

CZECH REPUBLIC

Teachers share experiment know-how

For three days in September, a gymnasium in the Czech town of Nachod became home, canteen, classroom and lab for about 75 physics teachers who gathered at the traditional annual Heureka seminar. The main forces behind the Heureka project are Irena Kudelkova, who was the initiator of the idea, and Leoš Dvorak from Charles University, Prague, whose enthusiasm and charismatic personality encourage many teachers and students to join the seminar.

The main local force was Zdenek Polak, who teaches physics at the gymnasium in Nachod and is also the author of several original demonstration experiments. A year ago, Elizabeth Swinbank wrote the 'Report from a mattress in Nachod', which appeared in the January 2005 issue of *Physics Education* and perfectly describes the atmosphere at Heureka.

This year I was privileged to be invited to the seminar. During the three days there were 17 workshops prepared by physics teachers, people connected to schools, university staff and PhD students.

The workshops covered a wide range of interesting topics, such as the physics of karate; making spectrometers from CDs; exploring the physics and physiology behind the human eye and other senses; experimenting with a PC sound card (and learning how it can also be used to detect signals other than sound); measuring the surface tension of liquids by simple do-it-yourself apparatus; learning about the physics of medical instruments; the role of printed media in physics; thermodynam-

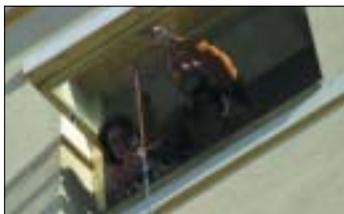


Figure 1. What is the height of a column of water that can be supported by air pressure? Hang the sealed hose filled with water over the window (a) and measure the height of the water column that remains in the hose (b).



Figure 2. Zdenek shows how to make dry ice by emptying the CO₂ refills in a plastic bag.



Figure 3. In an hour you can make your own apparatus and measure the surface tension coefficient of water.



Figure 4. Leoš reveals the secrets of the sound card.

ics; how to amuse pupils with simple experiments; how to use Lego in making measurements; using candles in physics; simple (and less simple) electronic circuits; safety in electrical wiring; a log-

arithmic ruler; and astronomy.

Do you know the maximum height of a water column that can be supported by normal air pressure? Yes, it is about 10 metres, but have you ever seen the

experiment? Heureka was the first time I'd seen this experiment.

I also learned another trick in Nachod: how to produce smoke simply (for example, to show vortex rings) without using cigarettes. The method is this: make a short coil by winding wire onto a pencil and then place it carefully over the flame of a burning candle. When the coil is at a certain posi-

tion, a pillar of smoke will rise above the candle without extinguishing the flame.

My own contribution was two experiments from optics (a water drop projector and an LED colour mixer) as an example of how biology (or other disciplines) can be used to refresh the repertoire of physics teachers.

In the evening the guitar and

piano replaced the physics experiments and songs were sung late into the night. I spent two exciting days in Nachod, in an atmosphere full of creativity and enthusiasm – two important ingredients that we all need.

Gorazd Planinšič

Faculty of Mathematics and Physics, University of Ljubljana.

Forthcoming Events

'Forthcoming Events' is published twice a year, in the January and July issues. If you have an upcoming event that you would like to publicize or list here, e-mail clare.thomson@virgin.net. The deadline for submissions is six weeks before the start of the month in which the issue is published.

January 2006

4–6 Association for Science Education Annual Conference, University of Reading. www.ase.org.uk.

15 Last day of the Move Over Einstein exhibition at the W5, Belfast (from 24 November 2005).

17 Supporting Physics Teaching 11–14: Electricity and Magnetism, North East Science Learning Centre. For information contact slc.northeast@durham.ac.uk.

21–25 American Association of Physics Teachers Winter Meeting, Anchorage, AK, USA. www.aapt.org.

January/February 2006

Paperclip Physics competition, area heats and regional finals. teachingphysics.iop.org/events/student_events/paperclip/index.html.

February

19–21 IOP Physics in Perspective – a three-day study course for sixth-formers and college students, University College and Institute of Education, London. The programme contains six lectures demonstrating the way physics links to a range of other subjects. Contact leila.solomon@iop.org.

March

Venus Express reaches its destination. For free resources visit www.pparc.ac.uk/venus.

2 8th Physics Skills Day, Cavendish Laboratory, University of Cambridge. These days are for newly qualified teachers and teachers who do not have a background in physics. The theme of the day will be

Electricity and Magnetism, and practical sessions will be run by Jonathan Hare of the Creative Science Centre. For more information see www.outreach.phy.cam.ac.uk/phy_skills_days/index.php.

10 Mars Reconnaissance Orbiter enters orbit around Mars. mars.jpl.nasa.gov/mro.

10–19 UK National Science Week. www.the-ba.net.

14 Penumbral Lunar Eclipse visible from UK.

16 Supporting Physics Teaching 11–14: Energy, North East Science Learning Centre. For information contact slc.northeast@durham.ac.uk.

20 Spring Equinox.

23–24 Technicians course for Salters Horners Advanced Physics, University of York. Contact SHAP project secretary, Nancy Newton, at nn2@york.ac.uk.

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