Other Achievements:

Two events were particularly important for us in 1999. In September, our group organized ZEUS Collaboration meeting in Kraków with more then 140 participants. The meeting was supported by the Polish-German Foundation, the Polish Committee for Scientific Research, and the Physics Committee of the Polish Academy of Sciences.

In December, the proposal for the luminosity measurement after HERA upgrade, has been approved by PRC at DESY. In this measurement our photon detector plays the most important role.

TESLA Project

J. Andruszków and P. Jurkiewicz

This e^+e^- linear collider with a CMS energy of 500÷1000 GeV and luminosity above 10^{33} cm^{-2}s^{-1} is proposed to be built at DESY. Its main research object would be the top quark analysis and the Higgs boson search. To achieve planed energy and luminosity, the aplications of the super conducting accelerator structures is foreseen. The very sophisticated system of beam guiding with the system of RF cavities with klystrons combined to it is proposed. Such system needs a very intelligent solution of steering and controlling its operational work.

The small subgroup from our Department actively participated in projecting and in building of the such a control system. For this purpose the ADC-board for the Digital RF System for the TESLA Test Facility was prepared and successfully tested. The board consists of 8-channel 14 bits ADC, local bus with the interface to DSP and VME. This board is one of the main board of the Digital RF Control System intended to control a RF station consisting of 32 cavities driven by one klystron.

ATLAS Project

K. Piotrzkowski

ATLAS is a project of the experiment for LHC accelerator which is now under preparation. The expected at LHC bunch structure and beam intensities make the luminosity measurement very difficult. One of the department member was involved in the work on the project for the luminosity measurement for ATLAS experiment. The several experimental techniques were proposed for this luminosity determination and the different physical processes were considered. Further studies will allow to choose the optimal method.

Reference:

1. "The Luminosity Measurement", Atlas Detector and Physics Performance.

GRANTS:

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1. *Prof. J. Figiel* – grant No 2P03B04616,
   "Participation in ZEUS Experiment at HERA";
2. *Prof. A. Eskreys and prof. K. Rybicki* – SPUB No 620/E-77/SPUB/DESY/p03/DZ 1/99,
   "ZEUS and H1 Experiments at HERA";
3. *Prof. A. Eskreys* – grant No 620/E-77/S/99,
   "Support for organization of the ZEUS collaboration meeting in Kraków", September 1999.

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1. Polish-German Foundation - grant
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3. Prof. A. Eskreys - project POL-219-96,
   Support from Wissenschaftlich - technologische Zusammenarbeit mit Polen.

CONTRIBUTIONS TO CONFERENCES AND WORKSHOPS:

INVITED TALKS:

1. M. Przybycień,
   "Inclusive Jet Cross Section in Neutral Current Deep Inelastic Scattering",
   7th International Workshop on Deep Inelastic Scattering and QCD, Zeuthen, Germany, 19-23 April 1999;
2. L. Zawiejski,
   "Fragmentation in DIS",
   7th International Workshop on Deep Inelastic Scattering and QCD, Zeuthen, Germany, 19-23 April 1999.

PRESENTATIONS:

1. J. Chwastowski,
   "Some Aspects of eA Interactions at HERA",
   Workshop on Physics with HERA as eA Collider, DESY, Hamburg, Germany, 25-26 May 1999;
2. J. Chwastowski,
   "Total Cross Section $\sigma_{TOT}(\gamma p)$, Status Report",
   presentation at the ZEUS Plenary Meeting, Kraków, Poland, 30 September 1999;
3. A. Eskreys,
   "Upgrade of Lumi Monitor",
   presentation at the ZEUS Plenary Meeting, DESY, Hamburg, Germany, 23 February 1999;
4. A. Eskreys,
   "Proposal of the Upgraded Luminosity Monitor", presentation at the ZEUS Plenary Meeting, Kraków, Poland, 28 September 1999;
5. K. Klimek,
   "Vector Mesons Production at High $\mid t \mid$ Using 1997 44m Tagger Data", presentation at the ZEUS Plenary Meeting, DESY, Hamburg, Germany, 25 June 1999;
6. K. Piotrzkowski,
   "New Experimental Results on Diffraction at HERA",
   The XXIV International Symposium on Multiparticle Dynamics (ISMD99), Brown University, Providence, USA, 9-13 August 1999;
7. K. Piotrzkowski,
   "Report from ZEUS",
   48th Physics Research Committee, open session, Hamburg, Germany, DESY, 18 November 1999.