CERN-Teacher Cooperation

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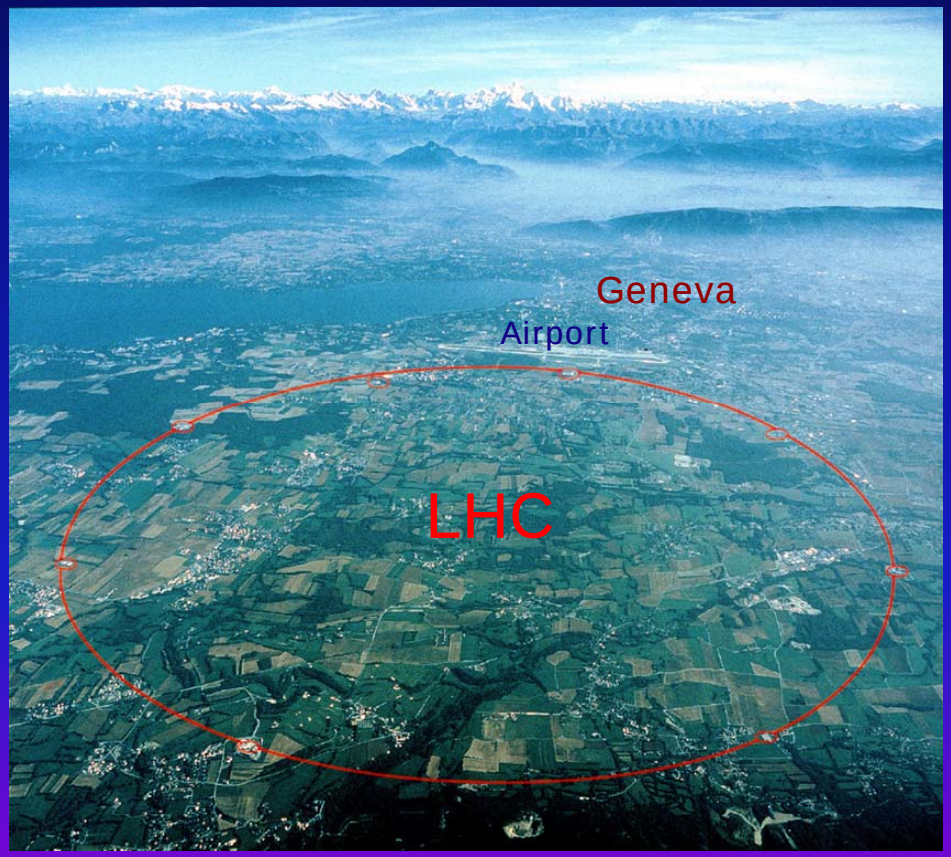
What is CERN ?

CERN is the largest science laboratory in the world
CERN has built the largest particle accelerator in history - the LHC
The LHC will produce particles that existed only shortly after the Big Bang



Who works at CERN ?

