

# Start

## Two experiments

### “Class” in groups of 5-6 persons please

# Can you help me?

- Two experiments, shown to one member of each group
- They watch closely
- Go back to their resp.groups:  
describe the experiment
- Look for explanation

# Physics is cool

## The experimental kit

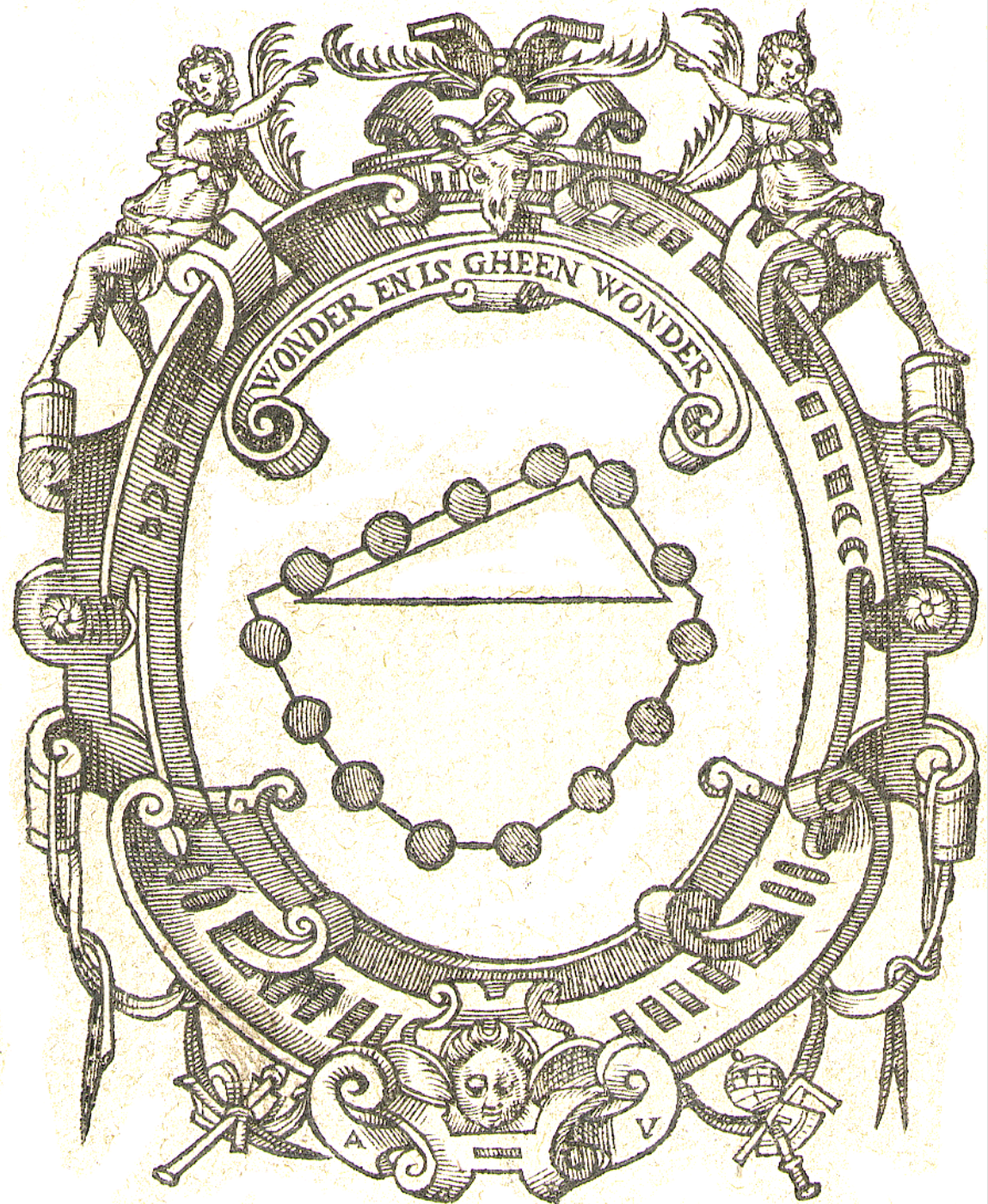


Wim Peeters, Torun, Sept. 2007

# In practice... on film

Wim Peeters, Torun, Sept. 2007

Simon Stevin  
said:  
“Wonder en is  
gheen wonder”

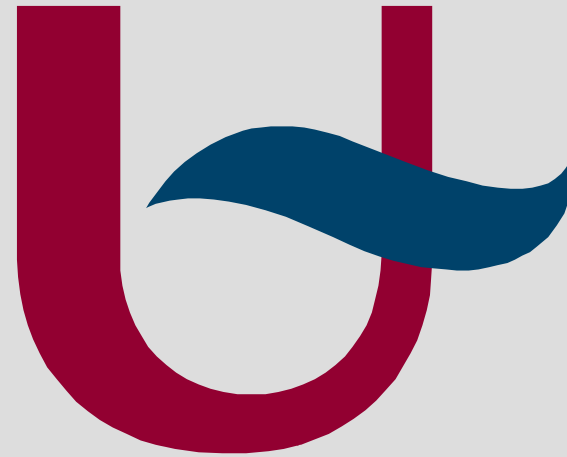


# Flemish Government helps...

... a lot!



