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Institut für Theoretische Physik & Astroph., Am Hubland, D–97074 Würzburg

rü/bw

Prof. Albrecht Wagner
Chairman of the DESY Directorate
DESY
Notkestraße 85

D-22603 Hamburg

Dear Professor Wagner,

There is worldwide consensus on the main cornerstones on the roadmap of Particle Physics in the next twenty years. The scientific goals and the technological requirements are reflected in the KET report PARTICLE PHYSICS IN GERMANY: STATUS AND PERSPECTIVES published in November 2002. Within this roadmap DESY plays a decisive role for High Energy Physics in Germany. Through the operation of large accelerator facilities and the supply of experimental infrastructure, DESY enables groups from universities and other institutions to perform excellent research by participating efficiently in its large international projects at the scientific and technological forefront. Both the research opportunities and the international atmosphere at DESY are highly attractive to young scientists and are very valuable for their education and training. Therefore, the future development of high energy physics at DESY is of utmost importance to the German Particle Physics Community.

On October 7, 2003 KET invited the Community to DESY, Hamburg, in order to discuss the plans of DESY concerning the High Energy Physics program in 2005 to 2009, to exchange views and to express the wishes of the university groups. In this letter, KET would like to convey the results of that discussion to the Directorate. In order for DESY to maintain its leadership and attractiveness as a High Energy Physics laboratory, the following recommendations, which have found widespread consensus, are presented.

1. The highest priority should be given to the successful completion of the HERA II program. Every effort should be made to approach as nearly as possible to the goal of collecting 1 fb^{-1} of integrated luminosity with e^+ and e^- beams and lepton polarization of at least 50%.

2. The next major project on the roadmap for accelerator-based Particle Physics worldwide is an e^+e^- Linear Collider in the energy range of 500 to 1000 GeV. There are strong scientific arguments that this project should have substantial overlap in time with the *Large Hadron Collider* project at CERN. Germany and most of all DESY has made and should continue to make significant contributions to the Linear Collider Project, wherever it will be realized in international cooperation. It is vital for German university and research institutes

that DESY is playing a prominent role in all aspects and phases of this project, that is, the construction and operation of the accelerator and the detectors, and the preparation and realization of the physics program. DESY is urged to make the strongest possible effort to maximize the chances for the TESLA technology to be chosen for the global Linear Collider Project in the international decision, which is forthcoming, and for TESLA to be built in Hamburg. The approval of the *Free Electron Laser* based on TESLA technology provides an ideal opportunity to exploit the synergy between the two projects.

3. In the period between HERA II and the Linear Collider, DESY should participate in an excellent external program in close cooperation with German university groups. The physics analysis of data from a running experiment is an essential element of the training of young physicists and should accompany the preparation for the Linear Collider. The participation of DESY with its unique infrastructure will also strengthen the research opportunities and the impact of other German groups on such a project.

   Extensions of the HERA program beyond HERA II would require much more substantial resources. In view of the demands of the first priority program and the limited resources, KET feels unable to recommend such extensions at this time.

4. With the large Neutrino Detector at Lake Baikal and with the *Amanda* and *IceCube* experiments at the South Pole, DESY has an excellent experimental program in Astroparticle Physics which should be pursued as planned.

5. The interaction and close collaboration of experiment and theory is essential for finding answers to the central questions of High Energy Physics. The DESY Theory Group should continue to play a leading role in developing new ideas and preparing the ground for experimentation. The intense cooperation of the DESY Theory Group with the theoretical groups at German universities has been most fruitful and must go on.

Following this strategy, DESY will continue to be a world leading laboratory for Particle Physics and to fulfill its mission to strengthen the research engagement of the German university groups. KET strongly supports the efforts of the DESY Directorate to secure the necessary resources. The forthcoming evaluation of the research field STRUCTURE OF MATTER within the Helmholtz-Gemeinschaft Deutscher Forschungszentren should be a significant step towards the realization of the High Energy Physics program at DESY as recommended above.

With best regards

Prof. Reinhold Rückl
Chairman of KET