SCIENCE on Stage

PROPOSAL FOR WORKSHOP

TITLE: SUPERCOMET 2: (not only) superconductivity for secondary schools.	**ORGANISATION: EMBL**

GENERAL INFORMATION	
Name(s) of workshop leader(s)	Vegard Engstrom (No) Leopold Mathelitsch (At) Wim Peeters (Be)
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Type of workshop (please select one)	
1. Discussion workshop (participants discuss a particular topic and make a report with recommendations to EIROforum and European decision-makers)	
2. Training workshop (an expert demonstrates a particular tool or method to the participants, who will then be able to use it in the classroom)	
3. Practical workshops (the participants jointly develop a classroom-ready product, such as a set of exercises, project outlines or lesson plans on a particular subject)	
4. Seminar (an expert presents a topic of particular interest to the participants, who have the opportunity to ask questions afterwards)	

DESCRIPTION	
Objectives	During this workshop the SUPERCOMET 2 project will be presented. Partly financed through the EU Leonardo da Vinci program, experts in the field and in physics education have developed materials (e-modules with animations, experimental activities, teacher guide and a teacher seminar) on the following topics: Electrical conduction, magnetism (both introductory and functional in view of the main topic), electromagnetic induction and superconductivity (basics, history, applications).
Background	The project aims at building new materials to present the topic. A high tech computer application, with lots of original animations and simulations is the heart of the project, supported by videos, demonstration experiments and other helping tools, both for teachers and students. A teacher guide should support the practical work. Teacher seminars have been field-tested through the project in several countries. The online community Physible connects teachers using SUPERCOMET 2 via the web.
Preliminary agenda	- Introduction: Background of the SUPERCOMET 2 project (10') - Using PCs: independent learning tasks in groups on the basics of superconductivity (20') - Experimental tasks (20') - Presentations results/discussion/teaching methods (10') - Overview of other topics of SUPERCOMET2: electric conduction, magnetism, history of superconductivity, applications (20') - Conclusion: Goals of the project, evaluation by participants (10')

BUDGET	
Materials	Teacher Guides and CD-ROMs with computer application and demonstration experiments will be provided by the project. Teacher Guides/CD-ROMs will be handed out to keep by participants. We will need a supply of liquid nitrogen from the organizers.

Travel costs to festival	€ 1500			
Accommodation costs (max 2 nights)	€ 500			
Other (please specify)				
Total **(up to €5 000)**	€ 2000			
REQUIREMENTS				
Scheduling (*see note below)	No. of sessions required	Can workshop be repeated?	Is workshop part of a series?	Is set-up time required?
	1	yes	no	1 hour
Optimum number of participants	45			
Room requirements (floor space, demonstration area, table layout, flipchart..)	Computer room with projector/screen, also some tables to perform experiments in groups, and the possibility to have a discussion			
Technical Requirements (pc & beamer, overhead projector, computers for participants, printouts..)	1 pc per group of 3 participants			
FURTHER INFO.				
Relevant links and references	http://www.supercomet.no http://www.physible.no http://sc2.pap.edu.pl http://www.univie.ac.at/ephys http://www.vjsuper.org/super			
List of attachments (reports, CV of chairperson..)	See below: summary of the project and information on past and future activities.			

*N.B. Three or four 90-minute sessions will be set aside during the week for workshops. A workshop may take place in only one session, or may continue over two or more sessions. The same workshop could also be repeated during the week for different participants. A sequence of workshops could also be considered, e.g. a seminar, followed by one or two practical workshops based on the same subject.

Summary of the SUPERCOMET 2 project

Contact person: Vegard Engstrøm, M.Sc.
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Project aims from Full Proposal

- Further develop the teaching and learning materials from SUPERCOMET
  - Teacher Seminar
  - Teacher Guide
  - Computer Application with e-modules
- Translate, adapt and disseminate these materials in a large number of European countries
- Carry out classroom testing in all partner countries

Duration Nov. 2004 – Nov. 2007

Budget € 547 619 (LdV funding € 405 238)

Partners 15 universities, 24 upper secondary schools, 1 SME

The SUPERCOMET 2 partners have been chosen among the leading research and development communities in Europe.

The project collaborators include two companies (Simplicatus in Norway and Timsoft in Romania) and two research centers (The National Center for Science Education in Norway and the AMSTEL Institute in the Netherlands) in addition to 14 universities spread across 15 partner countries.

All these partners have a proven track record with regard to the use of innovative e-learning technology and application of modern pedagogical approaches. Several partners are well aquainted through previous collaboration in various projects, and through the research communities of MPTL (Multimedia in Physics Teaching) and GIREP (The International Group for Research on Physics Education).

