

Compton Award presented to Ramsey

Norman Foster Ramsey, Higgins Professor at Harvard University, was honored at the AIP Corporate Associates meeting in Rochester, New York, with AIP's Karl Taylor Compton Award. AIP Director H. William Koch presented the prize to Ramsey at a ceremony on 22 October.

The Compton Award recognizes distinguished statesmanship in science and consists of a bronze medal, \$3000 and a certificate. The prize is intended mainly for US citizens and is made occasionally, not at any fixed interval. Earlier recipients of the prize have included Melba Newell Phillips (1981), Samuel Goudsmit (1974) and Ralph A. Sawyer (1971).

Ramsey, who has been chairman of the AIP Governing Board since 1980, was recognized for his outstanding achievements as a leader in physics research and an adviser on science policy.

During World War II Ramsey served as a consultant to the Secretary of War. He was the first science adviser to the Secretary General of NATO from 1958 to 1959 and a member of the General Advisory Committee of the Atomic Energy Commission from 1960 to 1972. He served as chairman of the high-energy physics panel of the President's Science Advisory Committee in 1963 and as president of the Universities Research Association from 1966 to 1972.

Ramsey earned his PhD in 1940 under I. I. Rabi at Columbia University. He headed groups at the MIT Radiation Laboratory that developed the first 3-cm-wavelength magnetrons and related radar systems, and he worked on the Manhattan Project as a group leader, associate division chief and chief scientist for the Tinian technical group. He returned to Columbia in 1945 and studied the properties of molecules and nuclei using molecular-beam resonance. He was executive secretary of the group that set up Brookhaven National Laboratory and served as the first chairman of the lab's physics department before joining Harvard's faculty in 1947.

Ramsey's diverse research interests have led to key contributions to the determination of magnetic moments of elementary particles, the structural shape of nucleons, the nature of nuclear forces and the thermodynamics at negative absolute temperatures of energized populations of atoms and molecules. Ramsey invented the method of using separated oscillatory fields to excite resonances, which provides extremely high resolution in atomic and molecular spectroscopy and forms the practical basis for the most precise



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atomic clocks. In collaboration with his students, he invented the atomic-hydrogen maser, which allows still greater spectroscopic resolution and serves as the basis for atomic clocks having the highest levels of stability for periods extending to several hours.

Ramsey was elected a member of the National Academy of Sciences in 1952, and was president of The American Physical Society in 1978-79. He was honored with the E. O. Lawrence Award in 1960, the Davisson-Germer Prize of APS in 1974, the IEEE Medal of Honor in 1984 and the Rabi Prize in 1985. He was a Guggenheim fellow at the University of Oxford in 1954-55 and Eastman Professor at Oxford in 1973-74.

The citation presented to Ramsey on 22 October praised his "spirited teaching and impeccable taste in problems worthy of attack" and his "keen administrative skills and scientific leadership in the service of physics societies and national laboratories."

Industrial prize recognizes magnet research done at GM

John J. Croat and Robert W. Lee of General Motors Research Laboratories were honored at the AIP Corporate Associates meeting with the 1985 AIP Prize for Industrial Applications of Physics. The prize recognizes their discovery of a new class of permanent-magnet alloys of the rare earth-iron-boron type, as well as a new process for forming these alloys into permanent magnets. The Nb-Fe-B magnets developed by Croat, Lee and their colleagues Jan Herbst and Frederick Pinkerton are currently the world's highest-energy-product magnets, and they are ex-

pected to be widely applied in transportation-related electrical equipment and, more generally, lightweight motors, generators and transducers.

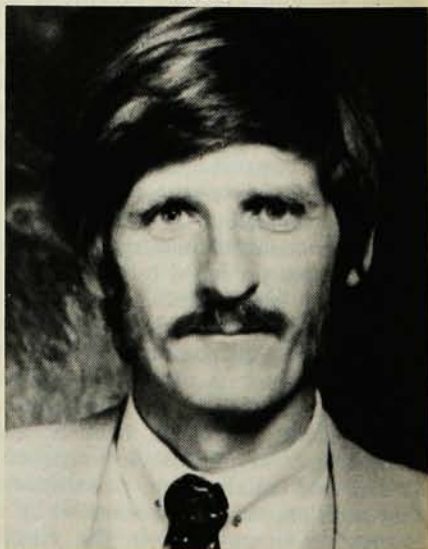
The research that led to the new magnet alloys began in the late 1970s, when a shortage of cobalt led to a five-fold increase in its price and rendered the standard mischmetal-samarium-cobalt magnetic alloy uneconomical. The commercial development of Nb-Fe-B magnets was achieved almost simultaneously at GM and Sumitomo Special Metals Company Ltd in Japan. The GM approach is novel in that it combines rapid solidification, via melt-spinning and densification, with magnetic alignment via hot-pressing. This processing technique is expected to have cost advantages over the more conventional powder-metallurgy methods employed by the Sumitomo researchers, and GM is betting heavily on its technology by building a new plant to produce the Croat-Lee magnets.

Croat has worked at General Motors Research since receiving a PhD in metallurgy from Iowa State University in 1972. His PhD thesis was concerned with the magnetic properties of pure rare-earth elements. Lee has worked at General Motors Research since 1955, when he received an MS in physics from Michigan State University, where he studied microwave absorption in liquid crystals.

