

CERN LIBRARIES, GENEVA



CM-P00052560

PH I/COM-71/40  
3 September 1971MEMORANDUM

To : Members of the EEC  
 From : CERN - Heidelberg Group  
 Subject : Proposed measurement of  $\Lambda - p$  total cross-section in  
 momentum range 10 - 15 Gev/c.

We have accumulated with the present run approximately 1/2 of the data which we eventually would like to have for the proposed measurement of  $\sigma_{+-}$ . The analysis is quite far along, but we would prefer to finish it entirely on the present data before acquiring the second part in 1972. In the meantime we propose to exploit the large  $\Lambda$  flux in our beam during the next running period to measure high energy  $\Lambda - p$  total cross-section. We use the present detector and a polyethylene - carbon subtraction. In one running period we can expect statistics of the order of 1/2% in the total cross-section for the average momentum, or correspondingly poorer statistics in the study of the variation of the cross-section over our momentum interval. The systematic errors are not expected to be substantially worse. No previous results on high energy  $\Lambda$  cross-sections exist.

It will be possible to compare the results directly with the quark model prediction:

$$\sigma_T(\Lambda - p) = \sigma_T(pp) + \sigma_T(K^-n) - \sigma_T(\pi^+p).$$

The work will complement the experiment on  $\Sigma^-$  cross-sections in the hyperon beam.