

SUPERCOMET 2

Modelling superconductivity

Superconductivity in school

- New ways of teaching physics in school:
e.g. include contents of contemporary physics
- One possibility: include phenomena of superconductivity in the curricula

Superconductivity in school

- Macroscopic scale:
e.g. experiments with YBaCu superconductors
- Microscopic scale:
e.g. simulations and animations

The SUPERCOMET 2 project

- **SUPERCO**nductivity **M**ultimedia **E**ducational **T**ool
- EU-project with partners from more than 15 European countries
- Teaching material for pupils in secondary school

The SUPERCOMET project

- Within SUPERCOMET materials like self-contained e-modules have been developed about
 - Electricity
 - Magnetism
 - Superconductivity

The SUPERCOMET project

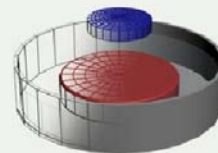
- Animations
- Texts
- Quiz games
- Glossary of important terms
- FAQ section
- Search engine
- Literature references
- Online resources
- Teacher guide
- In-service teacher training seminar

The SUPERCOMET 2 project

- Translation and adaptation of the existing material to a lot of languages and national curricula

S U P E R C O M E T

 English	 Nederlands
 Norsk	 Français
 Slovensko	 Deutsch
 Italiano	 Lātvian
 Español	 Portuguese
 Polski	 Română
 Български	 Czech



The SUPERCOMET 2 project

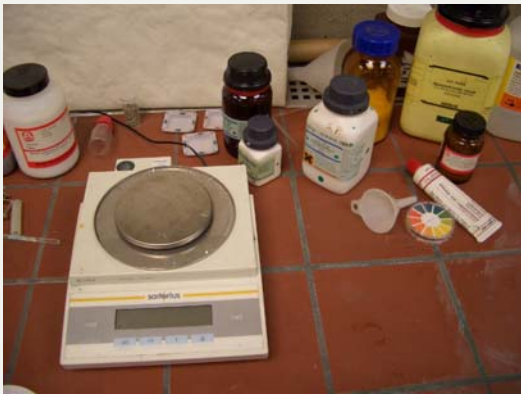
- Additional tasks of the German-speaking partners:
 - Developing material for hands-on kits
 - Developing a module about applications
 - Organisation of teacher seminars
 - Evaluation of the material
 - Developing an extended teacher guide

The SUPERCOMET 2 project

- Hands-on kit:
 - Instructions for baking superconductors in school
 - Suggestions for easy-to-perform experiments

Baking superconductors

- The recipe reads like one for a cake: take three different powders in well balanced quantities, mix them thoroughly, then press tablets.



Baking superconductors

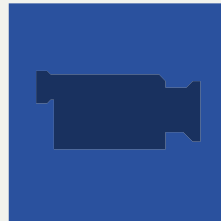
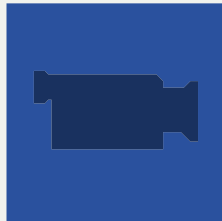
- The samples are baked at 950°C for more than a day and then slowly cooled within two more days.



Baking superconductors

- Afterwards, the tablets have to be crushed, pressed and baked once again.
- Now the superconductors can be tested.

Easy-to-perform experiments



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- Module about applications of superconductivity:
 - Explanations
 - Illustrations

