

EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH

CERN LIBRARIES, GENEVA

CERN/ISRC/69-5/Add.4

30 November, 1971



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INTERSECTING STORAGE RINGS COMMITTEE

To : Members of the ISRC
From : CERN/Holland/Lancaster/Manchester Collaboration
Subject: Apparatus Experiment R-201

MEMORANDUM

TO: ISRC

FROM: CERN/HOLLAND/LANCASTER/MANCHESTER COLLABORATION, EXP R201,
M.G. ALBROW, D. BARBER, A. BOGAERTS, B. BOSNJAKOVIC, J. BROOKS,
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Re: APPARATUS EXP R201

The installation of the small angle spectrometer (S.A.S.) has now progressed to the point where it can be used for the detection of secondaries with momenta $< 15 \text{ GeV}/c$ and within a limited range of angles. Data taken on the distribution in momentum of the secondaries produced at several angles are presently being analyzed. The two missing magnets, which are needed to go to $25 \text{ GeV}/c$ secondaries will be installed during the shutdown. A major drawback of the present set up is the lack of a thin walled vacuum chamber; such a chamber has been requested long ago but thus far not been installed.

In addition a small angle monitor (9 counters, close to the two down stream arms) has been provided since some time for common use by all experiments in I2. It has been agreed to enlarge this monitor, by adding 4 counters, in order to accept particles out to 250 mrad . Two large angle monitors have furthermore been installed (see ISRC/71-4, page 9 and fig.10) which will provide, for common use in all experiments of I2, data on the radial and vertical distribution of interactions and which, at the software level, will be used for a search for quarks (see ISRC/71-2). The quark search is a combined effort by exps R201 and R202.

The purpose of this note is to draw attention to an extension of the equipment around ring 2 (S.A.S. is above ring 1) which we would like to implement during the forthcoming shutdown. This concerns the addition of two spark chamber modules which would enable us to measure the angle of the secondaries produced in the direction below ring 2 in coincidence with events in S.A.S. In doing so we would attempt to isolate the reaction

pp \rightarrow p π^+ and possibly others, as discussed in the addendum (ISRC/69-5 ADD. 14 April 1969) to our original proposal (ISRC/69-5 10 Febr 1969). Such data are of obvious interest in themselves and provide a very useful calibration of the S.A.S. data with elastic scattering events. They are also of interest in connection with the future use of the SFM facility.

Thus far we have given low priority to this extension, in order not to detract from the preparation of the spectrometer itself. We have merely allowed for this eventual addition in the planning of the cabling, the electronics and the software. Some extra spark chambers are available (6 planes are required, bringing the total in the experiment to 40 planes). Their supports have been designed and questions concerning their installation have been discussed with the ISR experimental support group.