

Xplora wins grant for web experiment

Agilent Technologies Foundation has made possible the development of an exciting new web experiment, the Millikan oil drop experiment. The foundation has provided a grant to Xplora, the European Science Education Gateway carried by European Schoolnet, EUN (<http://www.eun.org>), to develop the Millikan web experiment.

Xplora, which has already included web experiments in its innovative offers for science teachers, will get now a new fascinating web experiment. According to the EU objectives, this initiative will help to bring science closer to schools, using the potential of new technologies.

Web experiments are real experiments, located in a school lab, university lab or science centre. What makes a web experiment different from a school lab experiment is the fact that it is controlled via a web interface. The experimental setup is therefore called a Remote Controlled Laboratory (RCL). This technology was developed by EUN's partner, AG Jodl at the University of Kaiserslautern (Germany) with the support of Intel Germany. But a web experiment has more potential than a pure RCL can offer: combined with a database of experimental results and embedded in a pedagogical environment, the RCL enables teachers and pupils to gain new insight into how science works.

The Millikan experiment is based on the elementary charge, one of the fundamental concepts in physics. An experimental setup to repeat the original method of Robert Andrews Millikan in the school lab does exist but it is seldom used. As the experiment is very time consuming, a pupil will not be able to receive more than one or two experimental results. But the original reasoning of Millikan based on the observation of hundreds of results. So the experimental setup in schools is collecting dust wherever it is found on the shelf of school labs.

The opportunity of realising the Millikan experiment as a web experiment, will solve these problems. Even though one pupil might only get one result, there are hundreds of results from other pupils, conducting the same experiment and sharing their data in a web database. Now the original reasoning and strength of Millikan's experiment is coming back to the classroom.

A database query on the Xplora portal (<http://www.xplora.org>) gives them those hundreds results, Millikan needed to get the idea of the elementary charge.

The Agilent Technologies Foundation has provided EUN a grant of €42.000 for the development of this exciting web experiment.

The grant will cover the RCL hardware implementation, which will be carried on by EUN's partner, AG Jodl at Kaiserslautern University (Germany) as well as the development of the software infrastructure and pedagogical material needed for the web experiment.

<http://www.xplora.org>



“This innovative program will bring science to the classrooms in a way that wasn’t possible before” said Jorgen Tesselaar, from Agilent Foundation. This made the Xplora team, Laura Massoli and Karl Sarnow, who developed the idea of the Millikan web experiment, happy. Ulf W.Lundin, EUN's managing director, added that web experiments are an exciting new tool for science teaching.

EUN will continue to support all innovative and creative ideas, helping science teachers to give exciting science lessons. This web experiment is indeed something special: “It is a basic milestone in all European physics school curricula and it gets its importance from the added value of a web database and it is a good example of how modern technology can help traditional experiment-based scientific reasoning”, Ulf W. Lundin said.