EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH

INTERSECTING STORAGE RINGS COMMITTEE

To : Members of ISRC
From : C. Franzinetti
Subject : Compatibility of Experiments Proposed by the
Saclay Group and the Brookhaven-CERN-Columbia Group

1. Following the recommendation of the ISRC/69-49, 3 July 1969,
that a further meeting be convened between members of the
Saclay and of the Brookhaven-CERN-Columbia Groups, to
explore the compatibility of their experiments in Region 1
of the CERN ISR, a meeting was held on 25th September
at CERN ISR Division between the representatives of
the two groups, C. Franzinetti and L. Resegotti.
The discussion which has taken place is summarized
below.

2. Scope of the two experiments.
The scope of the two experiments can be summarized as
follows:

a) Both intend to measure electromagnetic radiation
at large transverse momentum and gather information
regarding the possible existence of neutral or charged
heavy particles decaying into electrons or $\pi^0$'s.

b) In particular in the first stage of the experiments:
   - The Saclay Group intends to measure $\gamma$-rays and
     single electrons of either sign.

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The Brookhaven-Columbia-CERN Group wishes to concentrate essentially on electron pairs and measure their invariant mass.

Obviously both experiments are complementary to one another. The second is a logical continuation of the first, while the first may provide knowledge which is useful to the analysis of the second.

3. Operative scheme and possibility for a quick removal of the apparatus.

For the first preliminary part of the experiment it is proposed that the two groups be given successively time for two runs of 100 good hrs each. At this stage of the experiment the two groups propose to collaborate closely, in fact they even plan to use in common some part of the same apparatus. The apparatus of both groups can be removed in not longer than 3 days.

4. What is to be provided by CERN.

4.1. For the second part of the experiment, DC-Power for the Saclay magnet (≈ 300 KW) and cooling for it. The magnet itself is provided by Saclay.

4.2. Vacuum Chambers For the first test both groups will be satisfied with one vacuum chamber which has been studied by the two groups in collaboration with Dr. Fischer.

4.3. Space Counting Room, Lab. facilities, Offices
- Counting Room for 20 racks within 20 m from beam crossing
- Lab. facilities: 60 m²
- Offices: 4
If the apparatus is to be quickly removable, then an additional space of ~ 60 m² will be required for both groups to store it. It is suggested that this space could be found in the hall itself, behind the shielding. Use of the removable crane is required. The apparatus will be provided with suitable hooks and frames to facilitate the use of the crane for the quick removal of it.

4.4. Civil Engineering The apparatus for the Saclay experiments will have to be supported level with floor. Therefore the 3-m deep pit will have to be partly filled with normal shielding blocks. For the pair test, about 2.5 m is required above and below the interaction level.

5. Request from the ISR Division

Dr. Resegotti has discussed possible effects of the magnetic stray field of the Saclay Magnet on the orbit of the ISR's probably to be used in the second part of the experiment. If the values obtained are, as expected, an order of magnitude smaller than the limits quoted in ISRC-69/11/Add. (III), he is satisfied that no dangerous disturbance is introduced. The efficiency of the proposed magnetic shielding will be tested by the Saclay Group prior to installation of the apparatus.

Conclusion

The experiments are found completely compatible for being run in Region 1 and the two groups intend to collaborate closely.