DRAFT

26 May 2006

Recommendations from PRC 61

1. News from the Laboratory

The PRC takes note of the report presented by R. Heuer, and congratulates the laboratory for a number of achievements. These include FLASH (formerly known as TTF) achieving 13 nm wavelength; the management's commitment to maintaining the collider physics theory group at full strength; the successful deployment of 8 strings of IceCube optical modules (the next challenge will be to deploy 16 strings next season); and having attracted talented young scientists such as Helmholtz young investigators and recipients of fellowships and awards. The PRC notes that the DESY MAC recognizes DESY's contributions to superconducting RF development undertaken through ILC/XFEL efforts, and industrialization through the XFEL project. Bilateral negotiations concerning external contributions to the European XFEL project have started recently. The financial contributions of Germany to the construction of the XFEL have now been secured and included in the long term financial perspective of the BMBF.

2. Review of HERA

Concerning luminosity, the PRC is greatly impressed by a remarkable start-up of HERA after the winter shutdown and the PRC congratulates the HERA staff for this success, which results from their continuing dedication. Concerning the polarization, the PRC notes that its value is about 30% on average, which is somewhat lower than hoped for.

3. HERA Running

Given the situation where a shutdown is necessary in June 2006 to install a new target cell and the silicon detector of HERMES, the PRC supports the DESY management's decision to switch from electrons to positrons immediately after the June shutdown. The PRC recognizes the unique physics opportunity with HERA running at low energy, and recommends that the DESY management accept a low energy run as requested by the collider experiments and endorsed by the HERMES experiment. The PRC recommends the run is started after accumulating about 100 pb^{-1} of high energy positron data, and that the duration be about 3 months (long enough to accumulate ~10 pb^{-1}). The PRC recommends that the HERA machine and experiments form a task force to check all the possible difficulties (e.g. background, luminosity estimate, triggers, etc.) that might be associated with the low energy run, and that they are prepared to be ready to start it at short notice, to take advantage if any unforeseen opportunity arises.

4. POL2000

Despite continuous effort, the value of the LPOL/TPOL ratio is not understood. The PRC recommends that a mini workshop is organized with participation of the HERA experiments and external experts (e.g. from SLAC) to resolve this issue. Using a sandwich calorimeter from the HERMES experiment, Cavity LPOL has now provided a first measurement of the polarization. However the systematic uncertainty has not yet been evaluated, and the PRC recommends that this should have highest priority. The PRC also recommends the group regularly take data with the sandwich calorimeter, and prepare a detailed plan for understanding the systematic uncertainty in a timely manner.

5. HERA Experiments

5.1. H1

The PRC congratulates the H1 collaboration for the excellent start-up of data taking since the shutdown, their significantly improved data taking efficiency, and the first publications of HERA II results. The detectors, including the FTT and VFPS upgrades, are in good shape. The PRC notes that the FST/BST were installed, but the commissioning efforts are on-going, and that the Level 3 Trigger is ready to be put into operation.

5.2. ZEUS

The PRC congratulates the ZEUS collaboration for the excellent start-up of data taking since the shutdown, their excellent detector performance, high data taking efficiency, and the first publications of HERA II results. The PRC commends the successful repair of STT, and notes that ZEUS has suffered from occasionally high proton backgrounds. The PRC appreciates that the collaboration has formulated strategies to deal with the decline of personnel expected beyond 2007, by prioritizing analysis, and optimizing the analysis model and computing strategy.

5.3. HERMES

The PRC congratulates the HERMES collaboration for great progress on their physics output. The PRC notes the recent problems they have suffered with the target cell. The PRC endorses the recovery plan for the target and recoil detector, and encourages the HERA team to be involved in discussion of the eventual replacement target to be installed in June. The PRC is disappointed to note the continuing critical staffing level.

6. LHC

The PRC is encouraged by the reports from the ATLAS, CMS and Computing groups at DESY, and is positively impressed by their enthusiasm for the LHC projects. The PRC supports the DESY management in their effort to provide balanced support to the CMS and ATLAS experiments.

7. ILC

7.1. Accelerator R&D

The PRC appreciated the presentation given by Brian Foster on the status of world-wide ILC R&D efforts. Many of the XFEL developments are relevant to the ILC, but this needs to be properly recognized by the ILC community. The ILC community would welcome further involvement in the ILC R&D efforts from DESY. The PRC encourages the DESY management to ensure that the DESY ILC group has sufficient personnel and other resources to continue to play a visible role.

7.2. Detector R&D

7.2.1. Forward Calorimeter

The PRC recognizes that the FCAL team has pioneered the study of the issues and solutions for the ILC forward calorimetry. These issues are a critical component of the studies for the ILC detectors and they interface significantly with the ILC machine effort. The FCAL effort should now move from the extensive simulation studies and initial hardware developments to an intensified effort on the sensor, electronics, and mechanics hardware R&D. This will only be possible with increased support. The PRC encourages enhanced support for this important effort from all laboratories and funding agencies. The project will be reviewed at the PRC 64 meeting.

7.2.2. TPC

The PRC congratulates the LC-TPC collaboration for the successful operation of many small prototypes, both with GEM and Micromegas detectors, and for the interesting developments with silicon pixel readout. The PRC recommends that the organization be strengthened to coordinate the world-wide R&D effort towards a TPC detector for the ILC. The PRC encourages efforts on simulation studies, in particular as they may provide a crucial input for the eventual choice between detector options. The PRC supports the large prototype detector as the next major focus of R&D that is expected to be ready for operation by the end of 2007. The project will therefore be reviewed at the PRC 65 meeting.

8. AOB

Letter of Intent (Production and Detection of Axion-Like Particles at the VUV-FEL): The PRC finds the LOI interesting, and is willing to participate in the review process when the proposal is submitted to the RPR for FEL experiments.