CERN/ISRC/73-25

9 August 1973

EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH

MINUTES OF THE FORTIETH MEETING OF THE INTERSECTING STORAGE RINGS COMMITTEE HELD ON 7 AUGUST, 1973

Mr. Franco BONAUDI

OPEN SESSION

Brief descriptions of the following new proposals for the ISR were made:

1. by C. Rubbia on a Revised Proposal for a 4π-Detector to Investigate Multibody Events at the ISR (Aachen-CERN-Harvard-Genova-Munich-California, Riverside collaboration);

2. by M.M. Block on a Proposal for Studies of Quasi-Two-Body Processes at ISR Energies (CERN-Northwestern-Orsay collaboration);

3. by G. Giacomelli on a Proposal to Search for Magnetic Monopoles with the Plastic Detector Technique (Bologna-CERN/Saclay-Roma collaboration).

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CLOSED SESSION

Present: H. Schopper (Chairman), G. Bellettini, M.H. Blewett, F. Bonaudi, A.B. Clegg, G. von Dardel, L. Di Lella, P. Falk-Vairant, M. Jacob, A. Minten (part time), F. Muller, E. Picasso, L. Resegotti (part time), W. Schmidt-Parzefall (part time), J. Steinberger, K. Tittel (part time), A.M. Wetherell, E. Zavattini.

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

- Addendum to Revised Proposal for a 4π-Detector to Investigate Multibody Events at the ISR, by the Aachen-CERN-Harvard-Genova-Munich-California, Riverside collaboration, CERN/ISRC/72-32 Add. 4.

- Addendum to Proposal to Search for the Neutral Heavy Boson Z°, by the Collège de France-Harvard-MIT collaboration, CERN/ISRC/73-9 Add. 3.

- Addendum to Proposal to Search for Magnetic Monopoles with the Plastic Detector Technique, by the Bologna-CERN/Saclay-Roma collaboration, CERN/ISRC/73-19 Add. 1.

- Cover page and Addendum to Proposal for Studies of Quasi-Two-Body Processes at ISR Energies, by the CERN-Northwestern-Orsay collaboration, CERN/ISRC/73-21 Add. 1.

- Proposal to Study High-P_T Events with a Calorimeter Hodoscope, by W. Selove, et al., University of Pennsylvania, and A.R. Erwin, et al., University of Wisconsin, CERN/ISRC/73-23.

1. The Minutes of the thirty-ninth meeting of the ISRC were approved.

2. Status Report

The ISR Co-ordinator, L. Di Lella, described the present status of experiments at the ISR, the recent performance of the machine, and outlined the scheduling for physics runs in the present operating period and the next period.

The difficulties with background, reported at the last ISRC meeting, have continued and have resulted in loss of useful data-taking time for some experiments. Resegotti stated that the ISR Department was putting considerable effort on this problem but, with the higher intensities now available, it was complicated. Improvement can be made at some intersections but usually leaves poor conditions at others. Further work on this problem will continue with high priority. Bonaudi added that some of the lost beams during recent physics runs had been due to erratic behaviour of power supplies now being improved.

3. Split-Field Magnet Facility

(a) Magnet

Resegotti reported that the split-field magnet had been in operation at 1 T last week with beams in the ISR and no appreciable disturbances of closed orbits or machine tune were observed. He added that, at the time of this meeting, beams of about 12 A at 26.5 GeV were circulating with the magnet again at 1 T and the SFM detector group were trying to obtain test data. The Committee expressed its pleasure in these results and Tittel added congratulations on behalf of the SFM experimental teams.

(b) Detectors

Minten outlined the status of the detectors. Of the "forward detectors", all 20 of those for the magnet are built and half are installed. The other half will be installed in the August and September shutdowns. The 4 detectors for the compensators are being modified; the large ones should be ready by October and the small ones by the end of the year. The performance of installed chambers has been as good as best expectations, no troubles were encountered with power on the magnet, and as mentioned by Resegotti, some test data were being taken today.

One of the "central detectors" is built and, with only 2 of its 9 planes equipped, had been tested in the magnet with field but no ISR beams. Noise, apparently not coming from the split-field magnet, was observed and the source is being investigated. This detector, fully equipped, will be re-installed in a future shutdown. All of the other 3 central detectors should be completed by February, 1974, and they will be installed as each is ready.

(c) Schedule for experiments

The past SFM Co-ordinator, K. Tittel, reviewed the accepted program of experiments for the SFM facility and stressed its long duration if these experiments were to be run in series, under the assumption that the times requested were granted. But there are some possibilities for reducing the duration either through truly simultaneous running or quasi-simultaneous grouping.

