Minutes of the 52^{nd} Meeting of the PRC

DESY 25-26^{th} October 2001

PRC members present:

J.Arvieux (IPN-Orsay), J.-J.Aubert (Marseille), S.Bertolucci (INFN-Frascati),
A.Buras (TU Munich), D.Froidevaux (CERN), R.Forty (CERN),
U.Gensch (DESY-Zeuthen), E.Hughes (Caltech), K.Jakobs (Mainz), R.Klanner (DESY),
E.Reya (Dortmund), L.Rolandi (CERN,chairman), D.Trines (DESY),
B.Spaan (TU Dresden), A.Wagner (DESY),
K.Borras (DESY,secretary), U.Schneekloth (DESY,HERA experiment coordinator).

Non PRC members attending closed session items:

HERA	M.Bieler (DESY).
H1	E.Elsen (DESY), D.Pitzl (DESY), T.Greenshaw (Liverpool) D.Sankey(RAL), A.Schoening (ETH Zurich), R.Roosen (Brussel), P.Newman (Birmingham).
ZEUS	B.Foster (Bristol), M.Kuze (KEK), W.Zeuner (DESY), R.Carlin (Padua).
HERA-B	M.Medinnis (DESY), B.Schmidt(DESY), A.Zoccoli (Bologna),B.Schwingenheuer (MPI Heidelberg).
HERMES	D.Ryckbosch(Gent), E.Aschenauer (DESY), J.Stewart (DESY), U.Stösslein (Colorado), W.-D.Nowak (DESY).
R&D for TESLA Detectors	
	R.-D.Heuer (DESY),
TPC	R.Settles (MPI München), U.Koetz (DESY),
Vertex Tracker	M.Winter (IReS Strasbourg)), K.-T. Knoepfle (MPI Heidelberg).
Calorimeter	J.-C.Brient (LPNHE), H.Videau (LPNHE), P.Colas (CEA Saclay), V.Morgunov (ITEP/DESY), D.Pitzl (DESY),
AMANDA & IceCube	
	C.Spiering (DESY), P.Steffen (DESY), R.Nahnhauer (DESY), R.Wischnewski (DESY).

The PRC received the following documents:

PRC R&D 01/03	LC TPC R&D – A Proposal to the DESY PRC. (LC TPC Group)
PRC R&D 01/04	2001-2004 R&D Programme of Monilithic Active Pixel Sensors for charged particle tracking at a future Linear Collider Vertex Detector. (LCCSVD collaboration)

Agenda:

Open session. October 25th, 9:00-12:10, Main Auditorium

HERA – M.Bieler (DESY).

HERMES – G.Schnell (DESY).

HERA-B – F.Sanchez (MPI Heidelberg).

ZEUS – R.Carlin (Universita di Padova).

H1 – P.Thompson (University of Birmingham).

AMANDA & IceCube – L.Koepke (Universität Mainz).

R&D TPC Detector for TESLA – R.Settles (MPI München).

R&D Vertex Detector for TESLA – M.Winter (IReS Strasbourg).

Closed sessions: October 25-26th

Item 1. Approval of last minutes and matters arising from last meeting.

Item 2. News from the Lab.

Item 3. Review of HERA.

Item 4. Review of HERMES.

Item 5. Review of ZEUS.

Item 6. Review of H1.

Item 7. Review of HERA-B.

Item 8. Review of POL2000.

Item 9. Review of AMANDA and IceCube.

Item 10. Review of R&D for TESLA Detectors.

Item 11. Miscellaneous.

Item 1. Approval of the minutes and matters arising.

The chairman opened the 52nd session by welcoming all PRC members. M.Albrow and R.Cashmore were unable to attend the meeting.

The 52th PRC marked the end of the membership for D.Froidevaux who was thanked for his long term as PRC member and his commitment.

The minutes of the 51st PRC were accepted subject to minor changes.

Item 2. News from the Lab.

