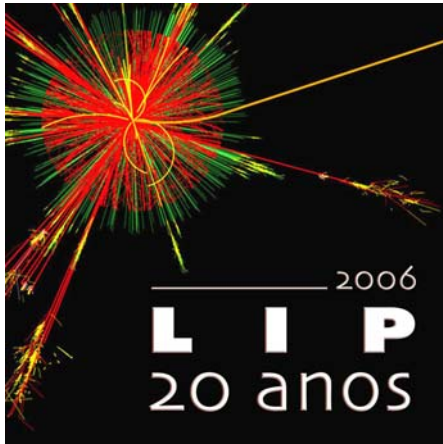




EPPOG - Autumn Meeting 2006



recent

OUT-REACH

in

HEP @ Portugal

"the use of Students to boost OR in the scientists"

Maria Abreu, Pedro Abreu, Pedro Assis, Fernando Barão, Paula Bordalo, João Carvalho, Miguel Ferreira, Amélia Maio, Carlos Marques, Paulo Martins, Lina Moniz, António Onofre, Luís Peralta, Américo Pereira, Mário Pimenta, Gonçalo Pires, João Pires, José Silva...



CERN, Geneva,
6/10/06



Summary

v Reaching the Scientists with Students

- ☒ Summer into Science (Ciência Viva stays)

- ☒ Public sessions at major conferences:

Outreach for the public and the Scientists!

v CRSP'06: Cosmic Rays in Schools Projects

- ☒ Report of the Workshop (2nd of its kind)

- ☒ Birth of Eurocosmics - a network of networks



Summer into Science



AGÊNCIA NACIONAL
PARA A CULTURA
CIENTÍFICA E TECNOLÓGICA



ocupação científica de jovens nas férias

- v Stays of ~15 days at Research Institutes and Universities – Program started and supported by the pt agency **Ciência Viva** (~100 stays, 1K stds.)
- v LIP co-organized 4 stays:
 - ☒ Cosmic Rays in the TRC network
 - ☒ Muon lifetime experiment
 - ☒ Optical fibres and Scintillating tiles
 - ☒ Radioactivity in the environment (w/ visit to U mines)
~20 students followed closely by 4-6 scientists
- v Students contribute to the calibration of det's, etc.



Summer stay in the TRC (pt CRSP)



Students control the detectors and control the Data Acquisition

Students analyse the data collected in different conditions, and calibrate the system vs HV's, etc.





Summer into Radiation Environment



Students visited an U mine complex, and attended a lesson about radiation the environment, and the detectors used. There were many questions answered.





Summer into Radiation Environment

Later went to collect radioactive rocks, to prepare kits for the classroom



October 7th, 2006

ERN, Geneva

6/24



20th ECRS - Public Session

20th ECRS
European Cosmic Ray Symposium

LUNCH

(& Debate, Spark Chamber, ... 7th September
+Public Conference with Sir Arnold Wolfendale)



20th ECRS - Public Session

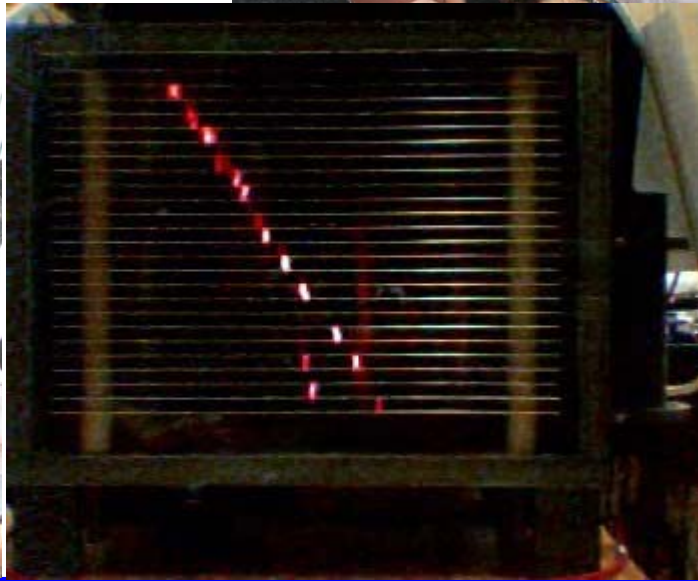
- ✓ 20th European Cosmic Rays Symposium in Lisboa, Sept. 2006, brought to pt ~200 participants, in this 20th anniversary of LIP
- ✓ Public session with 100 students and teachers from 10 schools spread in the country
- ✓ Based on a lunch w/ scientists, a debate with Q&A's with a panel of popular scientists, retrieval of a printed cosmic ray on-the-spot and a ref.talk.
- ✓ Spark Chamber on display the full conference (1st in pt – attracted the most important targets)