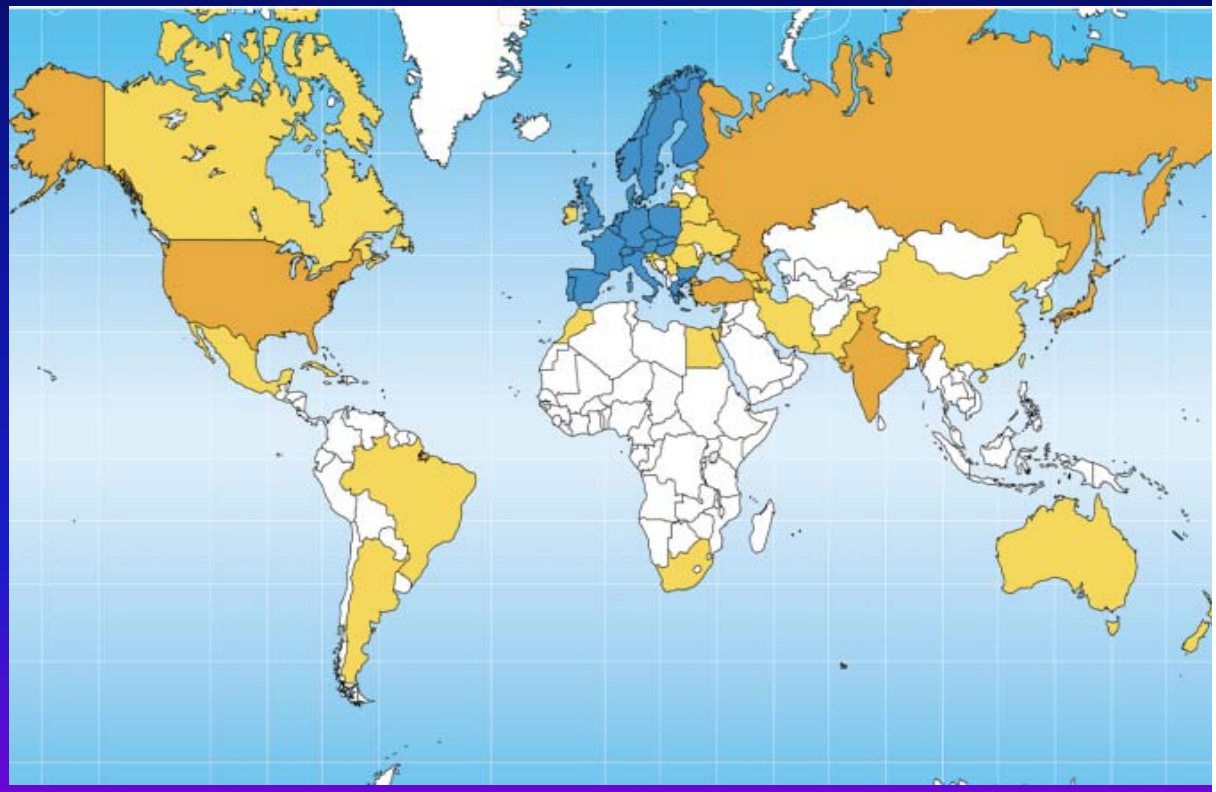
Scientists from 108 countries

2400 CERN Staff

+ 350 fellows +associates

7150 Visiting physicists

70 % from member states
25 % from observer states
5 % from other states



CERN ex-Director General Robert Aymar

CERN has a broad range of communication activities

400-600 media visits per year (TV, newspapers, radio)

Visitor programme (60,000 visit request - 25,000 accepted - 50 % schools)

Permanent and temporary exhibitions (Microcosm and 'Globe')

Open day (2008: 50,000+ visitors)

Public webpages

Live webcasts

The Education Group

CERN teacher courses

Creation and provision of teaching resources

Video-"Chats" :

virtual meetings betwen CERN scientists and school classes

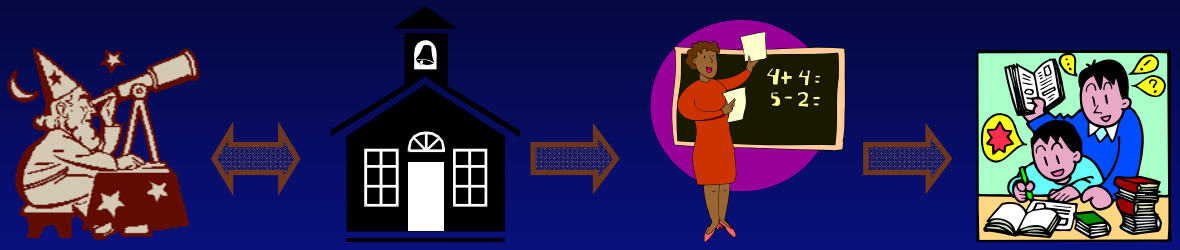
Web-Lectures (teacher courses, colloquia, seminars, etc)