A.Wagner gave a detailed overview about the status of TESLA and the present boundary conditions for the longterm strategy for HERA running. He emphasized the consensus of opinion in the worldwide scientific community that a Linear Collider is the next step in HEP and the need of its timely realization. He reported on the site visits made by the German Science Council, and that a recommendation is expected for end 2002. In the TDR both collider and X-FEL use the first part of the accelerator, which leads to a coupling of the LC and the FEL. An alternative option with a separate accelerator for the FEL was also presented.

Boundary conditions for the longterm strategy of the operation of HERA and PETRA were presented. A recent study of the dedicated use of PETRA as a synchrotron light source shows that it could compete worldwide as a hard X-ray source. Two options are under consideration: modification of the present PETRA ring or building a new ring in the PETRA tunnel for synchrotron radiation applications, leaving the PETRA ring as injector for HERA. The conclusions drawn for the longterm strategy were:

- end the phase 2 of HERA end 2006;
- transform PETRA into a dedicated synchrotron light source starting from January 2007;
- assuming that the necessary resources can be found detailed studies will start in January 2002, based either on the existing study of modifying PETRA or the option of a new ring for the proposed light source;
- the physics case for an operation of HERA after 2006 should be worked out until the end of 2003;
- TESLA is the first priority and HERA III can only be considered if additional funding and manpower can be found.

Finally A.Wagner reported on the changes to HGF, which is now divided into six fields of research with programme oriented funding.

In the ensuing discussion a statement of the ECFA and Snowmass community was cited that a timely realization of TESLA is desirable since LHC and LC physics would profit from a fruitful exchange of ideas. The further use of HERA for physics with polarized protons requires major changes to the ring including additional snakes and new modes of operation. Therefore only a strong physics case would make such efforts affordable.

Item 3. Review of HERA.

The chairman thanked the open session speaker for his instructive presentation and congratulated the machine group to all their achievements.

The ensuing discussion focused on the running of HERA with positrons and electrons. The first goal is to understand the machine after the modifications made during the upgrade and it is preferable to start with positron beam. Scheduled machine shifts were regarded as helpful. The first priority is to achieve the design luminosity.

Regarding running with polarization a switching schedule for the rotators is not established. There should be only two machine files with all rotators up or down and HERA prefers long stable periods of each between the shutdowns.

The PRC congratulated the HERA machine crew w.r.t. the completion of the upgrade and the progress in the commissioning of HERA.

The PRC considers that the decision on the date when to switch from positrons to electrons is part of the overall optimization of the HERA programme. It should be agreed within the HERA-coordination meeting. The PRC does not see convincing new arguments which could reverse the decision of a timely change from positrons to electrons.

Item 4. Review of HERMES.

The chairman thanked the open session speaker for his interesting report of results and opened the discussion concerning the need of polarization in 2001/2002. At the beginning HERMES will run with transverse polarized target and no electron polarization is needed for this programme. Polarization at an early state, however, is prefered as it allows additional physics measurements. Switching the polarization is easy for HERMES, it could be done monthly, but should be done after the shutdown to reduce systematics.

D.Rykbosch gave a general overview of the detector status, which is essentially ready for data taking. The Λ wheels are ready and will be installed once stable beam conditions are achieved. Substantial collaboration changes have led to a re-organization of responsibilities. After a large amount of data was released in April/May 2001 emphasis is focussed on lowering systematics and several new topics for new papers were given.
For the Recoil Detector Project milestones were given for a background experiment, the Si-detector, the SciFi-detector and the γ-detector. Presently more than 50 % of the needed funding is available. The distribution of manpower was given in respect of the participating institutes and in respect of the different sub-projects. The extrapolation of the status of October 2001 to January 2002 included an expected increase by 50%.