RS - Public Session



NIKHEF
design



1st Spark
Chamber
built and
operating in
Portugal



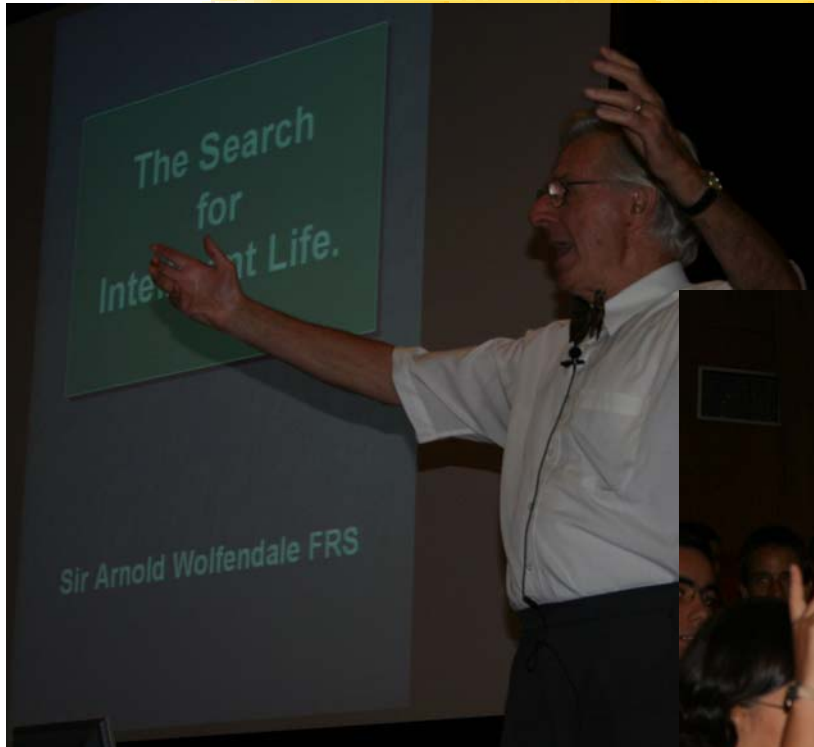
20th ECRS - Public Session

Q: Is it possible for a Cosmic Background of NEUTRINOS, analogous to CBR, to provide info. closer to or before the Big Bang ?





20th ECRS - Public Conference



Q: Who believes in the possibility of ET Intelligence in our Galaxy ?



(Sir Arnold Wolfendale)
(Great public interaction!)
Many Q&A afterw.!