Science In School Journal

Science On Stage Festival

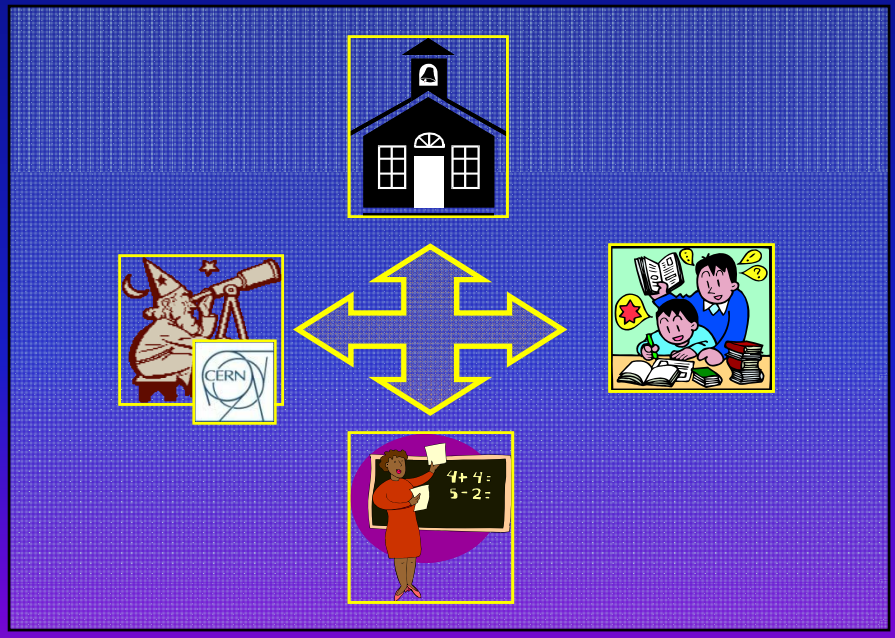
Role of CERN education group - Bring modern research closer to schools

OLD



Research University School Teacher Students

NEW



What are we trying to achieve with the help of physics teachers ?

1: RAISE AND MAINTAIN THE INTEREST OF STUDENTS IN MODERN SCIENCE

Motivate them to continue scientific education at school
Help them to better understand the physical world

Improve scientific literacy

2: INSTIL A FEELING OF MYSTERY AND DISCOVERY POTENTIAL

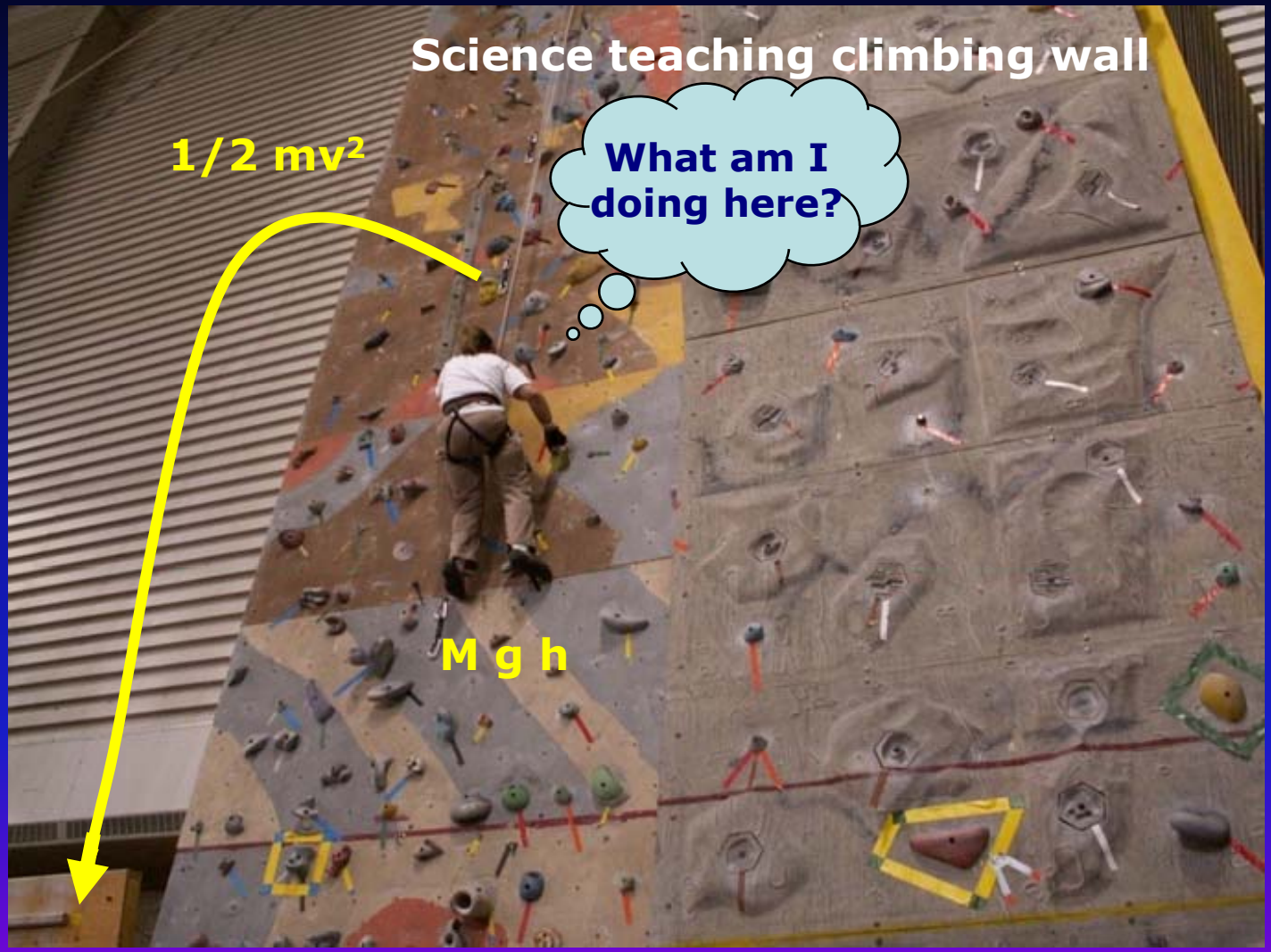
Motivate students to take up physics at universities