S. Bertolucchi gave the referee's report on HERMES. The referees came to the same conclusion as the spokesman and went into more details for the Recoil Detector, which has no show stopper so far. The full TDR should be ready by May 2002. The detector is aimed to be ready by 2004 to run for about 2 years with an unpolarized target. If the detector is not ready in time, then there will be a switch to longitudinal polarization to

get more data with the RICH.
Work on the Recoil Detector is progressing on both hardware and software with increased manpower. But there is still some weakness in the area of the Si-detector which could become a bottleneck. One key-point is the sensor design, which should be optimized w.r.t. the pitch with parasitic beam tests. This will be performed once stable beam conditions are achieved. Another key-point is the choice of readout chips, which must provide a high dynamic range.

The PRC continued the discussion in closed session.

The PRC congratulated the HERMES collaboration to the many interesting physics results. Concerning the planning of the proposal for a recoil detector the PRC recommends that all efforts should be made to present a Technical Design Report (TDR) by the May 2002 PRC, that the TDR should contain a chapter on physics and that a discussion on the status of the TDR between HERMES and the referees should take place in Feb. 2002.

Item 5. Review of ZEUS.

After the chairman thanked the open session speaker for his informative talk, B.Foster gave a report on the status of ZEUS. In respect of physics the ZEUS paper production continues unabated, and is even in the process of speeding up. ZEUS papers continue to have a high impact when measured in terms of citations.
The report about the status of the detector concentrated mainly on the upgrade components. The MVD is fully operational in situ. Its performance studies are going on with the 2.5M cosmic events taken in the Jade Hall and with the cosmic run inside ZEUS with approximately 3k events. The internal alignment is known to within 50μm. The gains of the detector are well understood and stable. The implementation of the radiation monitoring was shown in detail. The total dose from p-injections integrates to around 1kRad and to 2-4kRad from synchrotron radiation. A reduction of the synchrotron radiation dose using additional collimators is being discussed with HERA. Also negotiations with HERA about the implementation of an automatic beam-dump are taking place. So-far the HELIX chips show no degradation.
Almost all components of the STT have been tested in situ. DSP code will be tested with a dedicated halo-μ run. Aging tests have been performed to understand the lifetime expectation for the incorrectly mounted Ta capacitors. These show lifetimes significantly larger than 2 years, and it is now expected that no significant problem will be seen during HERA II.
All mechanical elements of the Lumi system are installed and working. The 6m-tagger is a dummy with 4 channels to test the environment conditions. The Lumi calorimeter is already using the new electronics, while other detectors are still connected to the standalone electronics. All final electronic boards are delivered and testing will be finished in time for the installation during the November shutdown time.
The trigger should profit from the introduction of the Global Track Trigger which promises to improve the second level track trigger including vertex tagging.

A large number of software improvements were reported. For new components an almost final version of reconstruction software exists, which will be further tuned and optimized after the integration by the end of the year with the experience of real data by March 2002. Other projects such as the event display and analysis environment are progressing well. The report finished by showing the first luminosity in the ZEUS detector for the HERA II running.

The ensuing discussion concentrated initially on beam dump issues. The low currents, seen during the startup phase, have meant that no beam dumps were requested.
The question of positron/electron running was referred to the summary presented during the closed session of the last meeting.

The referees stated that B.Foster had addressed all items they raised and were pleased about the rather detailed report on the radiation monitoring. The point of software development was mentioned once more and it was concluded that with the present strategy it is not a major issue, when the commissioning phase of HERA is used for tuning.
The question of manpower interested and working for a possible HERA III was answered with a decision taken by ZEUS to concentrate on HERA II.

The committee continued its discussion in closed session.

The PRC acknowledges the physics results presented and congratulates the collaboration for the successful completion of the detector upgrade during the shut-down.

Item 6. Review of H1.

