

Sigma Xi Today

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Goodstein to Receive McGovern Award

David L. Goodstein, vice provost and professor of physics and applied physics at the California Institute of Technology, will receive Sigma Xi's 2000 John P. McGovern Science and Society Award. He will present the McGovern Award Lecture at the conclusion of the 2000 Sigma Xi Forum *New Ethical Challenges in Science and Technology* in Albuquerque in November.

Goodstein has been on the Caltech faculty for more than 30 years. In 1995 he was named the Frank J. Gilloon Distinguished Teaching and Service Professor. His book, *States of Matter*, first published in 1975 and reissued by Dover Press in 1985, was hailed by *Physics Today* as the book that launched a new discipline, condensed-matter physics.

His research in experimental condensed-matter physics has dealt with phases and phase transitions in adsorbed, two-dimensional matter, ballistic phonons in solids, superfluidity in liquid helium, and critical point phenomena. This work has led to nearly 200 scientific publications.

Goodstein has served on numerous scientific and academic panels, currently including the national advisory committee to the mathematical and physical sciences directorate of the National Science Foundation, which he chairs. He is a founding member of the board of directors of the California Council on Science and Technology.

He was also the host and project director of *The Mechanical Universe*, a 52-part college physics telecourse based on his popular lectures at Caltech. The project, which has been adapted for high-school use and translated into many other languages, has been broadcast on hundreds of

public-broadcasting stations and has garnered more than a dozen prestigious awards, including the 1987 Japan Prize for television.

In recent times, Goodstein has become interested in some of the larger issues that affect science as a profession. In a series of articles, colloquia and speeches, he has stressed and analyzed the profound changes that became inevitable in the last few decades as the long period of exponential expansion of science came to an end. He has also turned his attention to issues related to conduct and misconduct in science.

Prompted by the need to compose a set of regulations governing possible misconduct at Caltech, he has developed an academic subspecialty in this area, writing and speaking about it in a variety of forums. Together with his colleague, James Woodward, he has developed a course, Research Ethics, which has been taught each year at Caltech since the early 1990s.

Born in Brooklyn, New York, Goodstein attended Brooklyn College and received his Ph.D. in physics from the University of Washington. He lives in Pasadena with his wife, Judith R. Goodstein, who is a faculty associate in history at Caltech, where she serves as archivist and registrar. The Goodsteins have two grown children and two grandchildren and have recently co-authored a best-selling book, *Feynman's Lost Lecture*.



Ethics Forum Taking Shape

Robert Dynes, chancellor of the University of California at San Diego, has joined the list of speakers for the 2000 Sigma Xi Forum *New Ethical Challenges in Science and Technology*, scheduled for November 9-10 in Albuquerque, New Mexico. The forum will be held in conjunction with the Society's annual meeting November 10-12. Joining Dynes on the program are National Academy of Engineering President William Wulf and Mount Sinai School of Medicine Dean Arthur Rubenstein.

Other forum participants will include John Browne, director, Los Alamos National Laboratory, who will lead a discussion on "Intellectual Freedom." Former presidential science advisor John Gibbons will lead a discussion on "Intergenerational Ethics." Another session, led by Sybil Francis, of the Office of Science and Technology Policy, with participation from Peggy Fischer from the National Science Foundation, will address "What Is Misconduct?"

Vivian Weil, director, Center for the Study of Ethics in the Professions, Illinois Institute of Technology, will lead a panel on "Teaching Ethics," and Paul Fleury, University of New Mexico dean of engineering, will lead a discussion on "Conflicts of Interest." Former Sigma Xi president Kumar Patel will participate in this session.

I N S I D E

Sigma Xi Offers New Benefits	286
Ethics Workshop Proceedings	286
Sigma Xi Forum Proceedings	287
Floyd Riddick Dies at Age 91	288

Sigma Xi Offers New Membership Benefits

Membership in Sigma Xi offers benefits beyond being part of a community of more than 80,000 research scientists and engineers. Call 800-243-6534 or visit <www.sigmaxi.org> for information about these new benefits for active members.

ELECTRONIC SERVICES

Electronic Dues and Nominations: Forms for nominating members and for paying dues are now available online. The first electronic dues notice was very successful, and while members may request paper communications only, many appreciate the convenience of paying dues online. There are also online options for reactivating membership.

