the article and preparing a "rebuttal" for the referee. Consequently Chu is not ready to distribute the manuscript or the illustrations he presented as viewgraphs in Washington.

Chu says the concept is unique to the new superconductors because it makes use of resistance induced by small magnetic fields as a switch. "That way we are using a curse to our own advantage."

—WILLIAM SWEET

MICHIGAN TEAM TO JOIN IN FIRST EXPERIMENT AT SOVIET ACCELERATOR

A US team led by Alan D. Krisch of the University of Michigan will cooperate with a team of Soviet scientists on the first major experiment on the UNK accelerator being built at the Institute for High Energy Physics at Protvino, near Serpukhov, 60 miles south of Moscow. The NEPTUN–A experiment, scheduled to begin at the end of 1991, will study collisions of high-energy protons with spinning target protons. The main objective is to determine whether larger-than-expected spin forces persist at higher and currently unavailable energy regions. Experiments by Krisch and collaborators at Argonne and Brookhaven National Laboratories in the 1970s and 1980s posed a challenge to quantum chromodynamics, raising questions about the applicability of perturbative QCD methods at finite values of energy and momentum transfer (PHYSICS TODAY, August 1985, page 17).

The UNK accelerator is being built in stages in a 21-km ring that right now is about 75% complete. The first element will be a booster ring, consisting of conventional magnets, which is expected to be able to accelerate protons to 600 GeV by the end of 1991. A separate ring of superconducting magnets with the capability of accelerating protons to 3 TeV is to be finished around 1994. A second proton ring is to be built parallel to the first shortly thereafter. The injector is the existing 70 GeV proton acclerator.

The Michigan group is building a spin-polarized atomic hydrogen gas jet that the experimenters plan to take to Serpukhov in mid-1991. The jet will scatter high energy protons as its protons' spins reverse direction frequently. The jet relies on a temperature of about 0.4 K and a magnetic field of about 50 kG to polarize the protons' spins. The Soviet-US team also is working on a large spectrometer to detect those protons elastically scattered by the jet.

Using the UNK booster as a non-collider storage ring at around 400 GeV, the NEPTUN–A experiment will take data for 2800 hours in 1992 and 1993. Then, when the 3 TeV ring is completed, the experiment will be repeated, with the expectation of finishing in 1995. By that time the Soviets will be ready to proceed with their own series of other NEPTUN experiments, planning for which preceded NEPTUN–A. (The leader of the NEPTUN team is Vladimir L. Solovianov, and NEPTUN stands for New Experiment on Polarization at the Tunnel of UNK.)

Why not Fermilab?

Physicists from the NEPTUN experiment, which will also use the NEPTUN–A jet target, first seriously discussed cooperating on a UNK experiment with Krisch and colleagues during the September 1986 High Energy Spin Physics Symposium at Protvino. But the Michigan group reacted cautiously, partly out of uncertainty about the near-term future of newly thawing US–Soviet relations. Moreover, Michigan was conducting negotiations with Fermilab about the possibility of doing a similar polarized spin experiment on the Tevatron. But agreement was never quite reached on how to do it, and as US–Soviet relations started to warm up, the scientific and technical reasons for doing the experiment at Protvino began to look more and more attractive.

Because the effects sought in the experiment have a small cross section, a lot of running time is needed. At Fermilab the experiment would have had to be done with an extracted beam, but it works better with an internal beam, which Protvino had to offer. What's more, Protvino would have no equipment for extracting the beam during the period in which the first experiment would be done, and so the experiment would conflict with no other possible use.

The agreement to do the NEPTUN–A experiment was signed in March 1989 by Krisch, Solovianov, IHEP Director Lev D. Soloviev and Michigan President James J. Duderstadt.

The NEPTUN–A team consists of roughly 16 Soviet physicists and 16 US physicists, including four from MIT and Brookhaven National Laboratory, as well as about 12 from the University of Michigan. The MIT group is headed by atomic physicist Daniel Kleppner and is cooperating in the construction of the gas jet, which was recently successfully tested.

Other approved UNK experiments include a multiparticle spectrometer, which will take advantage of the high rate of B-meson production to look for CP violation in that system; a gluon experiment, building on current work at CERN and Protvino; and a hyperon experiment building on recent Fermilab work. Experiments for an area devoted to neutrino beams and 3 TeV on 3 Tev collider experiments are under review.

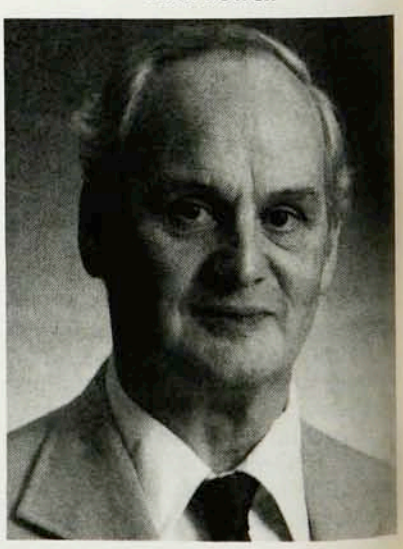
—WILLIAM SWEET

ACOUSTICAL SOCIETY ELECTS POWELL PRESIDENT

Alan Powell is the president-elect of the Acoustical Society of America, and Katherine S. Harris is vice president-elect. They will succeed the current president and vice president, Harvey H. Hubbard, a consultant for Planning Research Corporation in Hampton, Virginia, and Richard H. Lyon of MIT. The two new members of the ASA executive council are Lawrence A. Crum, associate director of the National Center for Physical Acoustics, and James E. West of the acoustics research department at AT&T Bell Laboratories, Murray Hill.