The chairman thanked the open session speaker for his clear presentation. E.Elsen briefly reported on the readiness of the detector for HERA II. A cooling problem exists in the CIP, but with 3 of 5 layer operation is not regarded as a severe problem. H1 is looking forward to the future implementation of the Fast Track Trigger(FTT), the jet trigger and the Very Forward Proton Spectrometer(VFPS) into the experiment and, as demonstrated with a picture of the first luminosity in the H1 area, to starting new data taking. E.Elsen concentrated on aspects of the future physics by reviewing briefly the results on events with large missing p_T and isolated leptons. He listed the discovery potential for searches competitive to the TEVATRON or even unique to HERA like searches for some contact interactions. From this he derived the requirement to double the available amount of luminosity quickly with positrons and only then switch to electrons and polarization studies. In the long range view the envisaged electroweak measurements and the numerous precision measurements in strong interactions will require all of HERA II data. In conclusion H1 is ready for data taking and prefers a phase of high luminosity running with high efficiency and thereby a start-up and collection of another 100 pb^{-1} with positrons.

The FTT status report was given by D.Sankey who first explained the FTT concept with its three different trigger levels. Results from successful tests of the trigger level 1 in the UK and in a cosmic test at DESY in September were shown. The FTT schedule was reviewed and the last remaining points were mentioned with the readiness of the trigger level 2 hardware and the trigger level 3 receiver board expected for early spring 2002, with the completion of the trigger level 1 hardware in June 2002 and the FTT commissioning in June/July 2002.

R.Roosen reported on the VFPS status by describing the beam transport, reconstruction and resolution for kinematic variables, the trigger potential, the physics programme and finally the technical status. Looking at the final beam optics a unique determination of angle and momentum of the proton is not easy and needs minimization procedures. In regions with difficult mapping in one plane a worse resolution is expected, but additional information from the other plane will help. Expected resolutions in x_{IP}, t and ϕ were shown and emphasized that there is still room for optimization. With the conservative number, that 200μm can be measured, the unfolding of the t-slope can be better than $\Delta b < 2\text{GeV}^{-2}$. The VFPS trigger potential was demonstrated by expected rates for inclusive and exclusive processes. The main item in the physics program is the test of factorization by performing precise inclusive measurements, allowing the extraction of diffractive parton densities and cross checks with hard processes like jet- or charm-production. The technical status shows that the VFPS programme is well advanced. A full approval is now indispensable, since the construction of the cold bypass has to start. The VFPS can be installed in a long shut down in fall 2002.

For this 52nd PRC meeting R.Forty and E.Reya stepped in as the referees for H1. R.Forty concentrated in his review on the technical aspects of the FTT and the VFPS. For the FTT a status report of the electronic boards were given. The schedule has a few months delay. The expectation is to have the hardware ready by June 2002 and the commissioning will take place during the data taking. In the area of the software good progress has been achieved. So overall the FTT project is in excellent shape. For the VFPS the previous developments were reviewed. The VFPS enables a large increase of acceptance in x_{IP} at small t. The non-linear beam optic has a dramatic effect in the extraction of the kinematic variables and the resolution in their measurement. Nevertheless the $t-$slope can be unfolded. He concluded that the VFPS is clearly optimized for acceptance rather than for resolution. But it will allow triggering on diffractive events and remove proton dissociation background. In his review of the physics aspects E.Reya concluded that the issues raised in the previous meetings are clarified and the envisaged measurements are possible with the VFPS due to its superior overall acceptance. He recommended the full approval of the VFPS.

The committee continued its discussion in closed session.

The PRC acknowledges the physics results presented and congratulates the collaboration for the successful completion of the detector upgrade during the shut-down.

The PRC acknowledges that the third and last break point of the FTT (Fast Track Trigger)proposal has been achieved and recommends the project for final approval. The PRC takes note of the progress on the planning of the VFPS (Very Forward Proton Spectrometer) and recommends the proposal for approval.

Item 7. Review of HERA-B.

The chairman thanked the open session speaker for his informative presentation. M.Medinnis opened the review of HERA-B with three remarks. He cited the Collaboration Board statements about the next plans for the near future. HERA-B is aiming for a run period of 8 months and will not put work or resources on a physics programme beyond 2002 before successful routine data-taking has been established. The manpower evolution shows losses continuing as anticipated with several prominent losses of active coordinators. It is expected that the mid-2002 coverage will in general be very thin but adequate if no major problems occur. HERA-B is ready for target operation and would prefer an early operation, e.g. 3-4 periods of target operation of 3-4 hours each before the November break to prepare activities during the break and to perform initial studies. Regular target operation after November, 22, is desirable.

