



CM-P00052345

EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH

PH I/COM-68/35

PH I/COM-68/35
29 April, 1968

PHYSICS I

ELECTRONICS EXPERIMENTS COMMITTEE

$K_{L,S}^0 \rightarrow 2\pi^0$ EXPERIMENT

by

J. Chollet, J.M. Gaillard, M.R. Jane,
T.J. Ratcliffe, J.P. Repellin,
K.R. Schubert, B. Wolff

Date: 29.4.1968

Memorandum

To : E.E.C.
 From : J. Chollet, J.M. Gaillard, M.R. Jane, T.J. Ratcliffe,
 J.P. Repellin, K.R. Schubert and B. Wolff
 Subject : $K_{L,S}^0 \rightarrow 2\pi^0$ experiment

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The data taking of the present experiment has produced some 200.000 good pictures. From this data alone ϕ_{00} should be determined reasonably well ($\sim \pm 25^\circ$), without assuming a precise knowledge of $|\eta_{00}|$.

In view of the present uncertainty of the value of $|\eta_{00}|$, we have investigated the possibility of getting an independent measurement of $|\eta_{00}|$ from the same experiment. In order to reach a precision of $\sim 0.3 \times 10^{-3}$ on $|\eta_{00}|$ it will be necessary to combine the results of the present experiment with additional data taking using the same apparatus under different conditions (for instance taking pictures without regenerator).

Although we are still investigating which combination of data should give the most accurate result on $|\eta_{00}|$, we already know that 3 - 4 weeks of additional running after the shut down should give the precision indicated above. In addition the proposed extension would improve the error on ϕ_{00} .

The additional pictures would increase the scanning and measuring load by a factor of about 2, and should lead to a similar increase of the scanning and measuring capacity. Without such an increase it seems to us that it would not be reasonable to perform the additional measurement.

To summarize, we ask an extension of about four weeks PS time after the shut down, combined with an increase in scanning power which should come as soon as possible.