Short Minutes of the BVR 34

Meetings of February 4 – 5, 2003

1 Meetings of the Committee

closed meetings:
Tuesday, February 4, from 9:00 – 12:20
Wednesday, February 5, from 9:00 – 11:20

present: A. Blondel
D. Bryman
C. Hoffman (chair)
S. Paul
J. M. Pendlebury
L. Tauscher
G. Wagner
D. Wyler

local consultants: C. Petitjean
R. Rosenfelder (secretary)

external consultants: D. Schinzel
P. Cenci (on Wednesday)

as observer from the "Forschungskommission": L. Simons

ex officio: R. Eichler

2 New Proposals

2.1 R-00-05.2: A New Precision Measurement of the Neutron Electric Dipole Moment (EDM) (M. Daum, A. Serebrov *et al.*)

Recommendation: The committee considers a measurement of the neutron EDM at a level of 10^{-27} e· cm to be very important and well-motivated. We emphasize that this proposal is for the "mini"-EDM experiment; a possible extension for a larger apparatus to measure down to the level of 10^{-28} e· cm ("maxi"-EDM experiment) would require a separate proposal. The committee is convinced that the team is capable, has done good development work and can perform this challenging measurement. It therefore approves this experiment with the highest priority – together with several provisos:

1. The discussion of financial requirements in the proposal is too sketchy and needs to be greatly expanded together with a work plan and construction schedule.

2. The collaboration will have to appoint a Technical Manager soon to coordinate technical activities and finances.

3. A Technical Review Committee (M. Pendlebury, S. Paul and D. Bryman) will monitor the technical progress and future plans semi-annually as is done for the MEG experiment. The first such review will take place in July 2003.

2.2 R-03-01.1: High-Accuracy Measurement of the Spin-Dependent Neutron Scattering Length of the Deuteron (O. Zimmer *et al.*)

Recommendation: The committee considers this proposal to be well motivated as it addresses important physics issues. The team is capable and experienced and the experiment seems to be feasible. However, only provisional approval is given as some technical aspects are lacking in the proposal. These include a discussion of systematic errors, costs and schedule. A report containing these points should be prepared by the proposers within a month; it will then be reviewed by the committee via e-mail to avoid undue delays.

3 Letters of Intent

3.1 R-03-02.0: A New Search for the C-Noninvariant Decay $\pi^0 \to 3\gamma$ (E. Frlez, D. Mzavia, D. Pocanic *et al.*)

Recommendation: The committee acknowledges the receipt of this Letter of Intent together with a request for 5 weeks of test beam. The committee is not very enthusiastic about the physics motivation for this measurement and observes that a significant effort by the collaboration and PSI would be needed for this test. The committee believes that the collaboration's effort would be better spent on more important physics issues using their apparatus, such as $\pi\beta, \pi e\nu$ and $\pi e\nu\gamma$. Therefore the request for beam time to perform a test for the $\pi^0 \to 3\gamma$ experiment is not endorsed.

3.2 R-03-03.0: Precise Investigation of the Average Lifetime of Relativistic π-mesons (V. Samoilov *et al.*)

Recommendation: The committee acknowledges the receipt of this Letter of Intent. However, it neither found the physics motivation particularly strong nor was it convinced that the measurement, as presented, would be successful.

4 Progress Reports and Beam Requests

The committee received 8 progress reports of which 4 were presented orally in the Tuesday afternoon session:

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

R-97-05: Precision Measurement of Singlet μp Capture in Hydrogen (P. Kammel, C. Petitjean *et al.*)

R-98-01: Measurement of the Strong Interaction Width and Shift on the Ground State of Pionic Hydrogen (D. Gotta *et al.*)

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

R-99-06: Precision Measurement of the μ^+ Lifetime (G_F) With the FAST Detector (J. Kirkby, M. Pohl *et al.*)

R-99-07: A Precision Measurement of the Positive Muon Lifetime Using a Pulsed Muon Beam and the μLan Detector (D. Hertzog, R. Carey *et al.*)

R-00-03: The Ultra Cold Neutron facility (UCN) (M. Daum, A. Serebrov *et al.*)

These reports each describe impressive and gratifying experimental progress that should lead to a rich crop of exciting physics results in the coming years.

The status of the MEG experiment was presented during a special session on Monday afternoon (February 3, 2003):

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

The committee notes that the collaboration has achieved great progress in a number of areas but still has concerns in some key issues. These are described in a detailed report by the Technical Review Committee (A. Blondel, C. Hoffman, D. Schinzel).

5 Next Meeting

The next meeting (BV 35) is scheduled for Tuesday/Wednesday 10/11 February 2004.
The technical review of the EDM experiment is planned for July 7/8, and that of the MEG experiment for July 9, 2003.

February 21, 2003 C. Hoffman, R. Rosenfelder

6 Addendum to R-03-01.1

In the meantime the collaboration has provided the requested report in which all issues are covered in detail which were raised initially. After electronic refereeing by the assigned members the committee came to the conclusion that this experiment should now be approved with medium priority.

April 22, 2003 C. Petitjean, R. Rosenfelder