The detailed report of the referees D.Froidevaux and K.Jakobs covered all relevant items from physics perspectives over the detector status, especially for the components Outer Tracker(OTR), Inner Tracker(ITR) and First Level Trigger(FLT), to the off-line analysis and questions of the alignment, electron identification, 2000 data analysis and the manpower situation. At the end remaining concerns and uncertainties were summarized: The collaboration must take all possible steps to ensure sufficient manpower for a successful running in 2002 and carry out of the remaining physics programme. A significant amount of commissioning needs to be performed for the FLT. In the area of alignment and tracking manpower is needed, even for continuity and commissioning work at the beginning of the run. In this area data is needed as soon as possible. Concerning the detector the longterm stability of the OTR, the trigger for the ITR and the efficiencies of the Muon have not yet been demonstrated.

The PRC continued its further discussion in closed session.

The PRC was happy to see the first physics results. It acknowledges the progress in detector understanding and the detector improvement programme executed during the shut-down. It supports the HERA-B physics programme, which requires 8 months of stable data-taking and thus will probably continue into 2003. It also takes note that, due to the lack of manpower, HERA-B will not be able to submit a new physics proposal for the next PRC. Given the shrinking manpower of the collaboration, the PRC recommends that:

- **early, short tests with protons are important for the running-in of HERA-B,**
- **all institutes who signed the December 2000 physics proposal should actively contribute to make the 2002 physics run and analysis a success,**
- **the institutes should make an effort to provide bridging positions within HERA-B for students after completion of their PhDs.**

Item 8. Review of POL 2000.

In his referee report on POL 2000 J.Arvieux listed the main characteristics of the polarimeters. From his brief overview of the status of the different components he concluded that both TPOL and the old LPOL are likely to be ready to take data when needed. The POL2000 group requests in the running schedule a dedicated run to calibrate both polarimeters some time in 2002. The new LPOL can be installed in 2002, but a decision making procedure has to be defined for the change over.

The PRC took note of the progress.

Item 9. Review of AMANDA and IceCube.

The chairman thanked the open session speaker whose presentation demonstrated significant progress. P.Steffen summarized the Amanda II analysis status by starting with the 2001 data processing on the four different levels. It shows that the ν-selection with the procedure from the 97 data works, but still room for improvement is seen. The problems in the data comparisons with Monte Carlo inherited from the 97 procedure still persist and are being investigated. Reasons for the differences could be the trigger efficiency or the assumptions for the ν-flux. For a better understanding the reconstruction quality is studied in more detail, for example its dependence on angle. In addition reconstructions considering not only one single μ, but also multi-μ's, μ-bundles or air showers with single μ are analysed. The aim is to define a probability for good or fake reconstruction on which selection cuts can be applied leading to a considerably higher efficiency for the neutrino selection. For the data reduction at the South Pole new fast track search programs were developed which lead to a passing rate of 3%. A test version was running in 2001 and first online neutrinos were presented. The satellite data transfer turns out to be problematic, and data tapes are used.

The report on the status of IceCube was given by C.Spiering. The Hartill II review took two days and the decision of Congress is still pending. The organization of IceCube and estimated project costs were presented. A selection of conclusions from the Hartill II Review shows the hot water drilling as a critical path item. Therefore the milestones from the design report over the ordering and shipping to the start of the drilling in January 2004 were given. This critical item is also watched by an external board. The production of the optical modules (OM) in Zeuthen was then outlined in detail with all steps of assembly, testing and shipping. In the table of manpower needed for the OM production the number of physicists look low. With a full breakdown of manpower for Amanda and IceCube a lack of people in the software area becomes clear as mentioned previously. In addition the need for a guest scientist from outside is seen.
Zeuthen plans to perform a large scale simulation processing and will be one of the two centers where data are stored. First rough estimates on CPU power, storage and costs were presented.

