

EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH

CERN LIBRARIES, GENEVA



CM-P00062985

CERN/ISRC/70-7/Add.1

20 May, 1970

INTERSECTING STORAGE RINGS COMMITTEE

SUPPLEMENTARY REMARKS PERTAINING TO THE PROPOSAL
MEASUREMENTS OF INELASTIC PROTON COLLISIONS WITH
LARGE ENERGY TRANSFERS AT THE ISR

J.V. Allaby, A.N. Diddens, R.W. Dobinson, E. Gygi, J. Litt, L. Rochester,
K. Schlüpmann, F. Schneider, C.A. Ståhlbrandt, A.M. Wetherell

M E M O R A N D U M

To : The Members of the ISRC
From : J.V. Allaby, A.N. Diddens, R.W. Dobinson, E. Gygi, J. Litt,
L. Rochester, K. Schlüpmann, F. Schneider, C.A. Ståhlbrandt,
A.M. Wetherell
Re : Supplementary remarks pertaining to the proposal
"Measurements of inelastic proton collisions with large
energy transfers at the ISR"

With respect to our recent communication to the ISRC we would like to point out and underline certain features touched upon in the proposal.

- (1) We believe that the type of physics to be studied and the experimental techniques to be employed are appropriate to Phase 1 of ISR operation rather than to Phase 2. If such an experiment were to be done in Phase 2 we think that both technique and physical emphasis would be different.
- (2) Considering that an ingoing interaction region is required and that the presently planned use of 2, 4 and 6 is such that no more experiments can be accepted for Phase 1, we advocate that use of region 8 be considered for our proposal. The reasons are (i) the experimental equipment is highly mobile and can be moved in or out in less than a day, (ii) the resources needed in the intersection region are minimal as magnetic spectrometers are not used, and thus there would be little burden on ISR services. If it should turn out after the start of ISR operation that intersection region 8 is needed for supplementary ISR equipment our experiment could be readily removed. On the practical side we have already available mobile barracks which could be easily stationed in the open air near to I 8.
- (3) The cost of the experiment proposed seems to us to fall within that of a normal PS experiment, for example comparable to that of our search for quarks at 25 GeV. Hence the "normal" group budgets of our NP and ISR groups would not be exceeded.

- (4) We think that it is of considerable interest to develop the techniques of high resolution Cerenkov detectors and of isotropic chambers for ISR applications (let alone possibilities with larger synchrotrons) at the earliest possible time.

Although one could adapt magnetic spectrometer techniques such as are used at the PS, as we ourselves were considering at the time of our letter of intention, we felt that it was interesting to consider other ways to explore the potentialities of the ISR at an early stage, given the uncertainties in performance of a new machine, and the fact that the high energy phenomena are quite unknown.

Our present proposal takes into account possible problems of ISR operation in the early stages in that it can produce valid physics results with luminosities 100 times smaller than the design luminosity and can start with any vacuum chamber. In addition it might be that the presence of magnetic elements close to the ISR will be excluded during the early stages of the running-in of the ISR. At this time our spectrometers could be useful for monitoring.

Finally this technically simple experiment has the possibility to see unexpected or new phenomena in a simple and straight-forward manner. We believe that there should be room in the early stage of operation of the ISR for such an experiment which could point the way to future more complicated and detailed studies in this new energy region.

- (5) We would like to ask to ISRC to consider our proposal at an early date. A positive decision would enable us to begin preparation for ISR work in the Autumn of this year, at the end of our present PS experiment S92. Furthermore the preparation of the isotropic chambers, by the ISR part of our group, could proceed at the earliest opportunity.