Assistance Program is offering a free eight-session support group for recently separated or divorced people beginning Mon., Mar. 4. The group will meet from 11:45 A.M. to 12:45 P.M. at 411 East 69th Street in Room 229. Contact Lori Urov or Martha Lee Joseph, 746-5890, to arrange a pre-screening.

Birth

On Tues., Dec. 26, Elana Pearl Simon completed her facilitated transport into this world with the assistance of her parents, Rachael Migler and Associate Professor Sandy Simon. Weight: 7 lb, 9 oz.

Car rental discount

Rockefeller employees and students

In memoriam

With great sadness, we wish to notify the university community of the passing on Sat., Feb. 10 of Perry Pittman, administrative assistant in faculty administration. He died of lymphoma after a year-long battle with the disease. He was 42.

A memorial gathering will take place in his honor on Thurs., Feb. 22 in the Faculty and Students Club, from 3:30 P.M. until 5:00 P.M. Please join us in remembering this very special friend.

Personnel Office Staff

may rent cars on weekdays at discounted rates from Enterprise Rent-A-Car, 425 East 61st Street, 838-2323. Weekday rates start at \$45.99 and include pick-up service within the neighborhood. To obtain the discount, present university identification card and the discount number, G5C0111.

Call for mentors

The Science Outreach Programs needs volunteers to mentor high school science teachers and students this summer, to visit schools, and to give workshops and lab tours. Contact Bonnie Kaiser, x7431 or e-mail bonnie.

News&Notes schedule

News&Notes will not be published Fri., Feb. 23 due to the President's Day holiday. The next issue will be Fri., Mar. 1.