

# Summary – WYP Denmark

- Danish Physical Society unfortunately possesses only little momentum
  - EuroPhysicsFun participate in the preparatory meeting in Montreal (invited by Martin Huber)
  - EuroPhysicsFun suddenly becomes organising committee – not suited for such a task. Contact is made to Danish Science Communication who take over the responsibility.
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# Funding and Activities

- National funding raised (Governmental Sources)  
~ 45.000 €
  - Website with calendar of WYP activities
  - 9 Newsletters (263 recipients)
  - Activities arranged **only** locally with a majority of activities with no special WYP relevance
  - Whole scheme **not** an example of best practise
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# EuroPhysicsFun.org

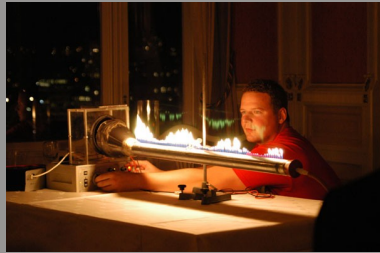
International Network of Physics Outreach Groups

*Not a real WYP thing*

Mikkel Bo Nielsen, World Year of Physics – Closing Meeting, Paris,  
France, March 2006

# About EuroPhysicsFun.org

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## Purpose:

Initiate and motivate the **creation** of new student groups at ma

Join these and **existing activities** in an experience and knowle

The work is funded by the Danish Minsitry of Science, Technology and  
Research Council and a private Danish foundation: VILLUM KANN



# Activities

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- Multiple representations at conferences in order to address students and scientific staff
  - Workshop July 2005 Switzerland Norway WYP Closing Meeting
  - Danish Physical Society Annual Meeting 2006 adjacent to ICPS Heide
  - Speed training *in situ* Romania Sweden Swedish Physical Society Annual Meeting
  - Equipment Packages Portugal South Korea EPS13
  - South Korean Science Festival Romainian Physical Society Annual Meeting
  - WYP Launch Swiss Physical Society Annual Meeting
  - Turkish Physics Students Annual Meeting Turkey
  - International Conference for Physics Students Sweden
  - Norwegian Physics Students Annual Meeting
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# Results

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- 16 member groups in 9 different countries
- Initiated/motivated 4 groups
- Monthly Newsletter (563 recipients)
- Substantial website
- Contacts in 35 countries
- Contact to more than 1000 people in more than 70 countries



# Future projects within the network

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- Coordinated Action – Exchange of People
  - More Member Groups
  - Fysikbasen.dk -> English/Spanish/.....stats
  - Joint activities, annual meetings, border crossing events and a vision to be partners in other international action oriented projects
  - And more.....
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# Network members



# Future Funding?

- Building/evolving a financial business plan
- International Companies

- EC:

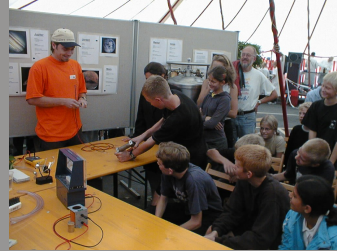
*....The panel thought the project (focusing on peer learning) had great relevance*

*....The project has clear objectives and good methods*  
*(from Evaluation Summary Report)*





# Using physics students?



- Physics students are able to settle with the public's **stereo-typical** image
- The audience **relates and identifies** more easily with the show physics
- Physics students delivers an enthusiastic expression, which appeals to
- Physics students are **close to the educational level** of the ordinary
- Physics students are **un-used** in the field of communication.

**a vast number of fantastic ambassadors of physics, who regardless of their career will benefit from the obtained communicational skills.**

# What do I get out of it?

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# What students get out of it?

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- FUN FUN FUN FUN FUN FUN FUN FUN FUN FUN FUN FUN FUN FUN FUN
- You will become a better physicist, experimentally, intuitively and theoretically
- Develop communication skills, that no one else has a chance to gain
- Potentially meeting more than 2000 interested, interacting and involved people



# EuroPhysicsFun – so far



EuroPhysicsFun has been presented at e.g:

The Launch of the World Year of Physics (**France**)

Norwegian Students Annual Meeting in Bergen (**Norway**)

International Conference for Young Scientists, Katowice

Turkish Students First Annual Meeting, Ankara (**Turkey**)

European Physical Society, Bern (**Switzerland**)

ICPS2005, Coimbra (**Portugal**)

and now here at fys ikdagarne in Umeå (**Sweden**)

EuroPhysicsFun Department of Physics and Astronomy

# EuroPhysicsFun – so far



- **Contacts** in more than 71 different countries
- The EuroPhysicsFun - **debate forum** (10 nationalities)
- A **monthly electronic newsletter** is distributed to more than 400 people worldwide