In his brief referee's report G.Rolandi emphasized the very positive evaluation by the Hartill review and the more mature status and stable situation of Amanda with published results from the 97 data.

The committee continued its discussion in closed session.

The PRC takes note of the progress in the analysis of the '99/'00 data from Amanda II and in the "quasi-on-line" monitoring of the data. It is looking forward to a timely completion of the data already taken and encourages the collaboration to strengthen the Monte Carlo effort.

The PRC takes note of the major progress in preparing IceCube and of the recent positive review by the Hartill-panel. The PRC recommends the approval of the DESY participation in IceCube as proposed, subject to approval and funding of IceCube by the NSF and the working out of a MoU (Memorandum of Understanding). It encourages DESY-Zeuthen to become the European analysis centre.

Item 10. Linear collider detector R&D review.

The topic was introduced by an overview from R.-D.Heuer who stated that the physics and detector studies for the linear collider are ongoing world wide, which needs cooperation and information exchange between Asia, Europe and North-America.There is a note in preparation about ongoing and missing detector R&D aiming to focus the R&D into a coherent effort and to facilitate global collaborations. There is a strong and growing interest within the experimental community. The present emphasis on TESLA related detector R&D lays in the area of the vertex detector technologies. Other areas are the TPC and the calorimeter. There is interest in the following aspects: the forward region, polarimeter, beam energy calibration, photon-collider-interation-region (laser) and the muon system.

The PRC is ready to review R&D proposals for TESLA detectors, which might be helpful for fund- or manpower raising.

PRC R&D-01/04: R&D Programme of Monolithic Active Pixel Sensors

The chairman opened the review for the vertex detector proposal based on Monolithic Active Pixel Sensors(MAPS) by the LCCSVD collaboration. There were no specific questions to the presentation of the open session. The report of the referee K.T.Knöpfle started by comparing the specifications for the TESLA VTX with the SLD VXD3 and by giving the main properties of the MAPS as an alternative to the Charge Couple Device(CCD) detector of the LCFI collaboration reviewed in the previous 51st PRC meeting. The R&D programme for the years 2001-2004 was briefly outlined and concluded that this R&D programme represents a competitive alternative to the CCD sensor R&D programme. Nevertheless both programmes could profit from collaboration. For the studies of the MAPS performance DESY could provide a test beam setup. The referee recommended to support the proposed R&D programme and that the project should be reviewed in spring 2003.

M.Winter was asked to comment on the mentioned commercial aspects of the MAPS and he gave one example in the biomedical application, in which the radiation emission of a substrate inside a patient is monitored to prevent any damages. These aspects are also part of the funding.

The PRC is impressed by the quality of the proposed programme and its high potential for applications in many fields and strongly recommends its approval. It encourages a collaboration with the LCSFI groups, as there are a number of common problems. It asks for a status report in spring 2003.

PRC R&D-01/03: LC TPC R&D

The review of the proposal for a LC TPC R&D programme was given by U.Koetz. He listed the aspects of the TESLA environment specific for the operation of a TPC and compared the envisaged parameters of the proposed new readout design with MPGD (micropattern gas detectors) like Gas Electron Multiplier(GEM) or Micromegas, with those of the ALEPH TPC with wires. It is clear from this comparison that the extrapolation and the new technologies require extensive R&D. Especially the operation in the high magnetic field of 4T puts questions to the readout planes with MPGD and the fall back solution with wires. Also studies on gases with their properties on velocity or diffusion at 4T are needed. At the end U.Koetz summarized the first priorities with taking a decision on the kind of MPGD to be used, but with the independent following up of the wire solution. Much of the work has to be concentrated in laboratories which provide the needed infrastructure for high magnetic fields, test beams and good gas systems, while other optimization work could be done in individual laboratories. In parallel the activities on the general mechanics have to be started soon. The development of the readout electronics needs the expertise of specialists for the definition of the layout of the overall DAQ.
The referee concluded his review with the recommendation of approval for this R&D project, which addresses challenging problems. The group should get organized in a more transparent way and demonstrate that the sub-groups are strong enough in manpower and financial approval.

