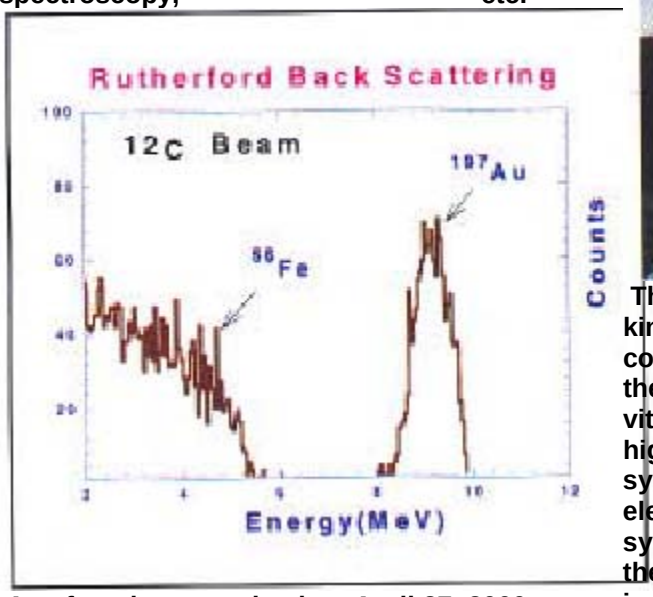
FOTIA : A NEW ION BEAM ACCELERATOR COMMISSIONED

An indigenously built Folded Tandem Ion Accelerator (FOTIA) has been set up at Nuclear Physics Division, BARC. The first beam of ions was delivered from it at 9:30 p.m. on Friday, April 21, 2000. The beam was of ^{12}C ions at 12.5 MeV beam energy.It was characterized by performing the Rutherford Back Scattering (RBS) on Gold, Tin, and Iron target nuclei. The accelerator has the capability of delivering heavy ion beams upto A» 40 and beam energy upto 66 MeV with a maximum terminal voltage of 6 MV. These beams will be used for research in basic and applied sciences in the field of nuclear physics, astrophysics, material science, accelerator mass spectrometry, atomic spectroscopy, etc.



At a function organised on April 27, 2000 on the occasion, Dr. Anil Kakodkar, Director, BARC, appreciated the tremendous efforts put in by several scientists and engineers from different Divisions of BARC to make the project a success. He identified it as a landmark achievement in the development of accelerators in BARC. Dr. Pitamber Singh, Head, FOTIA Section, made a technical presentation on the accelerator. Dr. B.K. Jain, Head, Nuclear Physics Division, emphasized the unique work culture at BARC and the total commitment of the BARC management for the success of this project. Dr. S.S. Kapoor, Director, Physics and E & I Group, traced the history of the accelerator development in the country. Since the Chairman of the Atomic Energy Commission, Dr R. Chidambaram, could not be present at the function, his message was read by Dr. S.S. Kapoor, in which he congratulated the FOTIA team. Later, after the inaugural function, the ion beam was injected into the accelerator column by Dr. Anil Kakodkar by pressing a button on the control console.

The FOTIA is an accelerator of its own kind amongst a few in the world. Its construction involved development of the state of art technologies of several vital components like dipole magnets, high voltage generator, SF_6 gas handling system, vacuum systems, magnetic and electrostatic lenses, computer control system and front line electronics, etc. In the present accelerator, the components in the high voltage areas are subjected to electric field gradients of hundreds of kV/cm and therefore this region is enclosed inside a pressure vessel filled with SF_6 insulating gas at 90 psig. At present, however, in the commissioning phase the accelerator is being run with N_2+CO_2 mixture. Anaccelerator of this type, if at all available to BARC from outside, would cost around Rs. 18 crores. However, due to availability of the expertise at BARC and utilisation of infrastructure from the earlier Van-de-Graaff accelerator at the Nuclear Physics Division, it has been possible to set up

the facility in a very cost effective way at about 3 crores. A number of scientists, engineers and technical personnel, from different disciplines, worked together to accomplish this goal.