13. Conclusions

During the first year of operation, the *BABAR* detector has performed close to expectation with a high degree of reliability. In parallel, the PEP-II storage rings gradually increased its performance and towards the end of the first year of data-taking routinely delivered close to design luminosity. In fact, the best performance surpassed the design goals, both in terms of instantaneous as well as integrated luminosity per day and month. Of the total luminosity of 23.5 fb^{-1} delivered by PEP-II during the first ten months of the year 2000, *BABAR* logged more than 92%. The data are fully processed with a delay of only a few hours. They are of very high quality and have been extensively used for physics analysis.

A large variety of improvements to the event reconstruction and detailed simulation are presently being pursued. They include improvements in many aspect of the calibration and reconstruction procedures and software, for example, the calibration and noise suppression in the EMC, and the development of techniques for precision alignment of the SVT and DCH. The latter effort will not only benefit the overall efficiency and precision of the track reconstruction, it will also improve the matching of tracks with signals in the DIRC and EMC. Detailed studies and the full integration of all available information pertinent to the identification of charged and neutral particles are expected to result in better understanding and improved performance of various techniques.

Beyond routine maintenance, minor upgrades and a few replacements of faulty components are currently planned. They include the replacement of SVT modules that are expected to fail in the next few years due to radiation damage, plus a few others that cannot be correctly read out due to broken connections. A large fraction of the RPCs are showing gradually increasing losses in efficiency and plans are being developed for the replacement of the RPC modules over the next few years. Furthermore, 20-25 cm of absorber will be added to the flux return to reduce the hadron misidentification rates.

With the expected increase in luminosity, machine-induced backgrounds will rise. Measures are being prepared to reduce the sources and the impact of such backgrounds on *BABAR*. Apart from the addition of shielding against shower debris, upgrades to the DCH power supply system and to the DIRC electronics are presently under way. Most important are upgrades to the trigger, both at levels L1 and L3. Specifically, the DCH stereo layer information will be added to allow for a more efficient suppression of background tracks from outside the luminous region of the beam. The L3 processing will be refined so as to reject both backgrounds and high rate QED processes with higher efficiency. In addition, data acquisition and processing capacity will be expanded to meet the demands of higher luminosity.

In summary, the *BABAR* detector is performing very well under current conditions and is well suited to record data at significantly higher than design luminosity.

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