(report on the)

CRSP'06

**2nd Workshop on
Cosmic Rays in
Schools Projects**

September 9th, 2006

Lisboa, Portugal





CRSP'06 - a short summary

- v 9 Projects represented, ~30 participants
 - ☒ be,gr,it,nl,pl,pt,ru,se,uk + observers: de,fr
- v not represented now, but known to exist:
 - ☒ ca(*),us(x10)(*) + planned: me(*),sp
 - (*)NALTA network
- v 14 Talks+discussion of status&prospects
 - ☒ 11 Project updates/status reports
 - ☒ 2 Educational oriented reports
 - ☒ Full Proposal for Eurocosmics



CRSP'06 - a photo summary





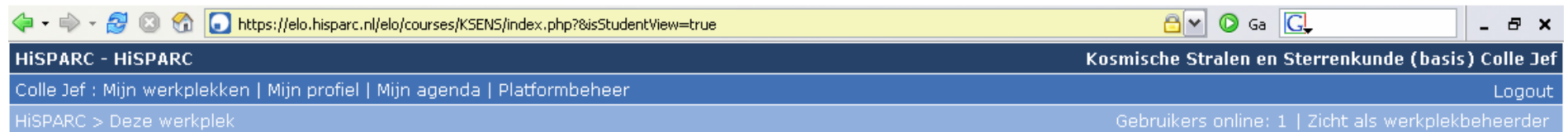
CRSP'06 - status of the networks

- v 3 projects up and running and taking data
 - ☒ be(OCRE: 3s.), nl(HiSPARC: 42s.), se(SEASA: 4s.)
- v 3 projects to (re)start taking data soon
 - ☒ gr (Helycon: 4 s.), it (EEE: 2 s.), pt (TRC: 4-8 s.)
- v 1 project preparing for school phase
 - ☒ pl (The Roland Maze project)
- v 2 projects for the medium/long term (schools)
 - ☒ de,ru,uk
- v Observer to report its status (fr: RELYC)



CRSP'06 - some biased choices

HiSPARC's Virtual Learning Environment (web-based Educat.)



Hier staat al het materiaal voor de cursus.
Je kan het binnenhalen en gebruiken. Je kan ook via de ELO werken. Neem dan contact op met de [platformbeheerder](#), die kan een werkplek voor je aanmaken.
Kijk eerst bij **Werkplekbeschrijving** voor een beschrijving van het Project.
Het gebruikte materiaal staat bij **Documenten**.en bij **Links**.

- [Werkplekbeschrijving](#)
- [Documenten](#)
- [Links](#)
- [Forums](#)
- [Groepen](#)
- [Leerpad INFO 1](#)

Forum!

- [Agenda](#)
- [Leerpad](#)
- [Aankondigingen](#)
- [Gebruikers](#)
- [Opdrachten](#)



CRSP'06 - some biased choices

Original paper: Gerasimova & Zatsepin(1960)

Recent references:

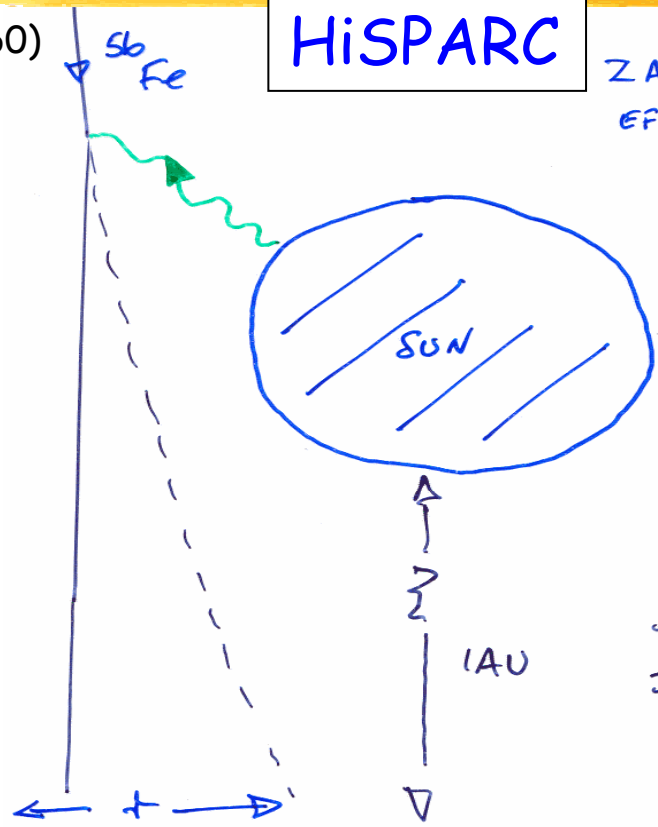
Medina-Tanco & Watson (1999)

