

CERN LIBRARIES, GENEVA

NP/Memo/837



66-50
30.11.1966

CM-P00053640

To : Members of the Electronic Experiments Committee
From : B. Hahn, F. Krienen, K. Borer, H. Hofer and P.G. Seiler
Re : TEST ON MUON NUMBER CONSERVATION

Addendum 2 to the Proposal

1. A-dependence of neutrino cross sections

In NP/Memo/824 to Professors Gregory, Paul, Preiswerk, Ramm and van Hove, dated 28 October, 1966, we announced our intention to measure a neutrino cross section ratio between lead and carbon. This can be done simultaneously with the test on muon number conservation.

According to a paper by J.S. Bell (PRL 13, 57, 1964), highly inelastic neutrino events with small four-momentum transfer and small angle between incoming and outgoing leptons, should be suppressed by a factor $A^{1/3}$ in complex nuclei.

The required modifications of our set-up in order to allow a search for the "Bell-effect" are the following:-

- a) The iron plates in our range chamber must be replaced by carbon and lead plates, which are available.
- b) In order to measure the muon momentum, two existing magnetized iron plates, together with a few spark chambers, must be installed in an extra improvised hut outside the present bubble chamber block house (Fig. 1). This extra installation might interfere with construction work of the Gargamelle project. Presumably in the first phase of the neutrino experiment no interference is expected, but after Easter, during the main run, the extension of the experiment requires coordination and planning.

Dr. Bell has encouraged us to do the A-dependence experiment, although due to the present theoretical uncertainties in the required limits of q^2 , θ_μ and $(E_\nu - E_\mu)$, it is now impossible to predict, if we shall see the effect in the forthcoming experiment.

2. Final Composition of Group

B. Hahn	}	CERN
F. Krienen		
K. Borer	}	University of Fribourg
H. Hofer		
P.G. Seiler		

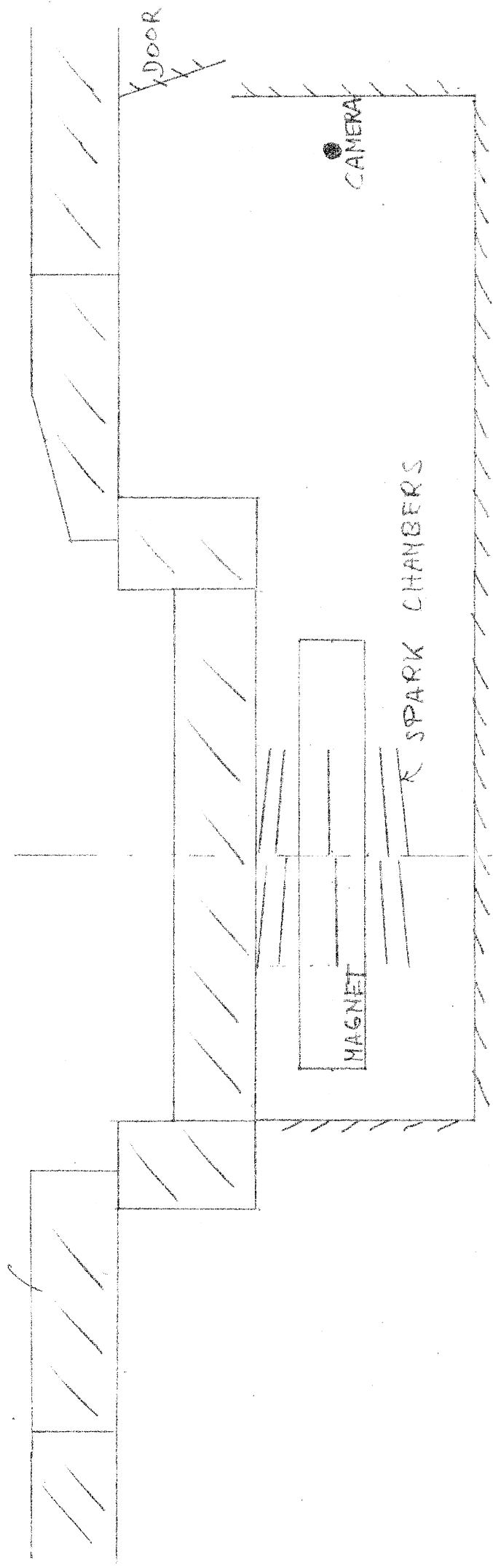
The whole experiment will be done as a CERN-Fribourg collaboration. Dr. Gerber, who is heavily involved in the $\beta(\Lambda)$ experiment, feels that he should not participate anymore as an author. He kindly agreed, however, to remain a consultant to our group.

Copies:-J.S. Bell
G. Plass
C. Ramm

8.11.66

EXTRA HUT FOR MAGNET

EXISTING BLOCKHOUSE



////// = INNER WALL OF NEW HUT

———— = HIGHEST POINT; 210 CM ABOVE BEAM LINE

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Fig. 1