

Planned location of the 70 MeV injector to feed the proton synchrotron, Nimrod, at the Rutherford Laboratory. It will take over from the existing 15 MeV linac and should increase the accelerated proton beam intensity by a factor of five.

new Wisconsin storage ring or at the higher energy machines elsewhere, synchrotron radiation facilities could better the present experimental possibilities for research at infra-red wavelengths.

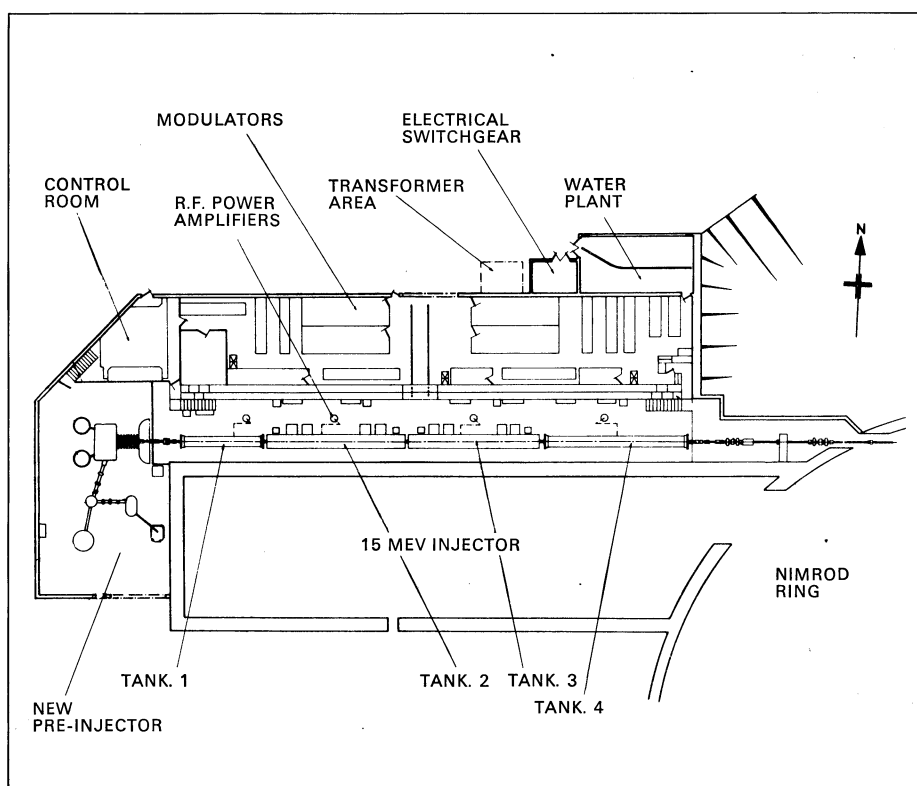
Summer Institute

From 13-26 August 1973 an 'International Summer Institute on Particle Interactions at very high Energies' has been organized by the Université Catholique de Louvain and the Technische Hochschule Aachen. The Institute will be held at Louvain. Further information may be obtained from D. Speiser, Director of the Summer Institute, Institute for Theoretical Physics, Celestijnenlaan 200 D, 3030 Heverlee, Belgium.

CORNELL Experimental area doubled

The area available for experiments at the Cornell 12 GeV electron synchrotron has recently been doubled with the completion of an extension to the original area. The increase in space makes it possible to use the beams more efficiently and to have more flexibility in scheduling the experimental programme.

Four experiments are currently in progress: Electroproduction of rho mesons being carried out by a Cornell group indicated at position (1) on the diagram; Photoproduction of the omega meson using tagged photons by a Rochester, Cornell group at position (2); Eta and neutral pion Primakoff effect by a Cornell, Binghamton group at (3); Inclusive positive and negative pion, positive and negative kaon and proton electroproduction by a Harvard group at (4).



Three other experiments are setting up: A Cornell, Ithaca group will study multiplicities in deep inelastic electron scattering at (4); A Cornell group will study multiparticle final states in electroproduction at (5); A Cornell, Harvard, Binghamton group will study inclusive positive and negative pion, positive and negative kaon and proton electroproduction at (6). There will also be a test facility at position (7).

RUTHERFORD New injector for Nimrod

Not long ago the 7 GeV proton synchrotron, Nimrod, at the Rutherford Laboratory had its head on the block in the context of seeing what internal economies could be made to ensure UK participation in the 300 GeV project. But the axe did not fall. On the contrary, towards the end of last year the Science Research Council foresaw Nimrod being in operation until the end of the decade. To improve the machine's capabilities in the coming years, the construction of a new 70 MeV injector has been authorized.

The new injector will take over from the existing 15 MeV linac and the higher energy is expected to increase the Nimrod intensity to 10^{13} protons per pulse. This is a factor of five higher than the peak ejected beam

intensity of 2×10^{12} which is expected to be achieved when a second harmonic r.f. system is brought into action this year. With an intensity of a few times 10^{12} at 15 MeV injection energy, the machine is bumping into its space charge limit. Hence the need for a higher energy injector.

Design work has been underway for some time. The major constraint, as usual, is money and ways of limiting effort and cost have been found. It is hoped to build the injector for around £1 million and the money will be found by internal budget shuffling rather than by asking for 'new' money.

The injector will be built alongside the existing 15 MeV linac (as shown in the diagram) and will use existing components where they are suitable. This applies in particular to tanks 2 (10 to 30 MeV) and 3 (30 to 50 MeV) which will be moved over from the PLA (50 MeV proton linear accelerator) which was closed down at the Laboratory in 1969. There will be four tanks in all. Tanks 1 and 4 will be modelled on the equivalent tanks in the Brookhaven 200 MeV linac.

The pre-injector will operate at 665 keV with a duoplasmatron ion source and a medium gradient column (16 kV/cm). Beam transport equipment will be conventional plus a phase ramping debuncher as used at Saclay (see vol. 11, page 76).

The new injector is designed to achieve an intensity of 75 mA with a