"9th Workshop on Multimedia in Physics Teaching and Learning", University of Graz, Austria, September 9 – 11, 2004

H.-J. Jodl[1], L. Mathelitsch[2]
[1] FB Physik, Univ. Kaiserlautern, Germany
[2] Inst. f. Physik, Univ. Graz, Austria

The "9th Workshop on Multimedia in Physics Teaching and Learning" has been organized by the Institute of Physics of the University of Graz. It was sponsored by EPS, as well as by the Austrian Ministry of Education, the Styrian Government and the City of Graz. About 75 participants from 26 countries attended this workshop, half of them contributed actively by presenting their results and material [1].

This workshop series [2] has established already some tradition, which is reflected also by the selection of lectures: As in the past, representatives of different countries were invited to give an overview about the multimedia situation in their home country with respect to physics education. *N. Lebrun (Lille)* illustrated the recent development in France, where, contrary to other countries, a strong emphasis and support is given to the distribution of information via television channels. Activities in the USA were summarized by *W. Christian (Davidson)*, who, in particular, described the development of computer-based curriculum projects, such as VPython, TEAL, and Open Source Physics; those programs usually have started with a good idea and a small grant, and sometimes evolve, as in the above mentioned examples, to important national projects.

Another tradition in these workshops is the evaluation of software for a special topic of physics. Many products are on the market (most of them open source), but, especially for the average user, it is difficult and very time-consuming to find the good ones. Therefore a group of European experts has taken over this task: existing software is evaluated and qualified according to a well-defined procedure [3]. This year, programs on mechanics were investigated, the best products, as the result of the evaluation, were presented at the workshop by *Robert Sporken (Namur).* Many American and Canadian universities support a project called Merlot, which also aims at the collection and evaluation of software (not only in physics) [4]; *Bruce Mason (Norman)* reported on these activities. A collaboration of the American and the European team resulted in a common article "Recommendations on Available Multimedia Material for Teaching Mechanics at School and University Level" [5].

Günther Dissertori (CERN) introduced a Swiss project where research data in the field of particle physics are used as teaching material, i.e. students at university and even school level are invited to analyse these data. An overview about teaching and learning environments with special regard to physics was given by *Christian Lang (Graz),* whereas *Franz Vesely (Vienna)* reported on his multimedia course in statistical physics.

For the first time in the series, a team of scientists from the project CoLoS (Conceptual Learning of Science) [6] joined this workshop. This project aims at the promotion and development of innovative teaching methods in science and technology, and *Sasa Divjak (Ljubljana)* presented ideas, results and experiences of CoLoS. *Francisco Esquembre (Murcia)* illustrated the work of CoLoS with a special example, namely the tool EJS (Easy Java Simulations).

As mentioned already, more than half of the participants presented their own results. This was done within *interactive poster sessions*: after a short oral plenary introduction, the products were shown in an exhibition using PCs, internet, posters, etc.
Prior to the workshop a *teacher-training seminar* has been organized. Seven lecturers and participants of the workshop volunteered to arrive earlier and present their results at this seminar. About 40 Austrian physics teachers attended this in-service training.

The "10th Workshop on Multimedia in Physics Teaching and Learning" will be organized in Berlin from October 5 to 7, 2005.

[1] http://physik.uni-graz.at/MPTL9/

[2] http://lucy.troja.mff.cuni.cz/~tichy/MPTL/; http://informando.infm.it/MPTL/

[3]

http://lucy.troja.mff.cuni.cz/~tichy/MPTL/contributions/jodl/criteria_to_evaluate_multimedia_material_prag03.pdf

[4] http://www.merlot.org

[5] http://physik.uni-graz.at/MPTL9/proceedings/ProcSporkenMason.pdf

[6] http://www.colos.org/