

EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH

CERN/ISRC/70-12

5 June, 1970

MINUTES OF THE TWELFTH MEETING OF THE
INTERSECTING STORAGE RINGS COMMITTEE

HELD ON JUNE 2 AND 3, 1970

Present : W. Jentschke (Chairman), J. Allaby (part time), M.H. Blewett,
F. Bonaudi, H.M. Chan, G. Charpak, G. Cocconi, C. Franzinetti,
B.P. Gregory (part time), F.F. Heymann, K. Johnsen, E. Lillethun,
P. Marin, A. Minten, L. Resegotti, H. Schopper, J.C. Sens,
J. Steinberger, K. Winter, J. Zsebery (part time).

Since the last meeting, the ISRC has received the following documents :

- Supplementary Remarks Pertaining to the Proposal, Measurements of Inelastic Proton Collisions with Large Energy Transfers at the ISR, by J.V. Allaby, et al., CERN/ISRC/70-7 Add. 1.
- Memorandum on the Use of the Magnet by the Saclay-Strasbourg Collaboration for Their Experiment at ISR, by F. Bonaudi, C. Franzinetti, J.C. Sens, CERN/ISRC/70-11.

1. Minutes of the Eleventh Meeting (CERN/ISRC/70-9)

On page 3 of the minutes of the last meeting, line 6 should read "... chamber of 1300 mm diameter ...". With this correction, these minutes were approved.

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2. Plans for Running In the ISR

K. Johnsen discussed results from the first trials of the ISR beam-transfer system, plans for the remainder of this year, and preliminary thinking about running in the storage rings during the first half of 1971.

The ejection of protons from the PS, the trials of the initial section of the beam-transfer system, operation of all instrumentation and controls in this section, and a first trial of operation from the ISR control room (SRCR) have all been highly successful. From the results, one conclusion has been that the observational and detection equipment can operate satisfactorily down to an intensity of beam corresponding to 2-bunch ejection, per PS pulse, an important point for future trials of the entire machine in the interest of minimum disturbance to the PS experimental program and minimum contamination in the ISR. However, there have arisen some implications concerning the choice of energies that may be delivered to the ISR, without conflicting with other PS users, but these matters are under study and should be resolved in the coming months.

During the remainder of this year, tests in the beam-transfer system will continue and it is expected that by September - October beams will be run through both transfer channels up to (but not through) the ISR injection system. During the summer and fall, there will also be tests of some of the major systems of the ISR (not requiring PS beam) such as tests of the main ring magnets and their power supply and cooling systems. It is expected that, by the end of this year, the installations will be sufficiently complete for injection tests and running-in trials to begin early in January, immediately after the PS shutdown.

Plans for the running-in phase are still in a formative stage and the activities during this period will undoubtedly depend upon many things that it is impossible to foresee ahead of time. Therefore, as Johnsen stressed, there will be great needs for flexibility and ad hoc adaptation in any program forecast at this time. However, in order to carry out the studies known to be necessary for bringing the storage rings into operation, a rough estimate shows that about 4 shifts per week of

PS beam time, on the average, appears to be required during the first half of 1971. It is probable that, during the first couple of months, the full intensity of 20 bunches per pulse would be needed during only one of these shifts and that provision of only 2 bunches per pulse would be sufficient during the others. The requirements for intensity would probably increase during the period so that by May-June, 3 shifts per week might be needed with 20-bunch operation and only one or two shifts at 2-bunch operation. Such a program would use only about 10 percent of the protons from the PS, on the average. With respect to energy, it is expected that most studies could be carried out at perhaps two fixed energies (e.g., 15 and 24 GeV) but some work would require a wider range. Details on this point remain to be worked out.

The ISRC expressed its support for this running-in program for the ISR and recommends approval of the requested beam time from the PS. The Committee endorses Johnsen's expressions of need for flexibility and adaptation of the PS schedule to meet these needs as far as possible.