Members-Only Web site: Sigma Xi is developing a members-only Web site that currently contains access to discounted subscriptions to *Nature* and *Annual Reviews*, registration for the Sigma Xi E-mail Alias program (see below), special travel packages and other benefits. In the coming year, the site will include a searchable directory of active Sigma Xi members who wish to be listed.

E-mail Alias: Active members can request an alias e-mail address with Sigma Xi from which mail will be forwarded to the current e-mail address the member provides. This free service can be useful for those who do not have a permanent e-mail address. If your e-mail address changes, you only have to send your new address to Sigma Xi and not to everyone who has your old address; Sigma Xi aliases may be much easier to remember than your current address; your e-mail address also associates you with Sigma Xi.

MediaResource: Sigma Xi's free referral service for journalists in need of scientific expertise now includes "SciStacks," a juried resource library of Web links to sites on biology, health and medicine, chemistry and more. "In the News" offers active members a free, daily e-mail digest of top science news stories in the national media, with links to the source publications.

NATURE SUBSCRIPTION

Sigma Xi has formed a new relationship with *Nature*. Active Sigma Xi members can subscribe to *Nature* via the members-only Web page at a discounted rate of \$129. Student member rate is \$89.

SCIENCEWISE

Sigma Xi members can now receive research funding alerts absolutely free from a new benefits provider, ScienceWise. The alerts are delivered via e-mail so you don't waste time searching the Internet. They are targeted to your specific interests, and the database is updated daily. In short, it is the easiest and most comprehensive way to stay current with available funding in your area.

Here's how it works:

Step 1 - Go to: <<http://services.sciencewise.com/sigmaxi.htm>> and choose the type of funding you'd like to monitor, or call ScienceWise at 301-975-0103.

Step 2 - Complete the basic registration information including your Affiliate Code (sigmaxi-3742).

Step 3 - Build your profile by selecting keywords that match your research and/or education interests. Beginning the next business day all new and updated funding opportunities that match your profile will be delivered by e-mail.

EDUCATION AND MENTORING

The Society has developed an online resource of information about innovative undergraduate science and engineering education, to which members are encouraged to contribute. Two pilot chapter workshops this spring set the stage for a broader effort to foster campus-wide discussion about undergraduate education reform.

Also, the Society's Committee on Diversity is undertaking a mentoring program designed to support young faculty from under-represented groups, and mentors are currently being identified.

Ethics Workshop Proceedings Now Available

Sigma Xi recently published the proceedings of a September 10, 1999, workshop titled "Ethical Challenges and Practical Solutions for Managers in Research." The 75-page booklet is available for \$6.00 a copy, payable to Sigma Xi, P.O. Box 13975, Research Triangle Park, NC 27709.

Held in Albuquerque, New Mexico, the one-day workshop was co-sponsored by Sigma Xi and the U.S. Public Health Service Office of Research Integrity (ORI) and included perspectives from academia, industry and government on a variety of new ethical challenges in science and technology.

The proceedings volume is based on a transcript of tape recordings of the workshop sessions. It includes the plenary addresses as well as reports of smaller group discussions by the 70 workshop participants. According to Sigma Xi Executive Director Peter D. Blair, "The discussions highlighted the fast-changing and far-reaching nature both of the issues of ethical conduct in research and of the ethical implications of research."

Plenary speakers included Lawrence J. Rhoades, director, ORI Division of Policy and Education; Paul A. Fleury, University of New Mexico dean of engineering; John C. Browne, director, Los Alamos National Laboratory; Joan B. Woodard, executive vice president, Sandia National Laboratories; Robert R. Rich, executive associate dean of research, Emory University School of Medicine; and John F. Ahearn, Sigma Xi Center director of ethics programs.

Workshop participants were given an inside view of the federal regulatory process by ORI officials and integrity officers from the National Science Foundation and the National Institutes of Health. The talks included a number of case examples illustrating various situations and institutional responses.

Sigma Xi Science Education Forum Proceedings Published

The proceedings volume for the 1999 Sigma Xi Forum *Reshaping Undergraduate Science and Engineering Education: Tools for Better Learning* includes many of the plenary addresses, as well as some 80 abstracts on innovative teaching tools and methods being used around the country. The volume will be available in June.

