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(partial list of Exp. R-209)

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Progress report

The setting up of the dimuon and associated hadron detector for experiment R-209 has been completed in August with the installation of the 136 chambers and of the 56 scintillation counters around the bicone in the interior of the magnetic spectrometer. Preliminary data-taking has started by accumulating on tapes the information of the MIT chambers only, but making use of the complete trigger which employs the counters of the inner detector. The trigger rate could thus be reduced to $\sim$ 2 per second for a luminosity of 10^{31} cm^{-2} s^{-1} and was not sensitive to the beam conditions.

The totality of chambers in the open forward cone have also been installed.

During the ISR runs of August and of September, in parallel with data-taking, accurate adjustment of the thresholds and of the high-voltage settings for the chambers of the inner detector and of the open cone have been performed. Plateau curves for each single wire (which agree with the test-beam findings) have been obtained directly on the ISR operated at high luminosity making use of an inclusive trigger. The automatic, simultaneous scanning of all the voltage supplies will make it possible, during data-taking, to check the stability of the performances of all wires and associated delay lines (2000 readings) in 2-3 hours time.

By the end of September, several data tapes containing the complete information had been collected.

The data acquisition program, which links two computers in order to merge into a single tape the information of the MIT spectrometer chambers, of the inner detector, and of the cone chambers, has been checked and found to be fully efficient. Analysis of these tapes is now in progress. The information on the vertex position and on the space points of the tracks as supplied by the inner detector and by the cone chambers, will be used to initiate the tracking of muons through the toroids of the spectrometer.

With the aim of obtaining the best mass resolution, the geometry of the inner detector has been accurately measured: the geometry of those chambers which are assembled together in a single box is known to better than ± 0.2 mm. The position of the boxes with respect to the MIT chambers has been measured with an accuracy of $\sim$ 1 mm.

Concerning the physics program, the whole collaboration agrees to take full advantage of the uniquely large centre-of-mass energy available at the ISR in order to maximize the production cross-section at the largest dimuon masses.

We are also aware of the importance of measuring the energy dependence of the mass spectrum (scaling) and of studying the distribution of the associated hadrons for different beam energies in order to gain a better understanding of the mechanism for muon pair production. Nevertheless, the request for an allocation of 3000 hours of running time at 31 GeV beam energy for the coming year is dictated by the main goals aimed at by this experiment.