

## **The SUPERCOMET Project** **- animating electricity and magnetism for upper secondary school**

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### **Abstract**

*Animations relating to electricity and magnetism will be presented at GIREP 2004. The complete e-modules, the teacher guide and teacher seminar are still under development.*

*The SUPERCOMET project will finish in December 2004, supported through the EU Leonardo da Vinci programme. The project targets on-the-job training of physics teachers using animations to inspire physics learning in a non-traditional fashion.*

### **Introduction**

The GIREP 2004 Conference in Ostrava provides an excellent opportunity for dissemination of the newly developed materials, as well as a chance to get feedback from discussion in the workgroups regarding methods and tools used in the project.

Further results of the development will be presented at the MPTL 9 Conference in Graz, Austria, in September 2004. The final project results will be presented at a final conference in Trondheim, Norway, in December 2004. If your organization is interested in participating at the SUPERCOMET Final Conference, please contact the project coordinator Simplicatus by email: [supercomet@simplicatus.com](mailto:supercomet@simplicatus.com).

### **Products and quality assurance**

The SUPERCOMET project is developing three related products – a computer application, a printed teacher guide and a teacher seminar. In addition, an international network of partners and reference group members has been established throughout the project.

Reference groups will be important for the dissemination and feedback on the quality of the products during the last 6 months of the project, when products will be available for review. If your organization is interested in being part of the reference group for the SUPERCOMET project, please contact the project coordinator Simplicatus by email.

The products will also be tested as part of the development process. The computer application will be

tested on pupils in a classroom situation, while the teacher guide and the teacher seminar will be tested on teachers. The Institute of Education at the University of London has the important role of Project Evaluator.

### **Computer application**

SUPERCOMET aims to combine modern pedagogical methods with an interactive computer application. The intriguing phenomenon of superconductivity is connected to the curricula subjects of electricity and magnetism at the upper secondary school level.

This computer application will provide teachers with useful materials for different approaches to teaching the physics curriculum, whether they choose a more traditional approach, a more ICT-based approach, a scenario-based approach or a laboratory-based approach.

The computer application is divided in self-contained modules, with SCORM compatibility for use in Learning Management System (LMS) environments that more and more schools are beginning to use. It will also be designed to function as a stand-alone application.

A glossary of important terms plus an FAQ section will help pupils explore and develop their understanding of subject matter. A search engine, as well as some literature references and links to useful online resources complete the resources. A planned online FAQ service will provide updated information on links and answers to feedback from the users.

### **Teacher guide and teacher seminar**

The project develops a teacher's guide to the computer application and an in-service teacher seminar that will introduce teachers to hands-on demonstrations and experiments that will accompany the animations.

The SUPERCOMET materials are not intended to replace the use of textbooks, rather to complement the more traditional reading and calculation exercises.

The key point of the pedagogical approach is how these exercises are being introduced to the pupils, and how the motivation for going through the exercises is developed. In addition to this factor, it is believed that

## GIREP 2004 Ostrava

animations enhance understanding of complex phenomena in comparison with the use of still 2D figures.

### **Project background**

The SUPERCOMET project runs from Dec. 2001 until Dec. 2004. Financial support through the EU Leonardo da Vinci programme phase II amounts to 75% of the project's total budget.

According to three subsequent Physics On Stage conferences held between 2000 and 2003, there is a crisis in physics education, and a need for revitalization of physics teaching. This situation is being addressed by the GIREP conferences and seminars, amongst others.

### **Partnership**

The SUPERCOMET partnership consists of three universities, two secondary schools and one publishing house, plus Simplicatus. The seven partners are located in Norway, Italy, Slovenia and UK, providing a diverse geographical background, complementing each other's competency in areas such as pedagogy, superconductivity physics, computer science, physics education, software engineering, physics teaching, publishing, ICT-based learning and teacher training.

### **SUPERCOMET II**

Sometime in the summer of 2004, we expect feedback on the application to the EU Leonardo da Vinci programme for funding of a follow-up project for continued development and dissemination of the SUPERCOMET materials.

An important objective of the follow-up project is to handle the challenges of localization and adaptation necessary to make successful translations of the produced materials.

Physics teacher training institutions from each partner country will be needed as partners for adapting and further developing the teacher seminar and the teacher guide, plus quality assurance of the computer application. Also, upper secondary schools will be needed for testing purposes.

Currently this new partnership consists of partners in about 15 countries. We are aiming for another few countries to participate, among those France, Germany and Greece. If your institution might be interested in joining this follow-up project, please contact the project Coordinator Simplicatus by email ASAP: [supercomet@simplicatus.com](mailto:supercomet@simplicatus.com).