

## 13 Electronics Workshop

W. Fässler, H.P. Meyer, P. Soland, K. Szeker

Apart from maintenance and repair work for the groups at the institute and some of their collaborators the workshop built equipment for the new medical student laboratory experiments. Several printed circuit boards were designed and manufactured. A current source, which can be used both in AC and DC mode and a filter preamplifier were developed and built (Fig. 13.1).

The workshop maintains and renews (together with L. Pauli and J. Seiler, who are responsible for the preparation of the experiments) also the equipment used for demonstration experiments in the lecture hall. Three lecture halls for the courses in experimental physics, including the one used for the medical students, have meanwhile been equipped with a flexible computerized readout system, which allows a clear presentation of the measurements. Figure 13.4 shows as an example the water vapour pressure curve, measured during a lecture on thermodynamics.

A selection of projects for the different groups is listed below:

- *Physics of Biological Systems (Group Fink, Sec. 10)*  
The control system for the high voltage supply used for a piezo drive was built.
- *Superconductivity and Magnetism (Group Keller, Sec. 7)*  
A laboratory spectrometer was equipped with a computer controllable motor power supply.
- *Surface Physics (Group Osterwalder, Sec. 9)*  
A solution for a GHz wideband amplifier was evaluated.
- *Particle Physics at DESY/HERA (H1) (Groups Straumann and Truöl, Sec. 3)*  
The workshop was involved in the production and integration of the new series of CIP readout electronics and the completion of the system. It also includes a crate controller for the low voltage power supply.
- *High-precision CP-violation Physics at LHCb (Group Straumann, Sec. 4)*  
Different test setups were built and the layout for a flexible printed circuit board with a fine pitch of 182  $\mu\text{m}$  was designed.

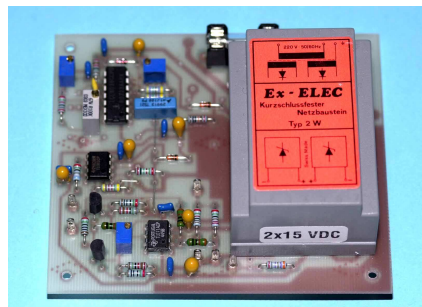


Figure 13.1: AC-DC current source for the medical student laboratory experiments.

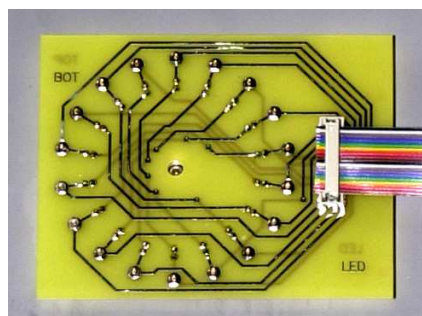


Figure 13.2: Printed circuit board for the setup to measure equipotential lines.

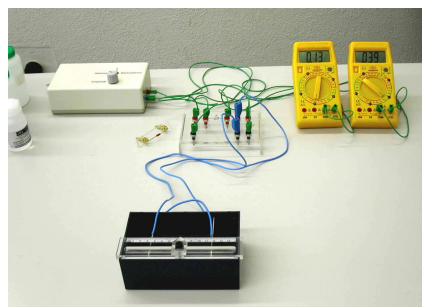


Figure 13.3: Setup to measure the conductivity of different fluids.

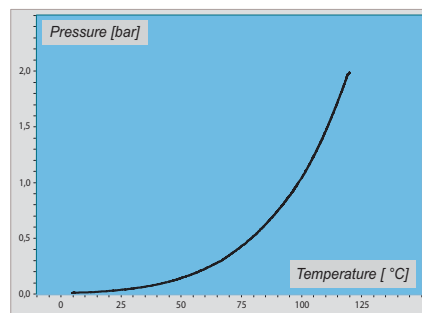


Figure 13.4: Vapour pressure curve measured during a lecture on thermodynamics.