Criteria for experiments to run together would be compatibility in (i) physical layout of apparatus, (ii) trigger conditions and (iii) length of data-taking time. Some experiments might not be able to run simultaneously but, with compatibility in equipment, could run with quick alternation. Others, needing only small installations, could also alternate quickly. Two experiments, R 406 and R 413, will need lengthy shutdown time for installation.

On the basis of the possibilities outlined by Tittel and by the present SFM Co-ordinator, W. Schmidt-Parzefall, it appears hopeful to the Committee that experiments R 401, R 407, R 408, R 410, R 411 and R 412 can obtain a significant part of their data during 1974 and perhaps the latter part of 1973. Sufficient time must be allowed for tests on the detectors (experiment R 403T). There seems to be no possibility that experiment R 406 can be installed before the year-end shutdown of 1974-75, and the installation may be later if unforeseen delays occur in the rest of the program. Because of its special requirements, installation of experiment R 413 also cannot be foreseen before the year-end shutdown of 1974-75.

The Committee agreed that the details of scheduling should be the responsibility of the SFM Co-ordinator and suggests that he organize a series of SFM Users meetings to work these out, with regular reports to the ISRC. The Committee emphasized that no allocations for total running time had been approved for any of the experiments as yet.

(d) Operation of the Facility

There was considerable discussion on the problems of operating the SFM facility, particularly after the initial running-in period. Representatives of several of the groups in the accepted program have been participating in the setting up and testing of the detector system. The Committee recommends that other groups in the present program, and those that may have experiments in the future, should arrange to have one or two physicists join in the operation of the facility, at least six months ahead of the scheduled running time. Further discussion on operational problems will continue, within CERN, with a view to providing optimum conditions for smooth running of the facility and the Committee will be informed of the arrangements.

4. Item Pending from Previous Meeting

On the Proposal to Search for the Neutral Heavy Boson Z°, by the Collège de France-Harvard-MIT collaboration (CERN/ISRC/73-9, /73-9 Add. 1, Add. 2 and Add. 3), the Committee feels that it cannot recommend acceptance at this time in the proposed form. This decision is in part motivated by the heavily loaded program for the SFM facility.

5. Discussion of Proposals Presented at the Open Session

(a) On the Revised Proposal for a 4π-Detector to Investigate Multibody Events at the ISR, by the Aachen-CERN-Harvard-Genova-Munich-California, Riverside collaboration (CERN/ISRC/72-32 Add. 3 and Add. 4) the Committee postponed a decision until its next meeting.

(b) On the Proposal for Studies of Quasi-Two-Body Processes at ISR Energies, by the CERN-Northwestern-Orsay collaboration (CERN/ISRC/73-21 and /73-21 Add. 1) the Committee cannot recommend acceptance at this time since the physics is similar to two other already accepted experiments, namely, R 401 and R 603, and suggests that the CERN-Northwestern-Orsay group discuss collaboration with these groups.

(c) On the Proposal to Search for Magnetic Monopoles with the Plastic Detector Technique, by the Bologna-CERN/Saclay-Roma collaboration (CERN/ISRC/73-19 and /73-19 Add. 1), the Committee recommends acceptance for installation of the stacks of plastic detectors, the location and scheduling to be determined between the ISR Co-ordinator and the ISR Department. Other requests mentioned at the Open Session are not recommended for acceptance, but should be submitted in writing to the ISRC.

6. Newly Received Proposal

The Committee took note of the Proposal to Study High-P_T Events with a Calorimeter Hodoscope, by W. Selove, et al., University of Pennsylvania and A.R. Erwin, et al., University of Wisconsin (CERN/ISRC/73-23) and expressed its wish not to consider this Proposal further.

7. Other Business

(a) The Chairman of the ISRC reported that he had received a request from Experiment R 602 to install a different vacuum chamber at intersection I-6 during the September or October shutdowns. The present chamber would be replaced for R 603 during the year-end shutdown. Bonaudi stated that this work would have to be at the expense of work already planned in connection with other experiments or with improved ISR performance. He also pointed out that repeated vacuum-chamber changes, with subsequent bakeouts, may weaken machine components and give rise to future breakdowns.

It was agreed that the ISR Department, together with the ISR Co-ordinator, would investigate the possibilities for fulfilling this request, and the consequences to other parts of the program, and the result will be reported to the Chairman of the ISRC.

(b) The Chairman mentioned that this will be the last meeting to be attended by J. Steinberger and, on behalf of the Committee, thanked him for his extensive contributions to its work.

(c) The Committee also expressed its thanks to the out-going SFM Co-ordinator, K. Tittel, for all his effort in organizing the program for the SFM facility.

8. Next Meetings

The next meeting of the ISRC will be held on Tuesday, 23 October, 1973, with an Open Session in the morning in the CERN Council Chamber and a Closed Session in the afternoon in the ISR Conference Room.

Tentatively, the following meetings are scheduled for 20 November and 11 December.

M. H. Blewett