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

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

  – Electricity
  – Magnetism
  – Superconductivity

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

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

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- 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

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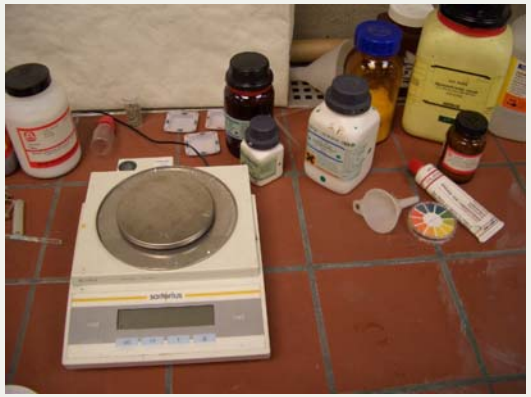
- Hands-on kit:
  - Instructions for baking superconductors in school
  - Suggestions for easy-to-perform experiments

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

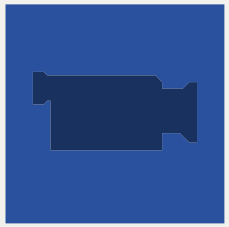
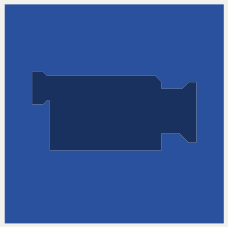
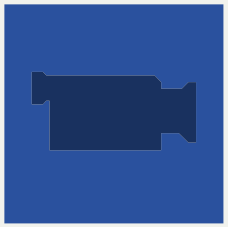
- The samples are baked at 950°C for more than a day and then slowly cooled within two more days.

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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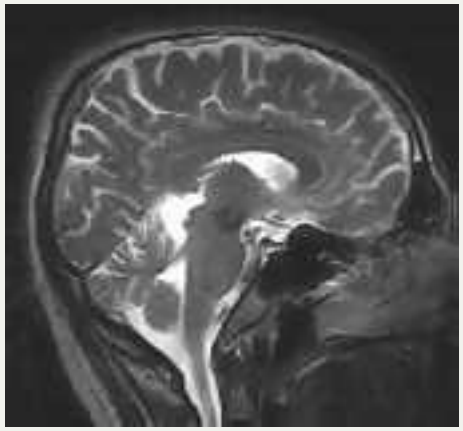
- Module about applications of superconductivity:
  - Explanations
  - Illustrations

Applications of superconductivity

Generating huge magnet fields

NMR



Magnetic levitation

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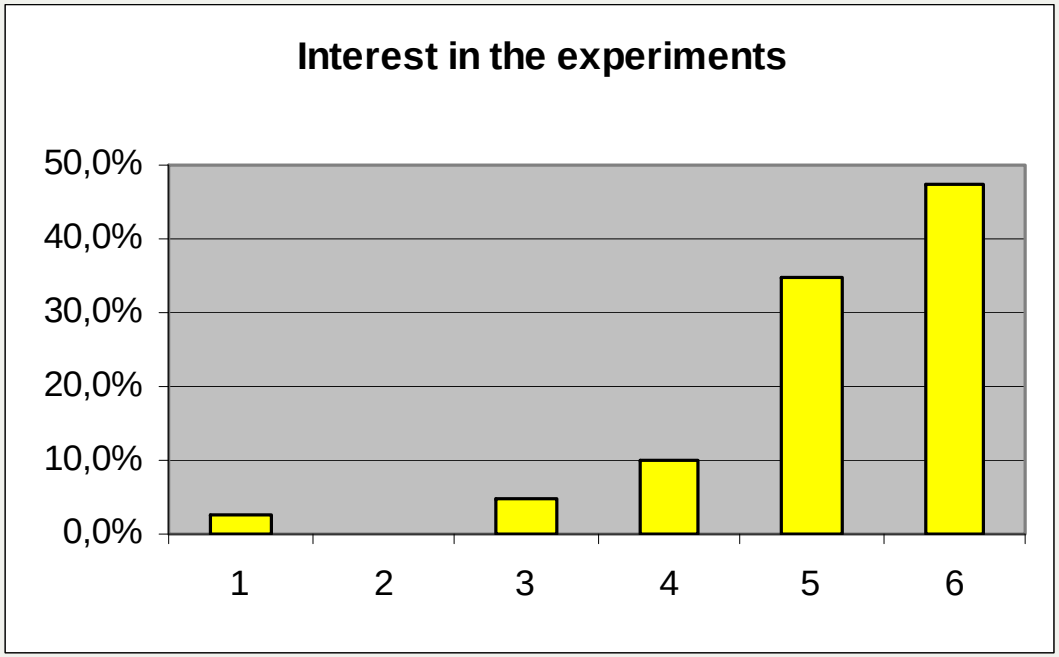
- Organisation of teacher seminars
- First implementations in school

Teacher seminar

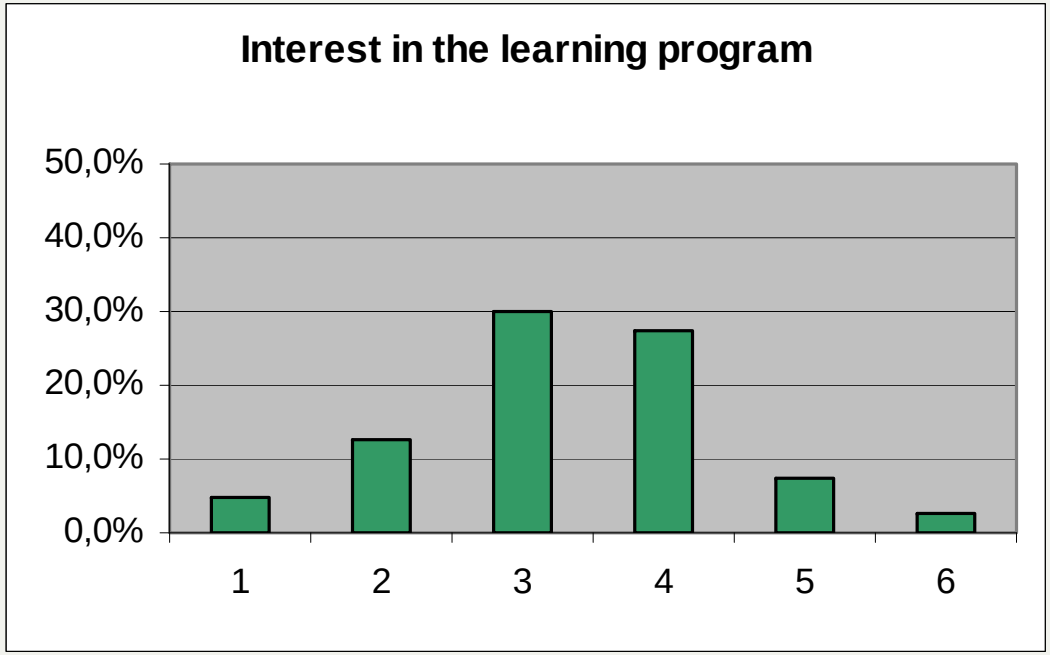
- Presentation of:
  - the excisting material (CD-Rom, hands-on kits)
  - background information about superconductivity

Implementations in school

- First results:



Implementations in school



Teacher guide

- Developing an extended teacher guide

Thank you for your attention!