3. Experimentation at Interaction Region I-4

(a) Test and Survey Experiment

A. Minten presented a summary of the Test and Survey Experiment at the ISR, proposed by the CERN, Hamburg, München, Orsay, Princeton, Wien collaboration (CERN/ISRC/70-5). This is a further definition of the previously suggested work to be carried out at interaction region I-4, before the installation of the split-field magnet, as presented to the ISRC at its Eighth Meeting (CERN/ISRC/69-54).

The ISRC recommends the acceptance in principle of this proposal, for the period of operation of the ISR prior to the installation of the split-field magnet, subject to certain conditions in addition to those already imposed for all other experiments recommended for acceptance in the first period of operation of the ISR. These are that the major emphasis in this program shall be on testing and calibrating the general-purpose

equipment to be used with the split-field magnet and that no part of this testing program shall contribute to any delay in the installation of the split-field magnet. Data obtained during this testing may be useful for gaining some information along the lines outlined in Sections 3 and 4 of CERN/ISRC/70-5 but the acquisition of such data should be guided and limited by these conditions. If any special vacuum chambers are inserted at I-4 before the installation of the split-field magnet, their design should be based more on their usefulness for planning the later program with the magnet than for any specific experiment before its installation. Finally, participation in this testing program cannot establish any priorities with respect to the program of experimentation with the split-field magnet that will form part of the second period of operation of the ISR.

(b) Meeting on SFM Facility

Minten also informed the Committee that a meeting was planned for Friday, June 19, at 9:30 a.m., in the NP Conference Room to discuss various aspects of the split-field magnet facility. Among the topics on the agenda are : status of the magnet ; prototype proportional chamber ; vacuum-chamber design ; time schedules, etc. This meeting is open to all interested but particularly to those involved in associated experiments.

4. Additional Experimental Areas at ISR

Because the experimental program already recommended by the ISRC has completely filled the presently available interaction regions at the ISR, the ISRC now requests CERN to investigate the possibility of opening up another interaction region and to advise the Committee of the earliest date at which such a region might become available for experiments. However, quite apart from budgetary or other difficulties that might arise in connection with the exploitation of such a new area, the Committee feels that this possibility should be kept in reserve for future developments.

5. New Proposals

The ISRC took note of the Supplementary Remarks Pertaining to the Proposal, Measurements of Inelastic Proton Collisions with Large Energy Transfers at the ISR, by J.V. Allaby, et al. (CERN/ISRC/70-7 Add. 1).

In the light of Item 4 above, the Committee adheres to the opinion expressed in Item 5 (c) of the Minutes of its last meeting (CERN/ISRC/70-9) and again invites this group to present its proposal at the Open Meeting of the ISRC to be held in October.

6. Other Business

On the request for installing a magnet as part of its experiment at I-1, by the Saclay-Strasbourg group, J. Zsembery explained the advantages of the magnet from the viewpoint of the group and C. Franzinetti outlined the conclusions from the meeting on this subject held on May 20 with representatives of the group, Bonaudi, Sens, and himself (CERN/ISRC/70-11). Franzinetti also said that the Brookhaven-CERN-Columbia group has no objections to this installation.

In view of the improvements to this experiment, as given in CERN/ISRC/70-11, the ISRC recommends approval of the installation of this magnet, to be provided by Saclay, together with the necessary power and cooling to be provided by CERN. Although this installation is a modification to the previous approval, it does not alter the scope of this survey experiment. The Committee would urge, furthermore, that both this group and the Brookhaven-CERN-Columbia group should continue to search for ways in which the two groups can have greater collaboration toward an integrated single experiment.

7. Next Meetings

The ISRC plans to hold an Open Meeting on Tuesday, October 13, 1970, at 2:30 p.m. in the CERN Auditorium. Tentatively, items on the agenda will

include a report on plans for running in the ISR, the status of preparations for the experimental program, presentation of new proposals and a short visit to some parts of the ISR Facility.

The next closed meeting of the ISRC will be held on Wednesday, October 14, at 9:00 a.m. in the AR Conference Room.

M.H. Blewett