Prepare the future generation of physicists

SCIENCE IS ALIVE !

How researchers view science

How school students view science



Take students on a sight-seeing tour …

Link modern physics to school curriculum

Residential Teacher Programmes

Basic content

- Lectures
  - Introductions to CERN, Particle Physics, Cosmology, the LHC Experiments, Particle Accelerators, Medical Applications of Particle Physics, and the GRID
- Visits to experimental facilities
- Hands-on activities
- Working group activities
- Opportunities to meet working research physicists in a variety of informal settings.

All lectures are recorded, web archived and made publicly available

3 - week Summer School

30-40 participants, mainly from member states - held in English

Fully funded by CERN (travel, accommodation, food, lectures)

Lectures: Particle physics, cosmology, accelerators, detectors

Seminars: Antimatter, medical applications, …

Working Groups: Bubble chambers, teacher lab, stories, …

Guided Tours: LHC experiments, Antimatter factory

Social events - networking - Alumni contacts

28 June - 18 July 2009

3-day weekend programme

≤ 50 participants (mainly member states)

In English

Partially funded by CERN (accommodation)

Lectures on:
particle physics and cosmology
accelerators and detectors
antimatter, medical applications

Guided tours:
LHC experiments
Antimatter Factory

14 - 17 May 2009

1-Week Programmes

20-40 participants (from same country or language group)

In the language of the participants

No course fee, but external funding for travel, accommodation, subsistence

Goal: 20+ programmes per year

In collaboration with teachers and scientists from member states

Funding: teacher education funds, ministries, local authorities, foundations

2006: Pilot schools (Finland, Hungary, Sweden)

NTP Programme Organisation

Collaboration

CERN education group + for each country:

CERN ‘patron’ e.g. scientist from the country resident at CERN

National coordinator(s) e.g. teacher, administrator resident in the country

National agencies, foundations to assist with funding

Outcome

- Newly inspired, motivated and confident teachers
- Inspire and motivate students
- Communicate with their colleagues
- Communicate with the general public
- Act as ambassadors for science, physics, particle physics, CERN

Excellent examples among many teachers who have attended our programmes

Arthur C. Clarke

- “When a distinguished but elderly scientist states that something is possible, he is almost certainly right. When he states that something is impossible, he is very probably wrong.” •
- “The only way of discovering the limits of the possible is to venture a little way past them into the impossible.”
- “Any sufficiently advanced technology is indistinguishable from magic.”

Thank You

- CERN Education Group Colleagues
- CERN Collaborators
- Lecturers
- Sponsors
  - Financial
  - Schools
- YOU

Au Revoir

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