

14 Mechanical Workshop

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The quality of the mechanical workshop shop is one of the most valuable assets of the Physik-Institut in support of the diverse research and teaching activities. Physicists from collaborating institutions from all over the world have often expressed admiration and shown envy for its work.

Bernhard Schmid, who headed this shop from August 1974 to December 2002 has retired in March 2005. It is appropriate to start this years annual report with a tribute to him and an extension of the best wishes for his future. Bernhard Schmid is to a large extent to be credited for the successful operation of this excellent team. He was instrumental in continuously upgrading the machine park, which now includes a number of high-end computer controlled mills and lathes, organized the smooth transfer of the shop to its new location in 1993, coordinated all the larger construction projects for the particle physics experiments (Asterix, Neutrino Mass, Gravitational Constant, H1), taught many generations of incoming physics students the basics of milling, drilling and lathing, lead sixteen apprentices through their four year long training and education required for becoming a certified technician, and last but not least generated an atmosphere of truly collegial understanding and help within his team. He even coolly solved priority conflicts between hotheaded group leaders without losing them as his friends.



Bernhard Schmid, who retired after heading the workshop for almost 30 years.

The retirement celebrations did not stop the work, as the long list of activities below demonstrates. These include projects for exhibitions, classroom demonstrations, new experiments in the students laboratories, and of course for the research groups.

The modern infrastructure of our mechanical workshop necessary to solve the various demanding problems was complemented by a new folding machine in August (see figure below). In November a practical training for future apprentice was organized. Interested candidates for an apprenticeship had the opportunity to become acquainted with their possible future job.

In the new Bachelor-Curriculum for the Physics students the course in basic mechanical skills continues to be required. Up to three members of the work shop are engaged in this task, which now is concentrated into two-week block courses during the semester break.



The new folding machine installed in the workshop.

Furthermore the workshop maintains the metal and technical material supply store. Again more than 30 institutes made use of this service ⁵.

Besides work for the internal groups a small fraction of the activities was devoted to special designs, modifications and small series for outside companies.

Some work shop activities

- **Open days of The Faculty of Science
June 4 to June 6, 2004**
For this occasion when thousands of visitors came to the institute various installations demonstrating the fundamental laws of physics were designed and built such as a giant version of a chaotic pendulum.
- **Surface Physics
(Group Osterwalder, Sec. 11)**
For this group the priorities were on repair and maintenance.
- **Physics of Biological Systems
(Group Fink, Sec. 12)**
Various mechanical infrastructure was manufactured and some test setups were built.
- **CMS pixel detector
(Group Amsler, Sec. 8)**
All the tooling and parts necessary for the additional laser welding tests were manufactured. We also started with the tooling for the detector-supply tubes.



The giant pendulum in operation.



Segment of the CMS pixel detector support structure.



Cylinder used for the construction of the CMS pixel detector supply tubes.

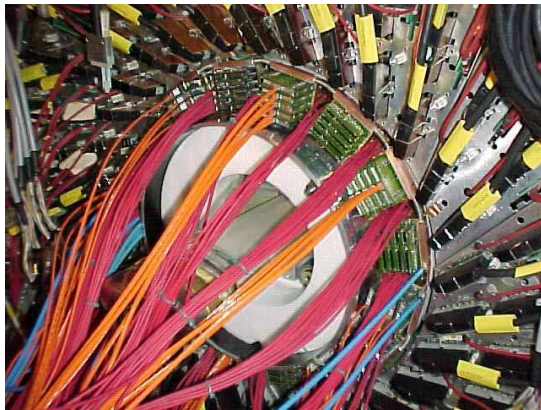
⁵For a catalogue see <http://www.physik.unizh.ch/groups/werkstatt/dienstleistung.html>



Cooling plates for the LHCb detectors.



Parts prepared for the installation.



CIP electronics after the re-installation of the detectors.



A complete setup of the improved blood circulation experiment.

- **LHCb inner tracking detector**
(Group Straumann, Sec. 7)

Different parts for test stands were manufactured. The necessary gluing and production tools were manufactured. The clean room and the assembly hall of the workshop were prepared for the production of the test setups and the final detectors.

- **H1 experiment at DESY in Hamburg, Sec. 2**

Repair and maintenance of the CIP readout electronics.

- **Physics lectures for medical students**
(see last year's report)

Some of the demonstration experiments had to be repaired and/or improved.