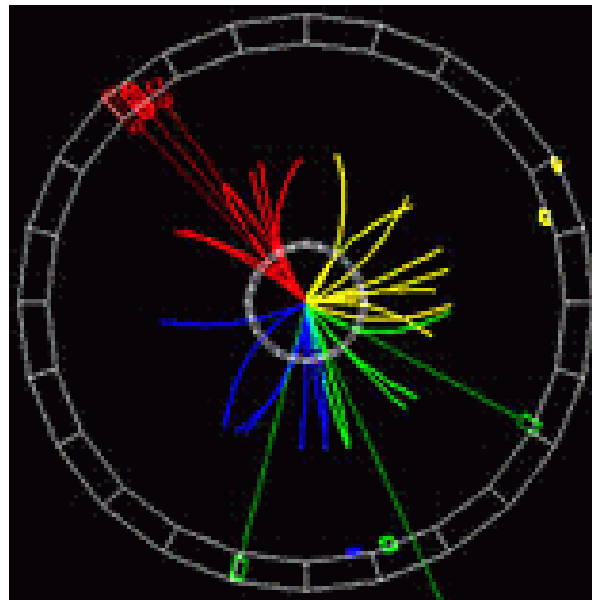


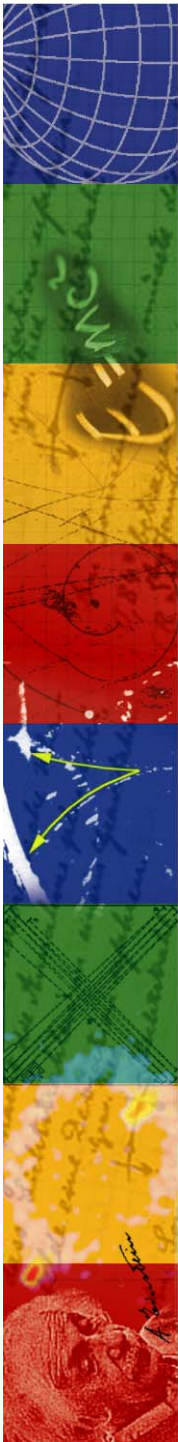
***Planning for the  
5. International Masterclasses  
“Hands on Particle Physics”  
16.3.-3.4.2009***

<http://www.physicsmasterclasses.org>



EPPOG outreach meeting, CERN, 4.10.2008

**Uta Bilow**



# Outline

## ● Past, Present

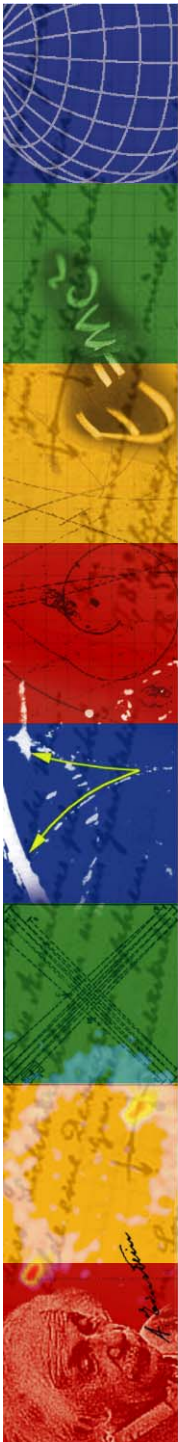
- Participation 2008
- Organisation Team 2008 → 2009
- Coordinating Structure for 2009

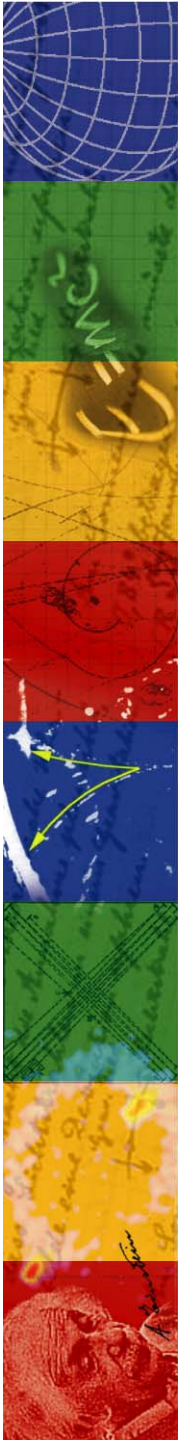
## ● Preconditions

- Material and in-kind funding
- Upgrade for LHC
- Central Organisation
- Evaluation
- Video session

