

RESEARCH FACILITIES AND PROGRAMS

Michigan bubble chamber

A new bubble chamber with a forty-inch diameter, which was recently completed and successfully operated at the University of Michigan, has been shipped to the Argonne National Laboratory where it will be used with the Zero Gradient Synchrotron.

The chamber is a cylinder, 26 inches deep, and uses propane-freon as a working liquid. It is designed to pulse at a 1.5-second repetition rate, but its designers are planning to experiment with the possibility of pulsing twice per beam pulse. The chamber will be used with a magnet which has been under construction for some time at Argonne. The magnet, using a ten-megawatt dc power supply, will provide a forty-kilogauss field over the entire volume of the chamber.

Since the magnet will not be ready until the end of the year, the group responsible for the construction of the chamber is considering, as a first endeavor, a magnetless experiment in which antiprotons would stop and annihilate in a liquid-hydrogen target placed within the chamber. When the magnet is available, they propose to attempt a K_1^0 - K_2^0 experiment.

Three associate professors in the Michigan Physics Department, B. P. Roe, Daniel Sinclair, and J. C. Vander Velde, were in charge of the chamber's construction. Most of the detailed design was the responsibility of Robert M. Brown and Parker C. Tracy of the firm of Delos M. Palmer Associates, Toledo, Ohio.

Donated, one observatory

The largest privately-owned observatory in Florida has been given to the University of Miami and its School of Environmental and Planetary Sciences by an anonymous donor, an amateur astronomer. The observatory, located on a ten-acre tract in western Palm Beach county, is housed in three recently constructed buildings which include small living quarters that will enable researchers to stay at the site. It is equipped with two telescopes, a

ten-inch Perkin-Elmer apochromat refractor and an eighteen-inch Newtonian reflector, plus related equipment.

Staff members and graduate students in the School of Environmental and Planetary Sciences plan to use the observatory and its instruments for studies of asteroids and cosmic dust and for various planetary and lunar-surface observations.

Chicago betatron dismantled

The University of Chicago announced last month that it had abandoned its attempt to find a buyer for the fifteen-year-old, 100-MeV betatron that is no longer needed. During its period of use, the accelerator had served primarily as an x-ray source for research in physics. Now it has been dismantled, with some of its components sold and others sent to Argonne National Laboratory.

The betatron, which "still had a potential for much useful work" was put up for sale in 1959, according to the University, because Chicago researchers were neglecting it in favor of more powerful accelerating equipment. Advertisements were placed in professional journals and in Chicago newspapers. Although inquiries were received from several universities in the United States and from institutions in various foreign countries, all negotiations with prospective buyers eventually fell through. The machine originally cost \$450 000 to build, but it is estimated that to replace it now would require more than twice that amount. The asking price for the unwanted betatron was \$100 000.

In the University's latest announcement, Clement Mokstad, assistant to the dean of the Division of the Physical Sciences at Chicago, was quoted as saying, "Perhaps we should have realized that no institution, acting on its own, could afford such a piece of equipment. Most atomic research is government-supported. For good reasons, institutions find it very hard to get either local or national financing for used equipment. The betatron,

despite the improvements made on it over the years at Chicago, had to be classified as a piece of second-hand goods."

On-line computer

A computer of advanced design mounted in a forty-foot van trailer has recently been acquired by Brookhaven National Laboratory for use primarily as an on-line data analyzer with the Alternating Gradient Synchrotron. Described as the world's most powerful van-mounted computing center, the device is a PDP-6 computer manufactured by the Digital Equipment Corporation of Maynard, Mass.

The computer can be moved from place to place, as needed, within the laboratory, and it will receive data on particle detection directly from counters and spark chambers. The usual step of storing data on film and tape and then interpreting it visually will be eliminated. Instead, the computer will play the role of a "nuclear illustrator", using its data to reconstruct representations of nuclear events. The resulting pictures will be shown on an array of cathode-ray tubes, and at the same time a high-speed printer will type out a mathematical analysis of the event. The machine will be used on a "shared-time" basis, accepting inputs from as many as 128 devices. The computer language used is FORTRAN II.

New laboratory

Electro-Optical Systems, Inc., has begun construction of a \$5.4 million Aerospace Sciences and Engineering Center. Consisting of two buildings scheduled for completion late this year, the center will be located in East Pasadena, Calif.

One building will be devoted to the "flight sciences" including work in plasma physics, metallurgy, surface physics, and fluid physics. The other will be for systems and environmental engineering.