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DEPARTMENT OF LEPTONIC INTERACTIONS

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OVERVIEW:

1998 was the first full calendar year of the formal existence of our Department which evolved from the Laboratory of Electronic Particle Detectors (originally called Laboratory of Filmless Detectors) founded in 1972.

The department is involved in two running experiments (DELPHI at CERN and H1 at DESY) and in one experiment (BELLE at KEK) which will start data taking in 1999. In addition, three department members work for the ATLAS collaboration at CERN. Since the DELPHI experiment will soon be terminated, we are considering future enterprises. One possibility is the TESLA project at DESY (our technicians have been working for several years on the construction and testing of superconducting cavities for the project). Another possibility is the LHC-b experiment at CERN.

The main results of work done in 1998 are covered in reports on research. Here we mention only a few highlights.

In the DELPHI experiment the cross section for the process $e^+e^- \rightarrow W^+W^-$ has been measured

for several energies. Data registered so far allowed determination of the W mass with the accuracy comparable to the Tevatron results. An important role in these measurements has been played by the sophisticated silicon detector to which the Cracow group brought a substantial contribution.

The analysis of more H1 data has weakened the indication for an excess of very high Q^2 events reported in 1997. Thus the paper on isolated leptons with very high transverse momenta was formulated even more carefully. In these and in several other studies the topological second level trigger designed, installed and improved by the Cracow-Orsay collaboration was very important.

In the BELLE experiment the HALNY system has been designed and installed by our people. The system allows fast readout and filtering of signals from the Silicon Vertex Detector which is crucial for the experiment.

One should also mention high-quality carbon-carbon composites produced in collaboration with the High Energy Physics Detector Construction Group.

The following events additionally marked the year 1998 in our department:

- organization of the Cracow exhibition at DESY (February);
- prestigious fellowship of the Foundation of Polish Science granted to Dr E. Lobodzińska (March);
- organization of the H1 collaboration meeting at Kraków with about 120 participants (September);
- bestowing of a title of honorary professor of our institute on Johann Bienlein, our long-term collaborator from DESY (November).

It should be added that Assoc. Prof. A. Zalewska continues her work in the SPS Committee at CERN while Prof. J. Turnau is an acting chairman of the Cracow branch of the Society of Polish Physicists.

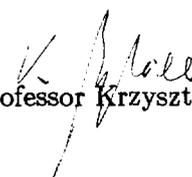
In 1998, due to reorganization in the institute, four persons from the former Electronics Section joined the department. However, they can hardly be called newcomers since all of them have been working with us for quite a time. Now there are 29 people in the department.

It should be added that Prof. B. Muryn from the Department of Nuclear Physics and Nuclear Techniques of the Mining and Metallurgy Academy has been working directly with us for a long time. Recently he was joined by Ph.D. student.

An extensive information about the:

- history of our team;
- *some* of its members;
- past and present experiments;
- papers (including numbers of citations for most quoted ones),

can be found in www.ifj.edu.pl/Dept5/pedc.html.


Professor Krzysztof Rybicki