

STATUS REPORT OF PART C OF THE EHS PROJECT

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FGD

1. Vertex Detector.

The production of the 450 finger counters light guides is near completion and the plexipop fingers will be machined starting next month. The order for the photomultipliers is been placed these very days, while all 450 bases have already been made.

2. Lead Glass Converter and Absorber.

The movable platform has been designed and commissioned by CERN. Its delivery is expected near the end of this year.

Delivery of the LG blocks for the absorber will be completed at the end of this month. As for the converter wall, after some tests the decision was taken to use the same size of blocks as for the absorber, but of a lighter more transparent glass type. Transparency becomes indeed a relevant parameter since this glasses are viewed transversally to the showers direction.

Moreover, the 5RL's thickness appear to be the best compromise between conflicting requirements of a high conversion factor and an energy threshold as low as possible.

The price was not affected by this change, and the order will be placed as soon as our present difficulties will be solved.

3. Photomultipliers.

After several linearity and resolution tests, the 5" RCA photomultiplier type 8055 was chosen. A first bunch (15) has already been ordered and will be used during the July test.

IGD

After tests at Serpukhov, the size of the bars was chosen to be $50 \times 50 \times 420 \text{ mm}^3$. Space and energy resolution (confirmed by measurements at lower momenta at CERN) are respectively $\Delta x = \pm 3 \text{ mm}$ and $\frac{\Delta E}{E} = (15/\sqrt{E}+2)\%$. The LG bars will be equipped with a 20 mm cylindrical light guide to allow for a magnetic field shield extending beyond the photocathode. The screen will consist of an outer 1 mm thick iron layer and a 0.3 mm thick μ -metal cylinder. Such arrangement was proven to be good up to 30 gauss.

The movable platform has been designed with the help and supervision of CERN and is now being built at Serpukhov.

The full system is expected to be installed at CERN by Summer 1979.

A 50 counters array (mini-IGD) is planned to be installed and tested at CERN next October.

READ OUT

Price and compactness have favoured the choice of LeCroy model 2280 ADC. We shall make our order as soon as results of tests on the prototypes being now delivered will appear satisfactory.

In the meantime, a study is being carried on on an analogue buffer to allow for the acquisition of two events per burst.

HIGH VOLTAGE

A compact and reasonably cheap module ($\sim 60\$/\text{channel}$) has been developed to allow computer control of photomultipliers high voltage. The proposed scheme (DATEP) has been discussed with CERN electronics pool experts and found acceptable. A 125 channels fully hybridized crate is now under construction and will be tested at CERN next August.

Interest in our solution has already been expressed by other groups working on calorimeters.

MONITORING SYSTEM

The French and German groups are working together on the design and implementation of the optical fiber system to carry light flashes to the ~ 1500 counters in order to monitor photomultipliers stability. A preliminary scheme has already been developed and a medium scale test is planned for the October mini-IGD run.

As primary light source, the choice is for a N_2 superradiant laser, capable of delivering ~ 50 KW pulses of 5 nsec duration.

Work is being carried on at various labs for the implementation of techniques to control intensity drifts (at least 4 independent methods will be used).

Interesting results have been obtained on various methods of fibers attachment to the LG blocks during the March tests and we expect a final decision to be taken after the July run.