Applications of superconductivity

Generating huge magnet fields



NMR



Magnetic levitation

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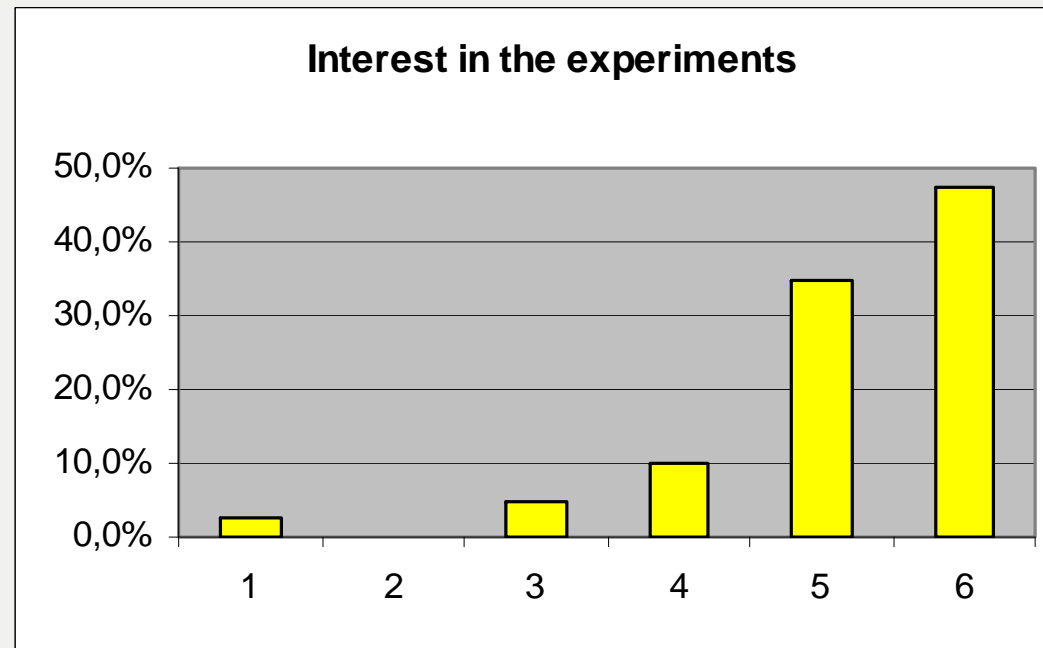
- Organisation of teacher seminars
- First implementations in school

Teacher seminar

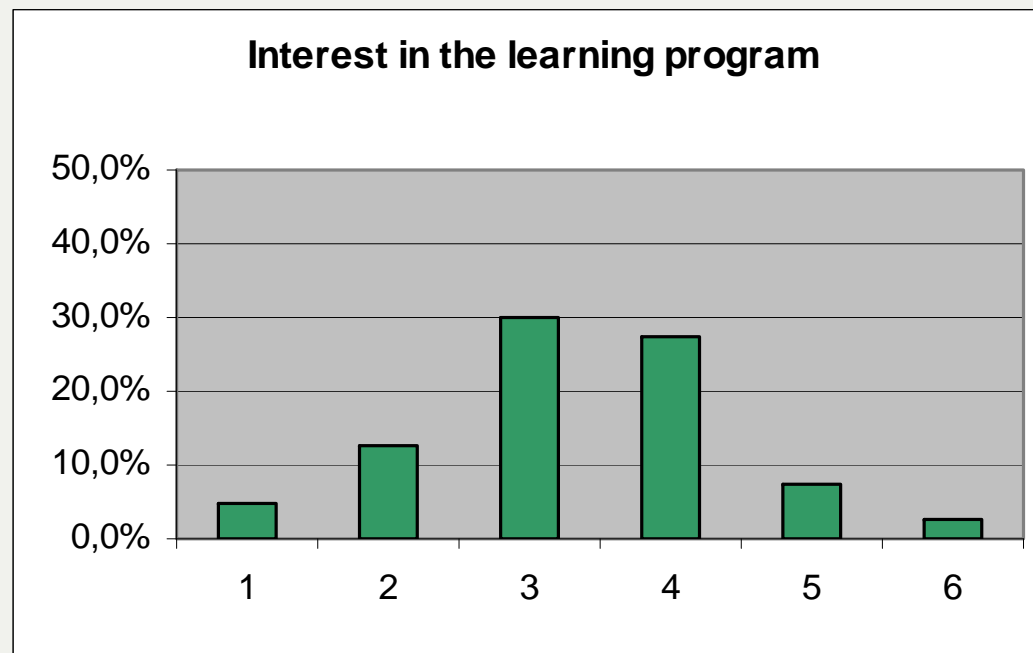
- Presentation of:
 - the existing material (CD-Rom, hands-on kits)
 - background information about superconductivity

Implementations in school

- First results:



Implementations in school



Teacher guide

- Developing an extended teacher guide



Thank you for your attention!