**New activities** coming up in: Bergen (Norway), Helsinki (Finland) in Aalborg  
- Umeå next?

EuroPhysicsFun carried a **workshop on show physics in July** (6 different  
10 outreach **student groups** in the network so far

# EuroPhysicsFun Workshops

EuroPhysicsFun offers a complete package containing means to find motivated students, seminars disseminating:

Video analysis

Edutainment practice

Experimental maturing (hands-on physics)

Stimulating lectures by artists, didactics people, professors

Fun!! - and much more!!! – Check out our website

Next workshop up 6-9. December 2005



# EuroPhysicsFun - networking

## Human part:

- annual meetings
- start-up workshops and
- follow-up seminars

## Web-based network:

Internal interface (English) solely for Show Physicists

Ideas, inspiration and experience-sharing  
between the satellite groups

Additionally, a public interface (local European language)  
experiment databases, weekly questions  
interactive applets, “ask the physicist”





# EuroPhysicsFun.org – what can you do?

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- Sign up for our newsletter
- Join the open EuroPhysicsFun forum
- Register for our workshop in December
- Advice your fellow students of EuroPhysicsFun
- Tell us about existing show activities in your country
- Contact us if you like to start your own show



# Member groups

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- 0 – 17 years
- 2-40 students
- More or less affiliated to the university
- Acts more or less as recruitment tool
- Some paid salaries, some not
- Some charges a fee to the schools,
- Some managed by staff at university, some managed by volunteers



# Member groups

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- All a huge succes – no matter how you want to measure it
- Driven by the young, energetic enthusiasm of physics students
- High speed and entertaining with respect for the scientific method

## A scheme that works :

- Start with a group of 3-4 students
- Choose an audience
- Slowly build up an experimental curriculum
- Slowly expand the group to more people and more experiments
- Widen out the target group
- Aarhus model: Ph.D. manages the show – ensures continuity
- Aarhus model: Paid physics students do the dirty work (Faculty)
- Have fun!

# Audience Reactions

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- 14 year old girl:

”I thought it got much more exciting when I realized I actually understood what they was explaining”





# Audience Reactions

- 14 year old boy:

”It (physics) has become more fun and I pay more attention s well in the classroom”



# Audience Reactions

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- 14 year old girl:

”Now I like better to do the experiments than before and just in general physics has become more fun”



# Audience Reactions

- 16

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ma



# Audience Reactions

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- 17 year old girl:

”It has changed quite a lot for me, because in a way I have regained the thrill of physics. It was enourmously exciting!!”

# Constructivistic Principle

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You construct your own understanding

- Authentic questions – open questions where the teacher doesn't have the answer
- The answers from the students are used in the dialogue
- The participation of the students is recognized as an important part of the learning process

# Authentic Physics

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- Personal authenticity
- Social authenticity
- Professional/scientific authenticity



# Personal authenticity

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The students must accept the subject as relevant - either as something relevant to themselves or as something that is relevant in a larger connection

# Social authenticity

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The subject must have a relevance to the community – such as distribution of energy or the climate of the earth



# Professional/scientific authenticity

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The learning of physics must be "realistic"  
– it should be similar to the way you use  
physics in research or in industry

# The Physics Show

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## Dialogue

- High appreciation – the input from the audience is used

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- High appreciation – the input from the audience is used
- Follow-up – answers and questions from the audience are treated seriously by the Physics Show

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- High appreciation – the input from the audience is used
- Follow-up – answers and questions from the audience are treated seriously by the Physics Show
- Authentic questions? No!

# The Physics Show

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## Authenticity

- Personal authenticity – by demonstrating physics that are connected to everyday phenomena and by involving the audience in the demonstrations

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## Authenticity

- Personal authenticity – by demonstrating physics that are connected to everyday phenomena and by involving the audience in the demonstrations
- Professional/scientific authenticity –by the fact that the performers are real physicists
- *Enthusiastic authenticity – the performers show their own enthusiasm and interest in the phenomena*

# WYP-Challenge.dk

- Create a human chain transferring a music
- Amplifiers have to be commercially available
- Do it at markets, in the streets - anywhere



Send us the pictures, video's etc.

I am the record holder in France, the Netherlands, Denmark (157), Norway, Turkey, Poland, Sweden, Romania

– I dare you to pick up the gauntlet! – but first.....





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I am the record holder in France, the Netherlands, Denmark (157), Norway, Turkey, Poland, Switzerland, Portugal, Romania, **and now Sweden**

– I still dare you to pick up the gauntlet!



See you at the coffee breaks and intermissions!!

- 112 experiments
- More is coming up
- Experiments for all!
- 46.000 hits on experiment descriptions
- 14.000 unique users
- Positive recommendations