Powell received his BSc from the University of London in 1949, and went on to earn a PhD in engineering from the University of Southampton in 1953. He was a technical assistant at Percival Aircraft Co in England

Alan Powell



from 1949 to 1951, a research assistant at the University of Southampton from 1951 to 1953, and a lecturer at Southampton until 1956. He was invited to be a research fellow at the California Institute of Technology in 1956–57, and then moved to the University of California, where he became a full professor of engineering in 1962. Powell was associate technical director in the acoustics and vibrations laboratory of the David Taylor Model Basin (Bethesda, Maryland) from 1965 to 1966, when he became technical director and head of the facility. He became technical director of the newly organized David Taylor Naval Ship Research and Development Center in 1967, remaining in that post until 1986. Currently Powell is a professor in the mechanical engineering department at the University of Houston.

Powell has done both basic and applied research in acoustics. He has studied noise control in aircraft and ships and has worked on aircraft design. He is also involved in engineering and science education.

Harris received her bachelor's degree in psychology from Radcliffe college in 1947 and her PhD from Harvard University in 1954. She joined Haskins Laboratories in New Haven, Connecticut, as a research associate in 1952, and became vice president of the laboratories in 1985. Harris held a concurrent position at Hunter College in New York City from 1966 to 1970, when she joined the graduate center of the City University of New York as a professor of speech and hearing sciences. She was named a distinguished professor at CUNY in 1984.

For some years Harris has been engaged in research on speech articulation—the study of the articulator movement that leads to the output acoustic speechwave. She has served as principal investigator on a grant for this work from the National Institutes of Health, and she is the coauthor with Gloria Borden of the textbook, *Speech Science Primer* (Williams & Wilkins, second edition, 1984).

Katherine S. Harris

DELFT SEEKS USERS FOR ITS RF MASS SPECTROMETER

The Delft University of Technology is seeking potential users for what it calls a "unique" ultraprecise rf mass spectrometer that has been lying dormant since 1983. The board of the university's applied physics department will soon decide whether to scrap the instrument, donate it to some other institute or revive and upgrade it.

The mass spectrometer now provides a fractional uncertainty on the order of 10^{-9}. Further reduction of the error is considered possible.

The instrument's technical characteristics are described as follows in literature from Delft:

"For spectral lines a relative width $\Delta m/m = 10^{-7}$ (full width at Half Maximum) has been realized. ($\Delta m/m = 2\times10^{-8}$ is expected after a little extra trimming, even with present slit widths). The centroid of such a line has (separately) been determined with a standard deviation $\sigma = 10^{-4}$ of FWHM." The literature notes that these specifications make possible a statistical error (single reading) in the 10^{-11} range, or, after the trimming, as low as 10^{-12}. This result holds for low as well as high masses.

Readers interested in Delft's mass spectrometer should contact E. Koets, Delft University of Technology, Applied Physics Department, PO Box 5046, 2600 GA Delft, The Netherlands; telephone 31-15-785920, telefax 31-15-783251.

AAPT AND SOVIETS ORGANIZE HIGH SCHOOL EXCHANGES

The American Association of Physics Teachers, with support from the National Science Foundation and the US Information Agency, has organized an exchange program for high school students from the US and the Soviet Union. This July and August, selected students from both countries have participated in courses taught by leading physicists of the US and the Soviet Union. According to AAPT visiting fellow Anthea Maton, 15 American students are provided for under the grants; two more have joined the program, paying their own way.

The fifteen Soviet students and two of their professors arrived in the US in early July when, for three weeks, they attended Edward Lozansky's International Educational Network summer school, held at La-Salle Academy and nearby Brookhaven National Laboratory. There, says Lozansky, the students participated in advanced physics and mathematics courses devoted chiefly to problem-solving techniques. Nobel laureates were on hand to give lectures and instruction, among them Sheldon Glashow of Harvard University and James Cronin of the University of Chicago.

The Soviet students traveled to Washington, D.C., arriving at the end of July. They spent two days with the American exchange students touring the city, attending lectures and discussing their respective political systems. The Soviet students continued with a ten-day academic and cultural program at the University of Maryland.

The second half of the program begins when the American students meet their Soviet counterparts in Washington. Accompanied by Maton, the Americans will travel to the University of Tartu in Estonia, where they will be taught by professors from the University of Moscow and members of the Academy of Sciences of the USSR, including Yuri Ossipyan and Sergei Krotov. AAPT Executive Director Jack Wilson hopes to join the party during the latter half of the program. They will spend time in Pyarnu (a Baltic sea resort), Leningrad and Moscow before returning to the US at the end of August.

—Pat Janowski

IN BRIEF

Funding for West German science will drop slightly this year as the result of a general budget freeze. Funding for the Ministry of Research and Technology (BMFT) was to have been increased by 2.8% in 1989, but with the freeze in effect, inflation will bring about a slight decrease in real terms. The Max Planck institutes have been largely shielded from the cuts, and the German Research Foundation (DFG) has asked for annual increases of 5% for five years. ■