After this review the discussion was opened by the question about possible show stoppers. The missing data on the performance in high magnetic fields and ExB effects are a problem. The time required for construction of the final detector was estimated by R.Settles to be 3-4 years.

The PRC recommends the approval of the proposed R&D programme. It encourages the collaboration to perform test in high magnetic fields of the different end-plate geometries (GEM, MICROMEGAS and standard wire chambers) and to use the performance of the ALEPH TPC as bench mark for a TESLA detector. It asks for a status report in one year.

PRC R&D-01/02 - Memo - 01 from the CALICE collaboration

The next item, the calorimeter proposal for a linear collider from the CALICE (CAlorimeter for the LInear Collider with Electrons), started with a brief summary by J.C.Brient of the memorandum handed in for this PRC meeting with news about the collaboration and its structure, the ECAL and the HCAL.

In the following the referee D.Pitzl reviewed the status of the W-Si ECAL and the status of the two HCAL options, the tile HCAL and the digital HCAL. For the ECAL the referee gave the recommendation to proceed with the R&D towards the prototype with the aim to use a version of the final front-end chip. A combined beam test with a HCAL prototype is regarded as being essential. The funding has to be clarified.
For the HCAL the referee concluded his review report with the recommendation to proceed with the R&D towards the minical-prototype. On the software side one should continue to improve the reconstruction algorithm to reach $30\%/\sqrt{E_{jet}}$) and to include realistic detector performance in the simulation. He also recommended postponing the decision for the $1\mathrm{m}^3$ prototype until autumn 2002 in order to include recent developments within the project.

One issue in the following discussion was the uniformity of the ECAL and the effect of inactive areas, for example at the edges of the diodes, in spaces used for the mechanics or in cracks. In general these inactive areas are non-projective. They are not yet included in the full simulation, but will be in the simulation of the prototype.
A test for noise, including coherent noise, was suggested with a setup of the silicon diodes connected to 1.6m long cables. The collaborations stated that they plan the technology prototype within the next year and in case the institute decides to go in this direction test with cosmic rays are envisaged.

Concerning the W- Si proposal the PRC considers that the questions asked at the last meeting have essentially been answered and recommends the proposal for approval. Concerning the hadronic calorimeter (HCAL) a number of open questions remain(detailed requests, funding, technical issues). The PRC recommends to proceed towards the technical prototype tests . It asks the collaboration to streamline its organizational structure, develop a unified software for the two HCAL options and assure that the prototype results can and will be used in the software development. The detailed requests for financial and manpower support should be worked out with the DESY directorate. The PRC asks for a status report in one year.

Item 11. Miscellaneous.

The next meeting of the PRC was scheduled for the 16-17th May 2002.

The second meeting of the PRC in 2002 was scheduled for the 30-31st October 2002.

Other decisions or comments:

1. Notes and proposals to the PRC have to be submitted to the Scientific Secretary 4 weeks before the PRC meeting. Also documents from the experiments for the referees have to be submitted to the Scientific Secretary. In future documents received less than 2 weeks before the meeting will not be considered.
2. Draft recommendations and minutes of the PRC meeting and the corresponding decisions of the DESY directorate will be made available to the PRC members and the collaborations 4 weeks after the PRC meeting at latest. They can also be made available to the relevant funding agencies.

The current list of PRC referees is:

H1 - M.Albrow, R.Cashmore ($\rightarrow$ J.Mnich)
HERA-B - K.Jakobs and D.Froidevaux ($\rightarrow$ R.Forty)
HERMES - S.Bertolucci and J.Arvieux
ZEUS - E.Hughes and B.Spaan
AMANDA/IceCube - J-J.Aubert and L.Rolandi
Polarization 2000 - J.Arvieux

(K.Borras - 22^{nd} April 2002)