

6 DEPARTMENT OF HIGH ENERGY PHYSICS

Head of Department: Assoc. Professor Helena Białkowska
phone: (22) 621-28-04
e-mail: Lena.Bialkowska@fuw.edu.pl

Overview

The activities of the Department are centered around experiments performed at large accelerator laboratories:

- I. At CERN, the European Laboratory for Particle Physics in Geneva, Switzerland:
 - Data taking experiments:
COMPASS (Compact Muon and Proton Apparatus for Structure and Spectroscopy) - studies of the gluon polarization in the nucleon.
 - Experiments that finished data taking but continue the analysis:
NA49 and WA98 - heavy ion experiments, study hadronic and nuclear interactions, searching for the quark-gluon plasma.
- II. The “Pi of the Sky” experiment, searching for optical flashes associated with Gamma Ray Bursts takes data with a set of CCD cameras mounted in the Chile Observatory Station, and works on an extension of the system.
- III. WASA experiment, recently transferred from the CELSIUS storage ring in Uppsala to Jülich, studies near threshold resonance production.
- IV. ZEUS experiment at HERA in Hamburg - studies of proton structure functions and diffractive interactions.
- V. Neutrino experiments at SuperKamiokande and K2K in Japan - studies of the neutrino oscillations.
- VI. Preparations for future experiments:
 - a) ICARUS - in preparation for the neutrino beam from CERN, to study neutrino oscillations,
 - b) Experiments at the future Large Hadron Collider at CERN:
 - CMS - Compact Muon Solenoid,
 - LHCb - study of b-quark production,
 - ALICE - study of heavy ion collisions.

A team of physicists, engineers and technicians, using our well equipped mechanical workshop, with ‘clean room’ (class 100 000) facilities has performed a large scale production of straw tube modules for the LHCb experiment.

Preparations for LHC physics requires an active participation of the teams involved in the computer GRID implementation.

There is also a small group involved in theoretical work on the phenomenology of quark-gluon plasma formation and the low energy hadronic reactions.

Several physicists from our department are actively involved in science popularization.

A close collaboration with the Division of Particles and Elementary Interactions from the Institute of Experimental Physics is maintained. This involves also supervising students preparing their diplomas.

A large group (9) of PhD students work under the supervision of the physicists from our department.