Forum speakers included Bruce Alberts, president of the National Academy of Sciences; U.S. Rep. Rush Holt (D-New Jersey), who presented the McGovern Lecture; Shirley Strum Kenny, president, State University of New York at Stony Brook, and Boyer Commission chair; Jeanne Narum, executive director, Project Kaleidoscope; and Jim Lightbourne, science advisor, Undergraduate Education Division, National Science Foundation

There were fewer plenary talks than usual at the 1999 Forum. Instead, invited sessions, contributed workshops and roundtable discussions allowed for lively interaction involving a wide range of related topics and demonstrations. Plenary speakers and panelists addressed the major issues that frame the discussion about education reform, looking at the past, present and future of the reform effort.

The *Journal of Young Investigators* (JYI), a Web-based journal for undergraduate research, videotaped much of the forum and annual meeting, and edited video is available via the JYI Web site at <www.jyi.org> or through the Sigma Xi Web site at <www.sigmaxi.org>.

The 1999 Forum was the beginning of a multi-phase Sigma Xi program to foster dissemination of effective practices in education reform.

Several annual meeting workshops addressed Sigma Xi's role in undergraduate education reform and future chapter activities that can support the dissemination of information about effective practices and tools for better learning.

Two pilot chapter workshops this spring, supported by a grant from the National Science Foundation, brought the discussion to the institutional level at two universities, with a subsequent series of workshops planned over the next three years at other institutions.

An undergraduate education resource page was developed in conjunction with the 1999 Forum for the Sigma Xi Web site. Ideas and suggestions are welcomed for scientific/educational resources for scientists, researchers, teachers and children. Send recommended links to weblink@sigmaxi.org.

Chapters Initiate Many Science Education Activities

The following items on science education efforts were taken from annual reports filed by Sigma Xi chapters for 1998-99.

Among other activities during the year, the **University of Tennessee at Memphis Chapter** helped recruit 50 judges for the Memphis Science Fair, and chapter secretary **Arthur Geller** served on the fair's steering committee. ■ The **University of Mississippi Medical Center Chapter** funded research studies by six undergraduates and three high school students and organized a successful seminar series, with nine speakers on a wide variety of topics. ■ For several years, faculty and students affiliated with the **University of Texas at El Paso Chapter** have performed the Chemistry Circus and the Physics Circus, in which they give scientific demonstrations in high schools and for visitors on campus. ■ In addition to holding a day-long student research forum, the **East Stroudsburg University Chapter** recognized outstanding academic achievement by graduate and undergraduate students and conducted outreach programs to local schools, scout troops and the general public through chemistry magic shows and open houses at the ESU Observatory. ■ A long-standing commitment of the **Cincinnati Federal Environmental Chapter** has been to support science achievement at the junior high and high school levels by providing judges for the annual Southwest Ohio District Science Day held at Miami University. ■ The **Kalamazoo, Michigan Chapter** has been involved in summer research activities in the biological sciences and chemistry that are sponsored by federal and regional agencies to encourage research interest in K-12 students and teachers, as well as undergraduates, and to promote graduate student recruitment, especially among minority students. ■ The primary goal of the **Loyola Marymount University Chapter** is the mentoring of undergraduate research students, but many chapter members are also "on call" for local science teachers and participate as science fair judges, as after dinner speakers and as experts who are available to the media to provide context and commentary on science news. ■ The annual Christopher G. Reed Science Competition sponsored by the **Dartmouth College Chapter** gives senior thesis students an opportunity to present their research and compete for cash awards. ■ The 12th annual Graduate Sciences Research Forum held by the **University of South Dakota Chapter** brought together all of the science programs at the university in an effort to promote multidisciplinary discussions of science and research. ■ As part of its 22nd Annual Student Research Conference, the **Montclair State University Chapter** sponsored an "Eggsperiment Contest," in which participants were invited to construct a container for a raw egg that would prevent it from breaking when dropped from a great height.

Nine Sigma Xi Members Receive Science and Technology Medals

Nine Sigma Xi members were among those to receive the 1999 National Medal of Science and National Medal of Technology, the nation's highest science and technology honors.

NATIONAL MEDAL OF SCIENCE AWARDEES INCLUDED:

Felix E. Browder, Rutgers University, for pioneering mathematical work in the creation of nonlinear functional analysis, opening up new avenues in nonlinear problems, and for being a leader in the scientific community to broaden the range of interactions among disciplines.