Krupp honored with AIP science writing award for second time

Edwin C. Krupp, director of the Griffith Observatory in Los Angeles, has been named the 1985 scientist winner of AIP's Science Writing Award in Physics and Astronomy. Each year AIP makes two science writing awards, one to a scientist and one to a journalist. Krupp won the scientist award for his

KRUPP



children's book *The Comet and You*, which is published by Macmillan.

Krupp received his PhD in astronomy from UCLA in 1972 and has worked at Griffith Observatory ever since, first as a lecturer, then curator and finally director. As curator he was responsible for the design and fabrication of major museum exhibits. Krupp's major current interest is archaeoastronomy, particularly the place of beliefs about the heavens in systems of religious thought. He has visited and done research at hundreds of ancient and prehistoric sites.

Kenneth W. Ford, chairman of the award committee and president of Molecular Biophysics Technology Inc., presented the Science Writing Award to Krupp on 23 October at the AIP Corporate Associates meeting in Rochester, New York. The award consists of a check for \$1500 and a certificate. This was the second time that Krupp won the award. He received it in 1978 for his book *In Search of Ancient Astronomies*. Krupp also is author of *Echoes of the Ancient Sky* and is coauthor and editor of *Archaeoastronomy and the Roots of Science*, which was published by AAAS.

Martin takes over editorship of Acoustical Society journal

Daniel W. Martin, 1984-85 president of the Acoustical Society of America, took over as editor-in-chief of the *Journal of the Acoustical Society of America* at the beginning of September. He succeeded Robert T. Beyer, who had been acting editor-in-chief for six months following the death of R. Bruce Lindsay. Lindsay had been editor-in-chief since 1957.

Martin, who currently works as an acoustical consultant, mainly on church acoustics, was research director

MARTIN



at Baldwin Piano and Organ Company in Cincinnati from 1949 to 1983. He received his PhD in physics at the University of Illinois, Urbana, in 1941, and worked for RCA as an acoustics engineer and communications research coordinator for eight years. He has taught courses at the University of Cincinnati's College Conservatory of Music and its College of Design, Art and Architecture, at Purdue University Extension (Indianapolis) and at the University of Illinois, Urbana-Champaign.

More PhD recipients from other countries stay in United States

Three-quarters of the foreign students who received physics PhDs at US universities in the 1983-84 academic year remained in the United States to take postdocs or jobs. This was the major finding in AIP's latest Graduate Student Survey, which was published in September. Of the 132 foreign recipients of physics doctorates who responded to the survey, 55% accepted US postdocs and 20% took or retained jobs in the United States.

The proportion of graduate students who are from foreign countries has continued to rise, the proportion from the People's Republic of China especially sharply. About 35% of the graduate students in physics were foreigners in 1983-84, compared with 27% in 1980-81.

Few new trends showed up in the 1983-84 Graduate Student Survey. The demand for doctoral physicists remained high, and new physics graduates got job offers paying 5-12% more than their counterparts were offered the year before. Industry paid the highest salaries of all employers, attracted a larger proportion of doctoral physicists and remained overwhelmingly the biggest employer of physicists with master's degrees.

Only 10 (7%) of the respondents with terminal master's degrees took jobs teaching at secondary schools, where they were paid a median monthly salary of \$1560, while 53% went to industry at a median starting salary of \$2550.

The Graduate Student Survey can be obtained free from Susanne D. Ellis, Manpower Statistics Division, AIP, 335 East 45th Street, New York, NY 10017.

in brief

Cornell University has established a new major in electronics materials combining elements of electrical engineering and materials science. The

new major, based in the College of Engineering, apparently is the first of its kind and is meant to expose students to the latest discoveries relating to the fabrication and packaging of electronic devices.

The Office of Naval Research has established four new ONR Secretary of the Navy Research Chairs in Oceanography at leading institutions in the field. The chairs are four-year, \$800 000 awards, and they went to Robert D. Ballard, a senior scientist in the Ocean Engineering Department at Woods Hole Oceanographic Institution; Carl Wunsch of MIT; Walter Munk of the Scripps Institution of Oceanography; and James O'Brien of Florida State University.

Starting in January 1986 AIP's *Applied Physics Letters* will appear weekly rather than biweekly. There will continue to be two volumes of the journal each year.

Last summer 52 high-school students, one from each state plus the District of Columbia and Puerto Rico, spent two weeks working with a supercomputer array—including the only operating CRAY-2 supercomputing system, two CRAY-1 machines and a CRAY X-MP/33 multiprocessor—at Lawrence Livermore National Laboratory. The program, which was funded by the DOE Office of Energy Research, took place 12-23 August at the National Magnetic Fusion Energy Center, Livermore. Each student was paired with a computer scientist, and awards were made at the end for the most imaginative work.

The CERN Council voted unanimously on 27 June to admit Portugal as a member. Portugal will become a member as soon as its government has ratified the convention that established CERN. Its accession to the organization will bring membership in CERN to 14.

Bell Communications Research (Bellcore) has established a laboratory to do research on surface modification at the Serin Physics Laboratory of Rutgers University at Piscataway, New Jersey. Bellcore's Venky Venkatesan will manage the facility, which is to include two particle accelerators, a precision semiconductor-growth system and a laser-solid interaction laboratory.

The Electronic Materials Information Service, a database that compiles the latest published information on materials relevant to electronics (silicon, gallium arsenide, indium phosphide and so forth), has become available through the European Space Agency Information Retrieval Service. Further information can be obtained from INSPEC, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. □