UNITED STATES
ATOMIC ENERGY COMMISSION
Washington 25, D.C.

No. 513
Tel. ST 3-8000, Ext. 307

FOR RELEASE IN MORNING NEWSPAPERS,
SUNDAY, JANUARY 10, 1954

AEC ANNOUNCES 25-BILLION-VOLT ACCELERATOR TO BE BUILT AT BROOKHAVEN

The U. S. Atomic Energy Commission has approved design and construction at Brookhaven National Laboratory of an ultra-high-energy particle accelerator for nuclear research. The new machine, an alternating gradient synchrotron, will be designed to produce beams of protons of energies ranging up to 25 billion electron volts.

The alternating gradient synchrotron will use a series of alternate strongly converging and diverging magnetic fields to confine a proton beam in a tube of relatively small cross-section. This focussing effect allows the production of high-energy beams with smaller electromagnets and related equipment than would otherwise be possible.

The cost of design and construction of the new accelerator is estimated at $20,000,000. Design work will start at Brookhaven in the near future and it is expected that the machine can be completed in 5 to 6 years. Once in operation, it will be available to scientists wishing to collaborate in Brookhaven research programs or to carry out independent programs.

As a means of producing nuclear reactions under controlled conditions on a laboratory scale, particle accelerators have played an important role in the advancement of nuclear science and contributed much of the fundamental scientific information used in the design of nuclear reactors. The energy of the particle beams produced by accelerators bears a direct relationship to the nuclear phenomena that can be studied. As higher energy levels have been attained in laboratory machines, new sub-nuclear particles have been discovered and new nuclear phenomena observed.

The most powerful accelerator now in operation is the Brookhaven Cosmotron, which has accelerated protons to energies of 2.3 billion electron volts. The Bevatron, under construction at the University of California Radiation Laboratory at Berkeley, is expected to accelerate particles into the 5 to 7 billion electron volt range. By

(more)

providing particles with energies as high as 25 billion electron volts, the Brookhaven alternating gradient synchrotron is expected to contribute important new knowledge of the fundamental nature of matter.

Brookhaven National Laboratory, a research center equipped with facilities which no single university could afford to build or support, is operated for the AEC by Associated Universities, Inc., a corporation formed by nine northeastern universities. The institutions represented are Columbia University, Cornell University, Harvard University, Johns Hopkins University, Massachusetts Institute of Technology, Princeton University, University of Pennsylvania, University of Rochester and Yale University.

(Note to Correspondents: This announcement also is being issued by Brookhaven National Laboratory, Upton, Long Island, New York.)

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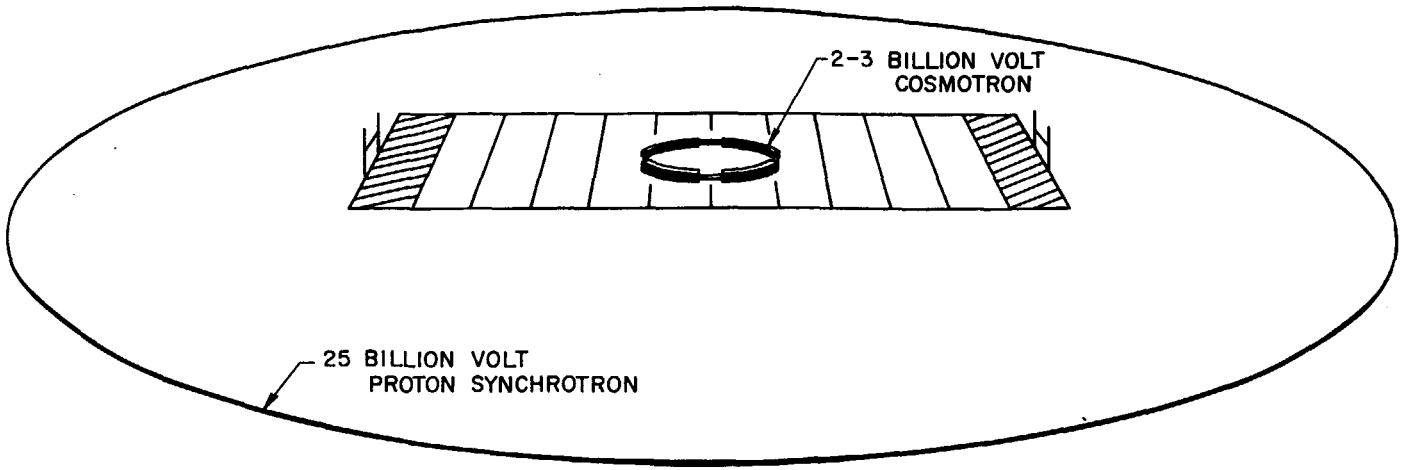
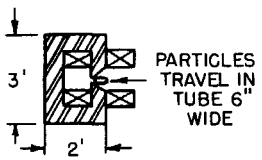
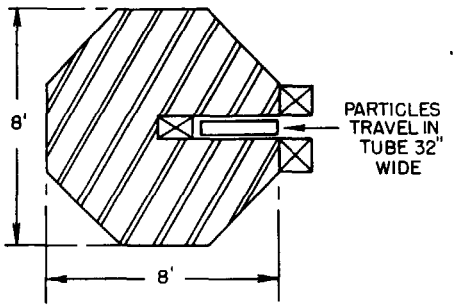
A 25 BILLION VOLT PROTON SYNCHROTRON
COMPARED WITH A FOOTBALL FIELD AND THE BROOKHAVEN COSMOTRON



CROSS SECTION OF PROTON SYNCHROTRON MAGNET



CROSS SECTION OF COSMOTRON MAGNET



	COST	ENERGY	DIAMETER OF MAGNET	MAGNET WT TONS	
				STEEL	COPPER
25 BEV SYNCHROTRON (ESTIMATED)	$20,000,000	25 BILLION VOLTS	700 FEET	2500	500
COSMOTRON	$7,000,000	2-3 BILLION	75 FEET	2000	75

STEEL COIL WINDINGS