

Short Minutes of the BVR 33

Meetings of January 8/9, 2002

1 Meetings of the Committee

closed meetings: Tuesday, January 8, from 9:00 – 12:40

Wednesday, January 9, from 9:00 – 12:30

present: A. Blondel

C. Hoffman (chair)

J. M. Pendlebury

L. Tauscher

P. Truöl

G. Wagner

D. Wyler

excused: D. Bryman

local consultants: C. Petitjean

R. Rosenfelder (secretary)

external consultant: D. Schinzel

as observer from the “Forschungskommission”: L. Simons

from the “Laboratory for Particle Physics (LTP)”: K. Gabathuler (till 10:00 on Tuesday)

ex officio: R. Eichler (on Tuesday and part of Wednesday)

2 New Proposals

2.1 R-02-01.1: Pion-Nucleus Scattering at Low Energy (E. Friedman *et al.*)

Recommendation: The Committee expressed some skepticism whether the proposed experiment will yield unambiguous information about the conjectured partial restoration of chiral symmetry in nuclei but believes that a careful measurement of low-energy pion-nucleus scattering could yield useful information about the parameters of the optical potential. Therefore it recommends approval of this proposal with moderate priority. As this is the last year of operation of the LEPS spectrometer the Committee hopes that the planned measurements can be successfully completed.

2.2 R-02-02.1: Partial Muon Capture Rates for Double Beta Decay (V. Egorov *et al.*)

Recommendation: The Committee expressed some concerns on the effects of feeding from higher levels to the state under investigation and on the (unspecified) level of improvement this experiment will provide for calculating nuclear matrix elements in neutrinoless double beta decay. However, the proposed measurements are clearly feasible and will give useful information for ongoing and future double beta decay experiments. Approval with moderate priority is recommended.

3 Letter of Intent

3.1 R-02-03.0: An International Muon Ionization Cooling Experiment (MICE) (D. Kaplan *et al.*)

Recommendation: The Committee acknowledges the receipt of this detailed LOI and thanks the authors for their efforts in preparing it and giving the oral presentations. The Committee was unanimous in recognizing the important physics goals of a ν -factory. However, it also realized that significant support from the lab is requested and expressed some concerns about the possible impact on ongoing and future experiments at PSI. The Committee understands the importance of the proposed test experiment for the international ν -factory community and would be more supportive if a leading high-energy physics laboratory were behind the project. Therefore, some caution should be applied in the final decision about mounting this experiment at PSI.

4 Addenda for Proposals for UCN Source and Experiment and Committee-External Review Reports

The Committee feels quite encouraged by the recent progress. The planned enlargement of the experimental area, the measurements of the ortho/para-ratio in deuterium, the beginning of the construction of the beam pipe, the enlarging of the collaboration and the successful workshop last November are considered important steps forward. After reading the proposal for a test experiment to measure the magnetic shielding in an EDM spectrometer and listening to the oral presentations the Committee came to the opinion that it is still too early to comment on this extremely important experiment without a full technical proposal. Further technical review should be given by the external referees and advisors who already have done so for previous components.

5 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 experiment is not asking for beam time and is analyzing the data from previous runs. Although fewer events have been collected than originally planned the Committee was impressed by the first preliminary results and congratulates the collaboration on this achievement. All signs indicate that a remarkable improvement in knowledge on pion beta and radiative pion decays will be finally achieved. Further extensions to examine other decay modes are under discussion: this would require a new proposal.

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

Because it is important to know whether the nonzero result found in ^{16}O is due to nuclear physics effects, the Committee supports the extension of the beam period as asked by the collaboration.

R-98-01: Measurement of the strong interaction width and shift on the ground state of pionic hydrogen (D. Gotta *et al.*)

This request from the collaboration is a compensation for lost beam time. The Committee recommends approval.

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

The Committee believes that the the experiment is making good progress. The request is to compensate for lost beam time and should be granted.

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

The group reported real progress in the design and winding of the superconducting solenoid, cryogenics, and in other areas. However, there was some concern in the Committee with respect to beam studies where more work is required and more serious concern about the progress with the large prototype photon detector. Further meetings with group members have led to a better understanding of the present status of this crucial component (see the special report by D. Schinzel, advisor to the Committee). A full technical review of all aspects of this project will be conducted in July by A. Blondel, C. Hoffman and D. Schinzel: it is planned to have such reviews twice per year.

R-00-01: Measurement of Total $\pi^- p$ Charge Exchange Cross Section at Low Energies (E. Friedman *et al.*)

Again the beam time asked for would be compensation for time lost during the last year and should be granted.

6 Next Meeting

The next meeting (BV34) is planned for Tuesday/Wednesday 4/5 February 2003.

January 17, 2002

C. Hoffman, R. Rosenfelder