National Magnet Laboratory To Be Built at M.I.T.

The world's most powerful magnet will be part of a new research laboratory to be built at Massachusetts Institute of Technology under a $9,502,000 contract with the Air Research and Development Command. Created as a national research center, the M.I.T. Magnet Laboratory will produce high and continuous magnetic fields in the search for new knowledge about matter and energy. Groups from academic, government, and industrial research institutions in the United States, and visiting scientists from other nations, are expected to use the installation.

The laboratory will be able to produce a continuous magnetic field rated at 250,000 gauss. The strength of this field is more than 500,000 times larger than the earth's magnetic field. The laboratory's high magnetic fields will be tools with which to determine the properties and behavior of atoms, atomic particles, and aggregations of atoms in solid materials, as well as in liquids and gases.

Construction is expected to start about mid-1961, on a site in Cambridge that is adjacent to the M.I.T. nuclear reactor. The laboratory is expected to be in full operation by 1964 with an anticipated annual research budget of $2 million a year.

Francis Bitter, a pioneer in development of magnets and in the study of high field magnetic phenomena, is resigning his position as associate dean of science in order to assume primary responsibility for the design and construction of the new laboratory. He will also be chairman of the laboratory's policy committee and will assume new duties as professor of geophysics to initiate studies at M.I.T. of the magnetization of the sun and its planets and of the role of magnetic phenomena in the evolution of the solar system.

Five M.I.T. scientists will form the nucleus of the magnet research center.

Benjamin Lax, head of the division of solid state physics at Lincoln Laboratory, will be director of the new facility. Lax is directing the work of the group of scientists and students engaged in solid state research using high magnetic fields in M.I.T.'s present magnet laboratory.

Assistant director of the laboratory will be Donald T. Stevenson, group leader in solid state physics at Lincoln Laboratory. Lax and Stevenson will be responsible for assembling the laboratory's permanent staff and directing the scientific program.

Two other members of the initial group, Henry H. Kolm and D. Bruce Montgomery, have played leading roles in the more recent development of high field magnets and will contribute to the design of the new magnets, as well as to the over-all installation.

James M. West, now associate director of M.I.T.'s division of sponsored research, will become the assistant director for administration of the laboratory. Those scientists assigned to Lincoln Laboratory will continue to be associated with the M.I.T. Lexington (Mass.) facility.

Francis Bitter and Benjamin Lax.

Brookhaven's Synchrotron Begins Operation

The alternating gradient synchrotron (AGS) at Brookhaven National Laboratory, one of the world's two largest operating particle accelerators, ran for the first time on 29 July, producing a beam of protons at an energy of more than 30 Bev. This is the highest energy ever attained by a particle accelerator. Before reaching this energy, the AGS had run for about an hour at 24 Bev.

The completion of the AGS represents an important step forward in studies of nuclear forces and the properties of sub-nuclear particles. It will enable scientists in the United States to observe nuclear interactions at energies about five times greater than ever before possible.

Another accelerator, quite similar in design and size to the AGS, has been completed at the European Organization for Nuclear Research (CERN) Laboratory, near Geneva, Switzerland. The CERN proton synchrotron first produced a proton beam of 24 Bev last November, and has since been run at 28 Bev.

Since 1954, the most powerful accelerator in this country has been the 6.2-Bev installation at the University of California's Lawrence Radiation Laboratory. With a machine in the 30-Bev range, physicists at Brookhaven expect to learn more about the many kinds of particles, such as mesons and hyperons, and the various "anti-particles," that are produced in target nuclei by bombarding them with high-energy protons.

Construction of the AGS, which includes 240 magnets placed in a ring-shaped, 18-foot square tunnel ½ mile in circumference, was started in late 1955, following several years of preliminary design work. The total cost of this latest Atomic Energy Commission research facility, including a service and laboratory building and an experimental building, is about $31 million.