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EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH

PHYSICS I

ELECTRONICS EXPERIMENTS COMMITTEE

To : Members of the Electronics Experiments Committee
 From : Amblard, Beurtey, Cozzika, Ducros, Hansroul, Merlo, Movchet
 : and Van Rossum (Experiment S54)
 Re : Programme after the 1968 Shut-down

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The present set-up measures the Wolfenstein A -parameter for π^-p at 6 GeV/c. With a total of about four weeks between now and the shut-down we should complete this measurement, and a measurement of the R -parameter in the same beam conditions.

The beam gives about $2 \cdot 10^5$ pions per burst on the target (8mm \times 14 mm), with one burst per 2.3 sec, and with a spill of about 200 msec. This yields 1.5 elastic scatters per second on hydrogen in the polarized target, including dead-time losses. Under such conditions we calculate 10 days of 24 hours continuous running in order to measure A and R with absolute errors $\Delta A \approx \Delta R \lesssim 0.1$. This means practically one two-weeks' period, without "safety factor".

The programme after the shut-down would be to measure A and R in π^-p at the highest energy accessible by PS beams, with intensities larger than 10^5 pions per burst (16 or 18 GeV/c). The last step would be to measure the same quantities in π^+p at the same energies. Assuming at all energies the same beam conditions as those which we have now at -6 GeV/c, the programme after the shut-down would require a minimum of 4 two weeks' periods, allowing some time for tuning the beam and the counters at different energies and signs.

It would be desirable to process a fraction of the data tapes at the CERN CDC 6600. Although the on-line computer controls the apparatus and transfers the data on magnetic tape, we still have to check the correct encoding of these tapes, and to calculate results from samples of the data. This would require about 10 hours per months, beginning, if possible, in April or May 1968. We would like to use the computer facilities at this rate only as long as we are taking data at CERN.