



CM-P00052385

PH I/COM-69/15

Date : 3 April, 1969

Ref : NP/388

M e m o r a n d u m

To : Members of the EEC

From : Amblard, Autones, Cozzika, Deregél, Ducros, Fontaine, Hansroul, Lehar, de Lesquen, Merlo, Movchet, Raoul, Rieubland, van Rossum.

Subject : Status of the experiment S54 and machine-time request.

Present status of the experiment

At the end of 1967, the experiment was installed at CERN, in beam d_{27} in the South Hall. The longitudinally polarized target was positioned to measure the Wolfenstein A-parameter. By the spring of 1968 we had registered 4×10^5 spark chamber events produced by negative pions of 6 GeV/c. During September 1968, the experiment was reinstalled in the p_3 beam in the East Hall. In a first run in November, we tuned the beam for π^- of 6 GeV/c and adjusted the apparatus for the R_{π^-} parameter. At the end of February 1969, we had registered 5×10^5 events. (This is the number required to measure R_{π^-} for six t-values with an absolute error of $\Delta R \simeq 0.1$.) During the last part of this run, at the beginning of March, we tuned the beam for π^- of 16 GeV/c and have registered 4.5×10^4 events at this energy.

In June 1968 we began to treat the registered events by using the various parts of the analysing programme: reconstruction of tracks from the position of sparks; recognition of second scatterings of recoil protons in the polarimeter; selection of elastic proton-carbon scatterings with useful analysing power -- this selection retains about 4% of the registered events; calculation of the polarization parameters by the maximum likelihood method. Last February, we applied the entire programme to the set of data registered in 1968. We are now working on the controls and the consistency checks of the analysis.

Machine time request

In the next two weeks, in May, we intend to finish the measurement of R_{π^-} at 16 GeV/c; the next step would be to measure R_{π^+} at 6 GeV/c. The following measurements are A_{π^+} at 6 GeV/c and A_{π^-} at 16 GeV/c. If time permits, a measurement of R_{π^\pm} at 10 GeV/c would probably be interesting.

We estimate that this programme would require from 6 to 8 additional weeks, including the time necessary to tune the beam and to adjust the apparatus.