## ● Perspectives

- Status Masterclasses 2009
- Future Funding





## Past : Participation 2008 (2007)

- 83 (74) institutes from 21 (20) countries
  - 1 new country: Brazil
  - 8 new institutes (not counting re-joiners)
    - ✦ Brazil: Rio de Janeiro, Sao Paolo
    - ✦ Germany: Würzburg
    - ✦ Italy: Ferrara
    - ✦ Poland: Poznan
    - ✦ Portugal: Covilha, Faro
    - ✦ Spain: Valencia
  - 1 (16) institutes w/ more than one students day
  - 7 (6) institutes w/ additional teachers day
- Estimated number of students: 4936 (4589)

# Present: Organisation Team 2008→2009

continuing / new vs. ending

## ● Central organisation

### ● People and infrastructure at Dresden

- ✦ **Michael Kobel** (expanding central support structure)
- ✦ **Tatjana Sereda** (secretary, ½ time, largely with other tasks)
- ✦ **Peter Steinbach** (now 100% working on Ph.D. thesis)
- ✦ **Felix Krüger** → **Christian Rudolph** (physics student) CD and Web Site
- ✦ **Uta Bilow** (project manager, 1/2 time, central organisation tasks, integrate new concepts and exercises, prepare and organize long-term funding applications) funded by German Helmholtz Alliance

## ● EVO Video Conference

### ● technics:

- ✦ **Joao Fernandez, Viktor Michalcin, Marek Domaracky** plus **EVObeta team** (CERN, Caltech, VK Slovakia)

### ● moderators:

- ✦ **Silvia Schuh, Katherine Leney, Kate Bradshaw, Kate Shaw, Claire Timlin, Dave Barney, Mike Lamont, Michael Hauschild**

### ● Quiz:

- ✦ **Silvia Schuh, Ken Cecire et al**



# Present: Coordinating Structure for 2009

continuing / new vs. ending

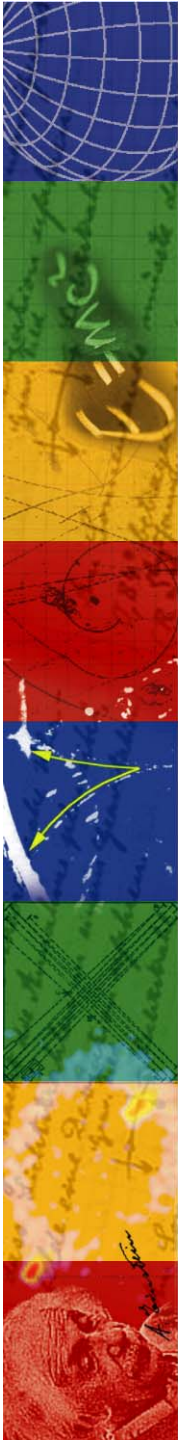
## ● National Organisation

- Contact persons in each country
  - ✦ esp. big support in US by Quarknet (Ken)
- Local responsables for each institute

## ● Steering Group

- Central Organisation: Michael Kobel, Uta Bilow, Peter Steinbach
- US-Organisation: Ken Cecire
- EPPOG: Erik Johansson
- Moderators: Dave Barney, Kate Shaw, Silvia Schuh
- EVO Team: Marek Domaracky, Victor Michalcin





# Preconditions I: Material + in-kind Funding

- Mainly in-kind support:

- Distributed material (CD, brochures, comics, card games)
  - 2005: EPS-HEPP(CDs) + CERN(comics) + DESY(brochures)
  - 2006: BMBF(CDs) + CERN(prizes) + DESY(brochures)
  - 2007: EPS-HEPP(CDs) + CERN(prizes) + DESY(brochures)
  - 2008: EPS-HEPP+Educ.(CDs) + CERN(prizes) + DESY(brochures)
  - 2009: EPS+BMBF(?) (CDs) + CERN(prizes) + DESY(brochures)(?)
- VRVS/EVO support (continuing!)
  - 2005-2009 CERN + Caltech + Slovak ministry

- Finance Amounts needed:

- CD-production and shipping: ~7500 Euro /year
- Future automatic evaluation: ~4000 Euro / year



## Preconditions II: Upgrade for LHC

### ● Funded by German BMBF w/in LHC Communication

- Total: ~ 20.000 € / year for 3 years
- Goal: Include LHC material in International Masterclasses
- Funding includes
  - ✦ Personnel (1/4 time + student assistants)
    - Collecting and merging of existing ideas
    - Develop technical frame
    - Concept and trials with students
    - Translations
  - ✦ 5000 € Material costs for CDs w/ LHC material (already for 2009) (need rest from EPS)
  - ✦ Evaluation costs
  - ✦ Travel

### ● Striving for finding personnel

- Central Position: 50h / month, 5000 Euro / year, not much money!
- Wolfgang Gentner Ph.D. thesis scholarship?