The contact person for the Italian project partner, the University of Udine, Prof. Dr. Marisa Michelini, has recently been appointed by the Italian government to be their leading scientific advisor in the committee for e-learning in physics teaching. The University of Udine has previously organized several workshops and seminars for GIREP, an organization for researchers in physics education.

The AMSTEL Institute in Amsterdam, has long been a leading community for research and development in this field. The AMSTEL Institute has previously developed the electronic learning environment "Coach", which used in upper secondary physics teaching in several countries. The AMSTEL Institute is also one of the main partners in the ePhys project, and will be responsible for the application of ePhys results into the SUPERCOMET 2 project.

The Institute of Education at the University of London has been a central partner in the preceding SUPERCOMET project, subcontracting development of the teacher guide to the University of Loughborough. The latter will continue the responsibility for the teacher guide as project partner in SUPERCOMET 2, while the Institute of Education will continue its role as project Evaluator from the previous SUPERCOMET project.

These partners provide examples of the extensive experience that has been gathered for the purpose of continuing the development of innovative multimedia material that was started in the SUPERCOMET project.

Each of the main national partners, mostly universities, has recruited local upper secondary schools as testing partners. These schools have cooperated successfully with their respective associated universities in previous projects. The previous connection between most of the project partners through several GIREP and MPTL conferences is utilized in the SUPERCOMET 2 project, where the project meetings are organized in conjunction with GIREP and/or MPTL conferences. These conferences will also be an important channel for dissemination of project results to the scientific community in physics education.

The interim report from April 2006 indicates:

Project Management, Coordination and QA

The project has successfully organized 7 project meetings, of which the first was the Kick-Off Conference in Trondheim, Norway with all partners attending. All 40 partners have signed partner contracts, and project routines have been set up. The partners have discussed aims and objectives for the project at the meetings and made decisions regarding themes for organizing the work. The Contractor has discussed project routines, risk management and quality assurance routines with the Evaluator, and improved the project Intranet based on feedback from partners.

Translation and adaptation of project materials

The partners have carried out translation and adaptation of the materials from the SUPERCOMET project, and based on feedback from the partners and trials with school teachers, the Contractor has organized corrections of the contents of the Computer Application, which is now available in the following languages: Bulgarian, Dutch, English, French, German, Italian, Norwegian, Polish, Romanian, Slovene and Spanish. The partners are now in the process of organizing Teacher Seminars and classroom testing of the materials, as well as developing two new modules for the Computer Application.

Development of project materials

The partners have met and discussed contents for new Hands-on kits for experiments to go along with the Teacher Seminar, Computer Application and Teacher Guide, which have also been discussed in connection with the process of translation and adaptation. Computer modelling tools have also been discussed in connection with improvements of project materials.

Dissemination of project materials

A new Online Community where school teachers can exchange and discuss teaching materials and methods has been developed by subcontractors in cooperation with the Contractor and Evaluator. All 15 university partners have made papers and/or presentations of the project at various science education and physics conferences throughout Europe on local, national and international levels.

Promotion of equal rights

Several partners have or know female researchers and teachers who are role models. The field of superconductivity does not have any female Nobel Prize winners or female scientists that are broadly famous internationally. However, there are several female scientists that are famous on a national level.

The project will work towards recruiting these for national reference groups and involve them in dissemination activities.

A brief summary of future activities:

- Complete risk management and quality assurance routines, set up review procedures
- Set up national Reference Groups for review/evaluation of localized version of materials
- Complete rollout of Intranet, Extranet and Online Community and begin full-scale use
- Implement some further updates of the Computer Application
- Implement Czech, Latvian and Portuguese translations of Computer Application
- Develop (write text, describe animations) and implement new Computer Application modules
- Develop evaluation procedures for classroom trials of project materials
- Trial Teacher Seminar, Teacher Guide and Computer Application in all partner countries
- Complete development of hands-on experiments kits – prototype trials during school year 2006/2007
- Revise Teacher Seminar (feedback from trials, connect with new modules, hands-on kit)
- Revise Teacher Guide (add explanations for animations, connect with new modules, hands-on kit)
- Update localized versions of Teacher Seminar and Teacher Guide (PPT and Word files)
- Trial new versions of Teacher Seminar, Teacher Guide and Computer Application in partner countries
- Prepare and publish new printed version of Teacher Guide, including new posters, but no CD-ROM
- Carry out dissemination activities – attend conferences, prepare press releases, Final Conference