

Short Minutes of the BVR 32

Meetings of March 6/7, 2001

1 Meetings of the Committee

closed meetings: Tuesday, March 6, from 9:00 – 12:30

Wednesday, March 7, from 9:00 – 11:35

present: A. Blondel

D. Bryman

C. Hoffman

J. M. Pendlebury

L. Tauscher

P. Truöl (chair)

G. Wagner

local consultants: C. Petitjean

R. Rosenfelder (secretary)

as observer from the “Forschungskommission”: L. Simons

ex officio: R. Eichler (partly on Tuesday)

2 Technical Proposals

2.1 R-96-04.2: Search for Time Reversal Violating Effects in the Decay of Free Neutrons (K. Bodek *et al.*)

Recommendation: The Committee considers the physics case of the proposed experiment as good and acknowledges the detailed report on successful R&D. It recommends it for data taking at the completed beam line (where it will be the only user at present). However, the Committee also feels that the discussion of the systematic errors is not fully convincing and therefore – after step 4 in the proposed schedule – would like to receive a report which discusses the prospects and ultimately achievable goals of this experiment.

2.2 R-97-05.2: Precision Measurement of Singlet μp Capture in a Hydrogen TPC (P. Kammel/C. Petitjean *et al.*)

Recommendation: The Committee feels that the proposal provides convincing evidence based partly on test measurements and development of prototypes that this experiment will lead to a precise value of the induced pseudoscalar coupling constant in ordinary muon capture.

This is of great importance in the light of controversial experimental results over the last 30 years and the fact that one can calculate this quantity now with high precision. The Committee accepts the proposal therefore as a high-priority experiment and recommends it for scheduling.

3 Letter of Intent

3.1 R-01-01.0: The Search for Two-particle Muon Decay to Electron and Massless Goldstone Boson (Familon) (Yu. Scheglov *et al.*)

Recommendation: Despite some shortcomings the Committee considers this letter of intent in principle as an interesting theoretical possibility. However, as it was not presented in the open meeting and the available information was too scarce any further judgement was postponed until a more detailed study or a proposal is submitted.

4 Progress Reports and Beam Requests

R-89-01: A Precise Measurement of the $\pi^+ \rightarrow \pi^0 e^+ \nu$ Decay Rate (D. Pocanic *et al.*)

The Committee was delighted to see this experiment well under way and producing clean data. It recommends scheduling for further production runs and gives it priority if a possible interference with CMS test runs should arise.

R-97-03: Doppler Broadening of Gamma Rays Following Muon Capture: Search for Scalar Coupling (V. Egorov *et al.*)

The Committee supports the extension of the beam period asked for by the collaboration.

R-98-03: Laser Spectroscopy of the Lamb Shift in Muonic Hydrogen (F. Kottmann *et al.*)

The collaboration seems to have made progress on all relevant issues and the Committee agrees with further continuation.

R-99-05: Search for $\mu^+ \rightarrow e^+ \gamma$ down to 10^{-14} Branching Ratio (T. Mori *et al.*)

The progress report was read by the Committee and by the special advisor D. Schinzel who was not present but contributed his comments by e-mail. Tests with the large prototype Xe-detector are being prepared at present. One issue which up to now has not been addressed adequately is the need for a calibration system.

R-00-03: Proposal for an Ultracold Neutron Facility (A. Serebrov/M. Daum *et al.*)

The Committee heard the oral presentations concerning the new design of the source which will give higher densities of ultracold neutrons. However, this has delayed the submission of a detailed technical proposal, which is not yet completed. The Committee obtained and discussed the special Technical Review prepared by a group of experts from all over the world in December 2000 and supports the findings and steps recommended there. It urges the collaboration to

open the discussion on design and use of this unique facility within the community of competing experiments presently under consideration or construction at various places. In particular, a special workshop organized by the PSI group could lead to a broader exchange of ideas and to an enlargement of the present collaboration for measuring the electric dipole moment of the neutron.

5 General Issues

Starting with the next meeting Cy Hoffman will take over the chair of the Program Advisory Committee from Peter Truöl.

The Committee strongly supports the use of the thick target for those particle physics experiments which need the highest intensity. At present the pionic hydrogen experiment (highly rated by the Committee in past recommendations) crucially depends on this option but also future high-priority experiments like $\mu \rightarrow e\gamma$ will be affected.

6 Next Meeting

The next meeting (BV33) is planned for Tuesday/Wednesday January 8/9 2002.

March 15, 2001

P. Truöl, C. Hoffman, R. Rosenfelder