# Preconditions III: Central Organisation

## ● Medium-Term plan

- ½ - time person for next 3 years (Uta Bilow, started in 8/08)
  - ✦ Central organisation tasks
  - ✦ Integrate new concepts and exercises (e.g.  $\alpha_s$ , LHC)
  - ✦ Prepare and organize long-term funding applications

## ● Long-Term vision

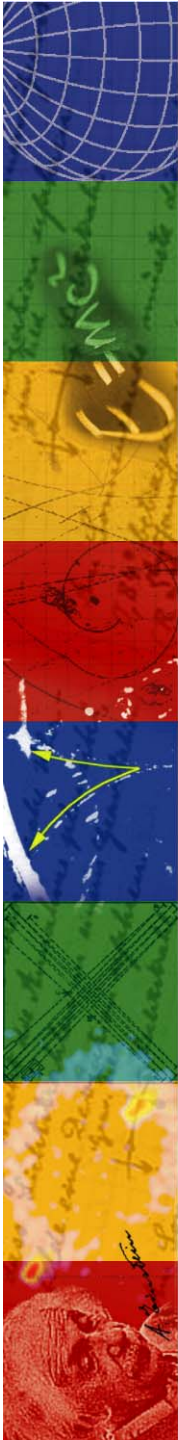
- Get lasting funding for many years  
incl. \*enough\* personnel.





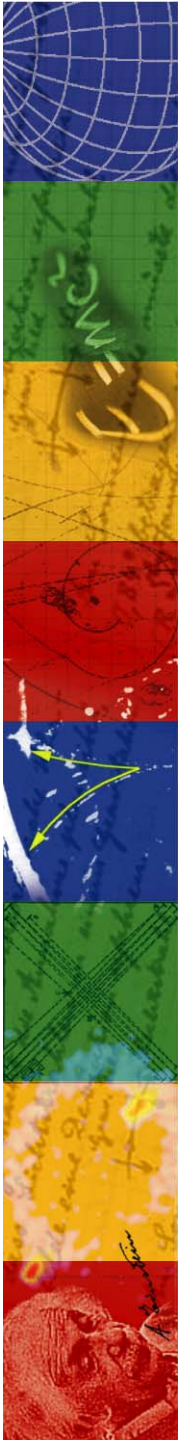
# Preconditions IV: Evaluation

- Important, esp. for new concepts and exercises
  - Proof of sustainability
  - Internal overview „How did we perform?“
  - Charge professional survey group at TU Dresden with
    - ✦ Making questionnaire machine-readable
    - ✦ Reading data into SPSS
    - ✦ Making pre-defined set of standard plots
    - ✦ Sending SPSS data to us for further/deeper evaluation
    - ✦ ~4000 Euro / year
- Start in 2009 or 2010 ?
  - time might be too tight for 2009 to be worth the money?



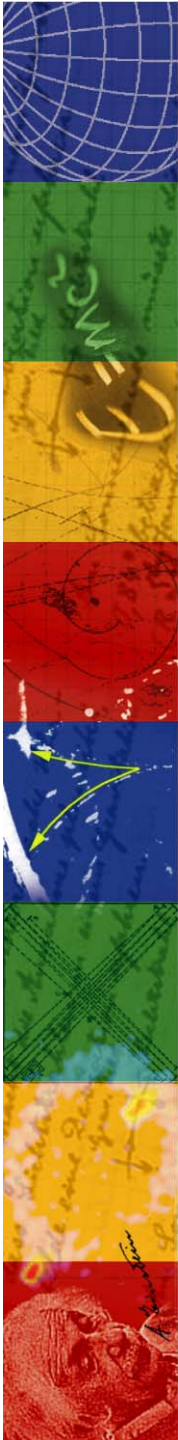
# Preconditions V: Video Session

- **Video Session:**
  - **Central connecting element!**
  - **Great for students if technically working and lively**
  - **Teacher days: Video Conf needed?**
- **Question of relation with US/Brazil**
  - Generally stay at usual time (16:30-18:00 CET)
    - ✦ Some US/Brazil institutes join (9:30 – 11:00 FNAL)
  - Extra US video Conferences
    - ✦ Most US/Brazil institutes
- **Technical Quality**
  - **EVEN STRICTER admission procedure after successful test with final equipment at final place**
  - **EVEN MORE** thoroughly prepared test sessions, planned well in advance
- **Good ideas for further improvements welcome!**



