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EUROPEAN ORGANISATION FOR NUCLEAR RESEARCH

STUDY OF INTERACTION IN WHICH GAMMA RAYS AND ELECTRONS WITH  
LARGE TRANSVERSE MOMENTUM ARE EMITTED.

- D.Ph.P.E. - C.E.N. SACLAY

- CENTRE DE RECHERCHES NUCLEAIRES - STRASBOURG.

## A B S T R A C T

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This addendum is concerned mainly with the preparation of the experiment proposed in the previous reports ISRC / 69-11 - and also its installation in the hall I<sub>1</sub>.

( The following points have been ordered in the same way as they appear in the list of questions asked by the ISR coordinator ).

- 1.) Provisional list of physicists, engineers, technicians, participating in the preparation of this experiment :
  - a) D.Ph.P.E. - CEN SACLAY (Tel. 951.80.00, Ext. 30.19) :  
J.CHEZE, J.GUILLERM, J.L.HAMEL, G.MATICARD, A.V.STIRLING,  
J.TEIGER, B.THEVENET, G.THION, H.ZACCONE, J.ZSEMBERY.
  - b) C.R.N. STRASBOURG (Tel. 32.48.33, Ext. 478) :  
Y.CHATELUS - M.CROISSIAUX, G.METZGER, R.MORAND, J.P.PAHIN,  
M.RIEDINGER, G.SCHULTZ, G.SUTTER.

This list is not limitative.

- 2.) The preparation and running costs of this experiment will be supported by the D.Ph.P.E. - CEN SACLAY and the CENTRE DE RECHERCHES NUCLEAIRES STRASBOURG.
- 3.) A computer will be used in the experiment. It will be provided by the SACLAY-STRASBOURG collaboration. A reasonable amount of time will be needed on the CERN 6600 computer in order to check the preliminary data.
- 4.) Lab and office space should be provided for approximately 8 to 10 people present at the same time lab  $60 \text{ m}^2$  offices  $80 \text{ m}^2$ .

If the apparatus is to be quickly removed, then an additional space of  $\approx 60 \text{ m}^2$  will be required to store it. It has been suggested that this space could be found in the hall  $I_1$  itself.

Most of physicists from Saclay and Strasbourg will arrive in CERN in Spring 1971 but some will arrive around January and electronic equipment will be there in early 1971. The experimental apparatus will be installed near the interaction region  $I_1$  in the period April - July 1971.

- 5.) As already mentioned in our proposal the equipment will be thoroughly tested in Saclay near the accelerator SATURNE before mounting it in  $I_1$ .

- 6.) The electronics and the computer will be installed in a counting room : space will be required for approximately 20 racks within  $\approx$  20 m from the interaction region. Figure 1.

- 7.) Vacuum chamber :

(a) For the first period of ISR operation a preliminary vacuum chamber has been studied in the CERN/ISR division by Dr FISCHER and JONES in collaboration with representatives of the  $I_1$  experiments :

- Drawings of this preliminary vacuum chamber # 251-353-OA and 251-406-0 are available from ISR division.

(b) For the second period of ISR operation ( $\approx$  1972), the construction of a special vacuum chamber with a thin window  $e \approx$  0.15- 0.20 mm thick has been studied at CERN by Dr JONES in collaboration with representatives of experiments in  $I_1$  who have specified their requirements on the dimensions and positions of these thin windows. The preliminary drawing had to be modified to incorporate the "sleeves" required to keep the RF-coupling impedance low.

Intensive tests on the reliability and security of such a vacuum chamber with thin windows will be needed prior to its installation in  $I_1$ . Construction delays have been reviewed at the second meeting on ISR vacuum chambers 19<sup>th</sup> March 1970 at CERN.

- 8.) Monitor :

We will rely on the signals from the control room and from other set ups in order to check the monitor we intend to instal near  $I_1$ .

- 9.) The remote-controlling of part of the equipment is being studied, but this will be limited if the experiment can be installed as shown on Figure I.

- 10.) D-C power for the Saclay magnet ( 300 KV) and cooling is to be provided by CERN.

Dr RESEGOTTI has discussed possible effects of the magnetic stray field of the Saclay magnet on the orbit of ISR. The efficiency of the proposed magnetic shielding has been tested and the experimentally

measured values of the maximum uniform field  $\approx 3.0$  gauss/ 1 m and the maximum gradient are indeed an order of magnitude smaller than the values quoted in our preceding report. ISRC-69/11 Add(III).

- 11.) The compatibility of the Saclay-Strasbourg experiment with others in  $I_1$  has been summarized by Prof. C.FRANZINETTI in the report ISRC/69-57 (26.9.1969).

- 12.) A provisional time table of preparation of the experiment is the following : the wire and spark chambers will be tested in Saclay (SATURNE) in the fall 1970 and early Spring 1971.

- 13.) Special conditions of operation of the ISR will not be required in the first part of the experiment i-e : the starting period of ISR operation.

FIGURE CAPTION

1) General layout of the experiment in the hall I<sub>1</sub>

For reference see drawings (ISR division-CERN) N°

Intersection 1 longitudinal sectional view	208-588-0
Intersection 1 transversal sectional view	208-587-0
Intersection 1 plan view	208-577-0
Zones disponibles pour les experiences	G.50-5363
Passerelle sur fosse	G.52.1080 <sup>C</sup>
Chambre X I <sub>1</sub>	251-406-0

2) Layout of the experimental apparatus

magnetic shielding	MS
wire spark chambers	SC
scintillation counters hodoscopes	H <sub>1</sub> H <sub>2</sub>
optical spark chambers	SG
γ ray detector hodoscope	HG



