

Ref.:



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24/9/1984

M E M O R A N D U M

Copy to/Copie à:

To/A : L.Foà (Chairman of SPSC)

From/De : G.Matthiae (spokesman of UA4)

Subject/: Measurements done jointly

Objet by UA2 and UA4.

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We wish to inform the SPS Committee about the interest of UA4 in performing measurements together with UA2 on diffractive-like events. ( see enclosed Memo).

This study was just started in the 1983 collider run. We believe that it is worth pursuing.

Ref.:

Date: 24/9/1984

M E M O R A N D U M

To/A : P.Darriulat (spokesman UA2)

From/De : G.Matthiae (spokesman UA4)

Subject/: Measurements done jointly  
Objet by UA2 and UA4.

Copy to/Copie à:

I.Butterworth  
(pp Director)

L.Foà  
(Chairman of SPSC)

A combined measurement using our roman pot system together with your large coverage apparatus was discussed by UA2 and UA4 physicists more than a year ago, before and during the 1983 collider run. Our roman pot system can be used as a small angle spectrometer which allows measuring the inclusive distribution in the diffractive process  $\bar{p}p \rightarrow \bar{p}X$  with momentum analysis of 0.6% (Phys.Lett.136B(1984)217). A detailed study of the decay products of the diffractive system X could be done very effectively by your apparatus.

In the 1983 collider run a limited amount of combined data were taken with a diffractive trigger. These data which contain only few thousands diffractive events have been analyzed with the assistance of your software experts. Some results on the pseudorapidity distribution of the secondaries as a function of  $M_x$  have been obtained but, because of the too poor statistics, no information could be obtained about the  $p_t$  distribution.

While there is no hint to expect anything spectacular, as unusually large  $p_t$  production in a diffractive process, we believe that the physics is of interest. At present, at the collider energy, very little is known about the pseudorapidity distribution of the secondaries and nothing about the  $p_t$  distribution. In addition we also suggest to study the process  $\bar{p}p \rightarrow \bar{p}Xp$  (double Pomeron exchange in the old language, two-gluon interaction in a more modern language). A study of the kinematics of this process is under way.

We now iterate our interest for a combined UA2/UA4 measurement. Our detectors are installed inside the roman pots and will be ready to take data on elastic scattering in few days. We are ready to discuss with you about the minor technical details referring to the combination of the two triggers and about the best way to make use of your powerful

system for these measurements, still causing the least possible perturbation to your main experimental program.

We wish also to point out to you, as well as to the CERN Directorate and to the SPS Committee, that, because of the limited life-time of UA4, the coming collider run represents the last possibility of performing these measurements, before the ACOL shutdown, by approved experiments and using the UA4 roman pot system.