# The University of Antwerp too



Universiteit  
Antwerpen

# **Aims for university and teachers:**

- **Establish better contacts between high schools and universities**
- **Provide a number of original easy-to-do experiments**
- **Introduce new approaches to teaching physics**
- **Gain interest for physics**
- **Provoke discussion among students, enhancing insights in the process of scientific research**
- **Disseminate basic physical principles through mind teaser problems, toys based on physics and items showing recent breakthroughs.**



# Aims towards students:

- The subjects cover most traditional high school curricula: see [content](#)
- Most experiments are meant to be demonstrated, but they can be performed by students easily
- Teaching techniques should target at social interactions, constructive learning, group working and other methods to gain fascination and interest in physics
- Fascinating phenomena shown, often with common materials
- Correctly predicting a result of an experiment can be achieved, but what is wrong when a prediction fails?

# Results

- 100 schools: basic kit
- 100 extensions, including primary
- 100 experiments (syllabus + cd)
- 250 teachers followed trainings
- Quality, overall: 92%
- Now finished

# Sint-Gabriëlcollege, Belgium

- Students learning their friends how to think about physics, **the most beautiful picture in the world!**
- Constructive and independent learning draws everybody's attention.



Wim Peeters, Torun, Sept. 2007

SCIENCE  
*on Stage*

The seven European Research Organisations CERN, EFDA, EMBL, ESA, ESO, ESRF and ILL, joined in the EIROforum and supported by the European Commission Directorate for Research, present this

EIROFORUM  
SCIENCE TEACHING  
AWARD

to *Wim Peeters, Belgium*

The second prize of €3000 is given in recognition of teaching excellence, inspiration and motivation of young people in a contribution to the Science on Stage festival. It is intended to provide a financial stimulus for making outstanding methods and materials available to other European colleagues.

*Geneva, November 25, 2005*

*Landua*

Rolf Landua  
Chairman of the EIROforum  
Working Group for Outreach and Education

Wim Peeters, Torun, Sept. 2007

# Before I forget...

- Google “focusopwetenschap”

or remember

<http://webhost.ua.ac.be/focus/Koffers/indexEng.htm>

( ;-))

**In practice... real life**

## 2007-2009

### **MOSEM Project**

Minds-On experimental equipment kits in Superconductivity and Electromagnetism for the continuing vocational training of upper secondary school physics teachers

**Teacher seminar**

Will adapt to Minds-On experiments

**Computer application**

Possibly update some animations

**Teacher guide**

Will expand with Minds-on experiments

**Minds-on kits**

Produce and distribute prototypes  
Conduct trials with pupils

## Projects

2 PP → 3 Tol (products)  
→ 1 Tol (geographical)

### SUPERCOMET 3 (2010)

Cover the rest of Europe

### Simulations (2009)

Augment animations

### Physible (2008)

Establish online community

### MOSEM (2007)

Produce / test Minds-On kits

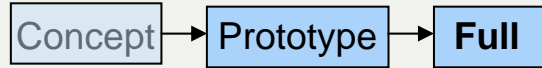
### SUPERCOMET 2 (2004)

Expand concept and products

### SUPERCOMET (2001)

Initial development of Teacher Seminar, Teacher Guide and Computer Application

## Products



Translate and adapt all products

### Physible

MO TS TG CA Sim

### Physible

MO TS TG CA Sim

### Physible

MO TS TG CA Sim

### Physible

MO TS TG CA Sim

TS TG CA

## Footprint

SUPERCOMET 3 covers all European countries not previously covered

**17 countries (13 new)**  
**50 partners**

6 countries  
15 partners

**15 same countries**  
**60 partners**

8 countries  
27 partners

**15 countries (12 new)**  
**40 partners**

4 countries  
8 partners

MO: Minds-On kits  
TS: Teacher Seminar  
TG: Teacher Guide  
CA: Computer Application  
Sim: Simulations



## Back to the experiments

- Pyrolytic graphite is diamagnetic: it repels an external field.
- If the external field is strong enough, this repelling force is bigger than its weight
- If the magnets are NSNS, then the centre shows a weaker field, so the graphite is pushed to the centre

## Back to the experiments

- The strong magnet causes eddy currents as long as it moves
- These weaken when the magnet approaches the border of the copper
- So the inner part generates a bigger opposing force, more friction, so bending TOWARDS the inner part!
- Self evaluation?

Thank you