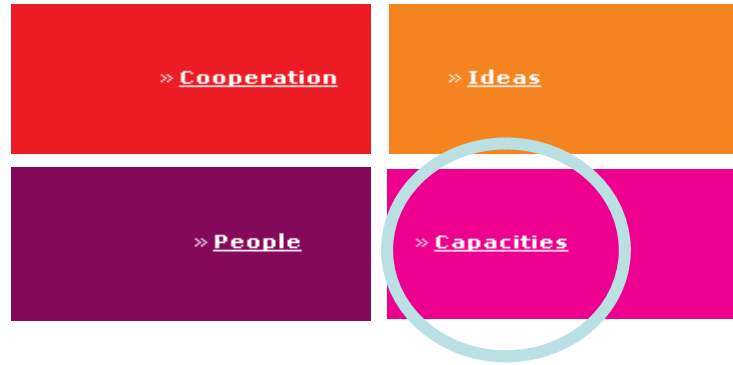
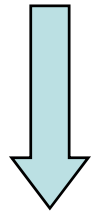
# Perspectives I: Status Masterclasses 2009

- 16.3. – 3.4. 2009 = 17 days (2008: 14 days)
- Until now: 82 institutes registered
- New: France, Serbia
- Only one students day per institute
  
- Teachers days
- Until now: 19 institutes interested
- in 2008: 2 days, 7 participants
  - Ideally before or parallel w/ students
  - Same exercises, discussion among teachers
  - Support preparation and wrap-up at school !
  - Aim to initiate development of teaching material !
  - Might be important for long-term funding !
  
- Exercises: LEP Z-decays .or. LEP Z-decays + alpha\_s
  - Optional additional WW and LHC exercises \*locally\*
    - ✦ 10 institutes interested in LHC Exercises
    - ✦ LHC centrally covered only in Quiz and Q&A of Video Session
    - ✦ No combination of optional LHC and WW exercises

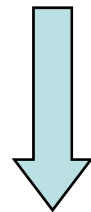


# Perspectives II: Future Funding in FP7

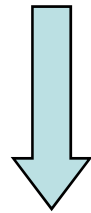
FP7 (EU)



Specific program:



Action Line: Strengthening potential, broadening horizons



Activity 5.2.2 Young People and science



## Perspectives II: FP7 (5.2.2.)

### ● Activity 5.2.2 Young People and Science

Rationale: falling interest in key science topics and mathematics

Reason?: the way children are taught from the earliest age

Development of more effective forms of pedagogy  
and innovative methods in science education

#### ● What can be funded?

- Supporting formal and informal science education in schools as well as through science centres and museums and other relevant means
- Reinforcing the link between science education and science careers
- Research and coordination actions on new methods in science education

#### ● Central issues:

- primary and secondary schools
- include teacher training activities
- initiate development of teaching material
- at least 10 partner from 10 member states or Associated countries
- dissemination of progress and know-how to special interest groups
- independent evaluation





## Perspectives II: National Network „Teilchenwelt“ in Germany ?

- Plan of a national network of students, teachers and scientists for particle physics and its contexts in physics, science and society
- 4 branches (nationwide coverage)
  - National Masterclasses with LEP Z-decays
  - Cosmic Ray experiments
  - Visits to CERN (including project weeks, teacher's training)
  - Development of teaching material
- Hierarchical program for teachers and students:  
4 levels with decreasing number of participants
  - Basic program: 400 teachers + 6000 students / year
  - Reinforcement program 150 teachers + 800 students / year
  - Active „Teilchenwelt“ Members
    - 200 Teachers for 5 years
    - 200 Students for 2 years
  - Research: 5 teachers + 30 students / year
- Might be going to be realized soon
- Would build ideal basis for FP7 application