James W. Cronin, Nobel laureate and professor emeritus, University of Chicago, for fundamental contributions to the fields of elementary particle physics and astrophysics and as a leader in creating an international effort to determine the unknown origins of very high-energy cosmic rays.

Jared Diamond, University of California at Los Angeles, for seminal research in applying Darwinian evolutionary approaches to the disparate fields of physiology, ecology, conservation biology and human history, and for outstanding efforts in communicating science.

Leo P. Kadanoff, University of Chicago, for leadership in fundamental theoretical research in statistical, solid state and nonlinear physics that has led to numerous and important applications in engineering, urban planning, computer science, hydrodynamics, biology, applied mathematics and geophysics.

Lynn Margulis, University of Massachusetts at Amherst, for outstanding contributions to the understanding of the structure and evolution of living cells, and for extraordinary abilities as a teacher and communicator of science to the public. Margulis received Sigma Xi's 1999 William Procter Prize for Scientific Achievement.

Stuart A. Rice, University of Chicago, for changing the very nature of modern physical chemistry through his research, teaching and writing, and for using imaginative approaches to both experiment and theory that have inspired a new generation of scientists.

John Ross, Stanford University, for his enormous impact in physical chemistry, especially in molecular studies, statistical mechanics and nonlinear kinetics, and for opening up new fields in chemical science.

Kenneth N. Stevens, Massachusetts Institute of Technology, for pioneering contributions to the theory, mathematical methods and analysis of acoustics in speech production, and establishing the contemporary foundations of speech science.

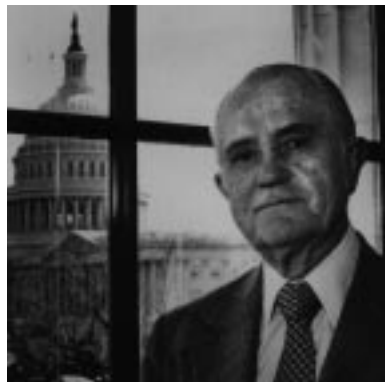
NATIONAL MEDAL OF TECHNOLOGY AWARDEES INCLUDED:

Glen Culler, chief scientist and chairman of the board (retired), Culler Scientific Systems Corporation, for pioneering innovations in multiple branches of computing, including early efforts in digital speech processing, invention of the first online system for interactive graphical mathematics computing and pioneering work on the ARPAnet.

The National Medal of Science is administered by the National Science Foundation. It honors individuals for contributions across a variety of science frontiers. The Medal of Science has been awarded to 374 distinguished scientists and engineers.

The National Medal of Technology is administered by the U.S. Department of Commerce. It recognizes technological innovation and advancement of the nation's global competitiveness, as well as contributions that commercialize a technology, create jobs, improve productivity or stimulate the nation's growth and development in other ways. To date, 110 individuals and 11 companies have been honored with this award.

Floyd Riddick Dies at Age 91



Former Sigma Xi parliamentarian Floyd M. Riddick died on January 20 in Santa Fe, New Mexico. He was 91.

Riddick was parliamentarian emeritus of the U.S. Senate and author of *Riddick's Senate Procedure*, considered by many to be the most authoritative volume on the subject. He was honored in 1997 by Sigma Xi's Assembly of Delegates for his more than two decades of service as the Society's parliamentarian. He served in that capacity from 1974 until his retirement in 1996. In 1985, he was elected an honorary member of Sigma Xi.

Born in Trotville, North Carolina, Riddick received his B.A. and Ph.D. degrees from Duke University and his M.A. from Vanderbilt. His dissertation research foreshadowed his own career. It dealt with parliamentary procedure in the U.S. House of Representatives.

Following positions in the federal government and at American and Columbia universities, he went to the U.S. Senate in 1947 to inaugurate publication of the *Congressional Record Digest*. He then took the position of assistant parliamentarian of the U.S. Senate and, in 1965, was appointed as the second parliamentarian of the Senate, a position he held until his retirement in 1974.

Riddick was also the co-author, with Miriam M. Butcher, of *Riddick's Rules of Procedure*. He is survived by his wife, Margot, who lives in Santa Fe.