Epele et al. (1999)

EEE

HiSPARC

ZATSEPIN - GERASIMOVA EFFECT (1956)



©Alan Watson

HiSPARC

Look for simultaneous showers in different cities

SOLAR MAGNETIC FIELD IMPORTANT

MEDINA TANCO & WATSON (1998)

$r \sim$ FEW HUNDREDS KILOMETRES

$r \sim$ few 100 km: scale of the Netherlands



CRSP'06 - some biased choices

HiSPARC Status Display



refresh rate = 600 sec.

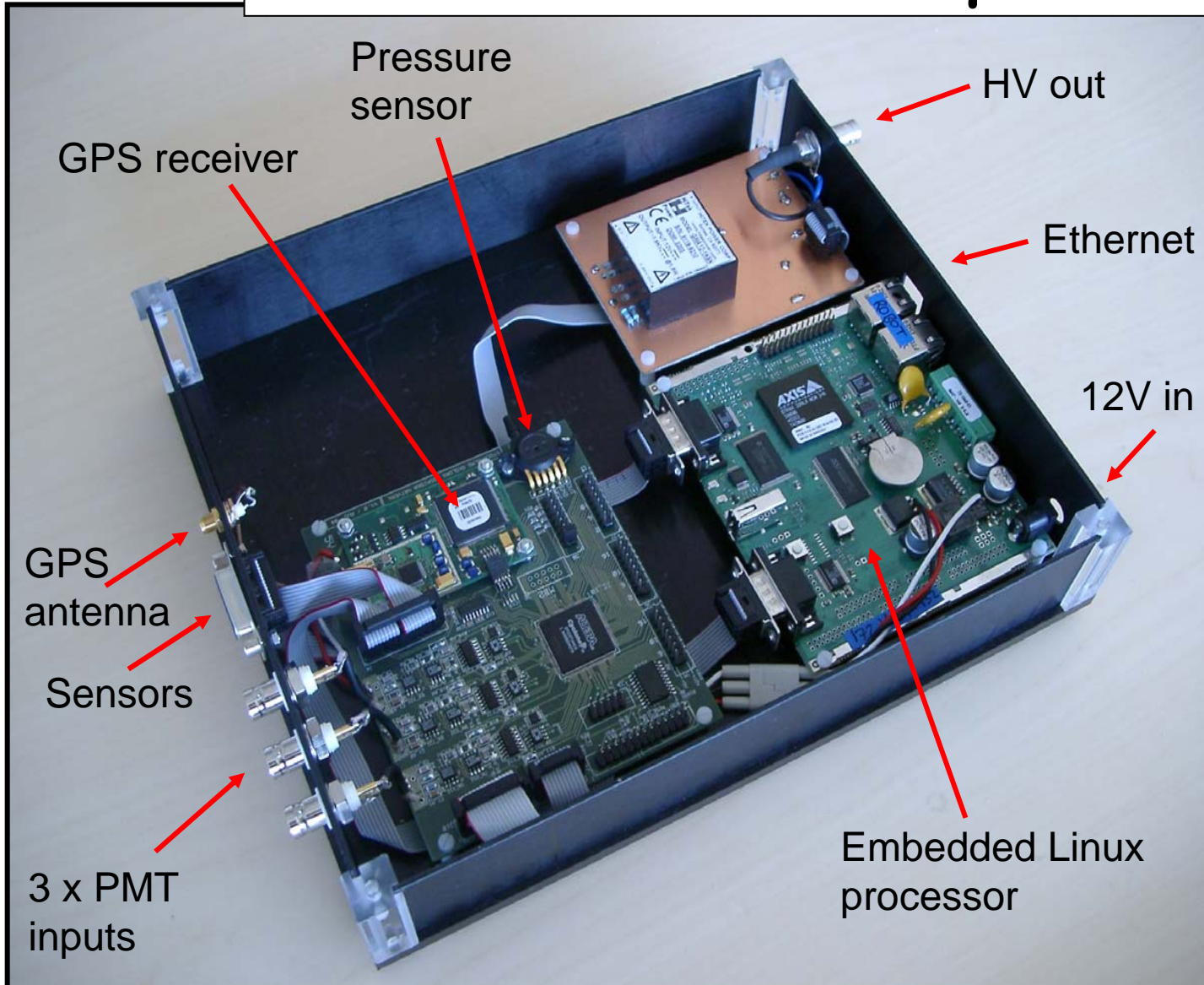


NIKHEF
Lokatie: Amsterdam
Telefoon: +31 (0)20 592 2000
E-mail:
detector: 19
Lon: 4.9510498124472°
Lat: 52.35575761331°
Status: [online](#)



CRSP'06 - some biased choices

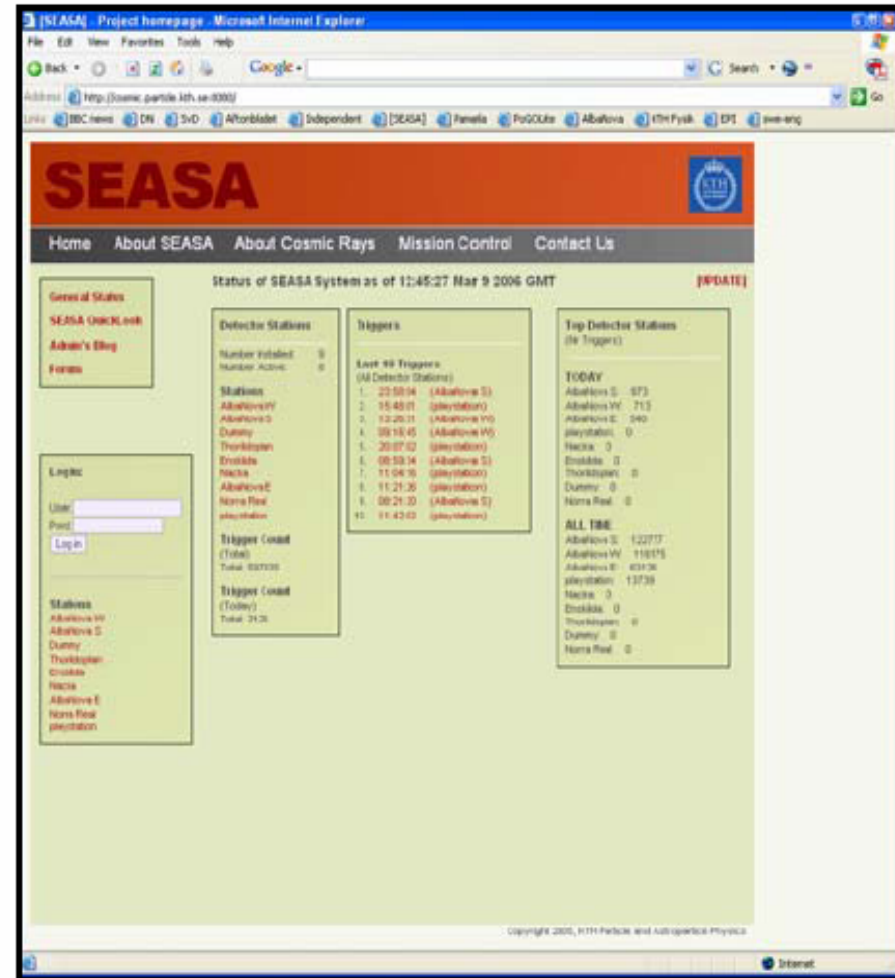
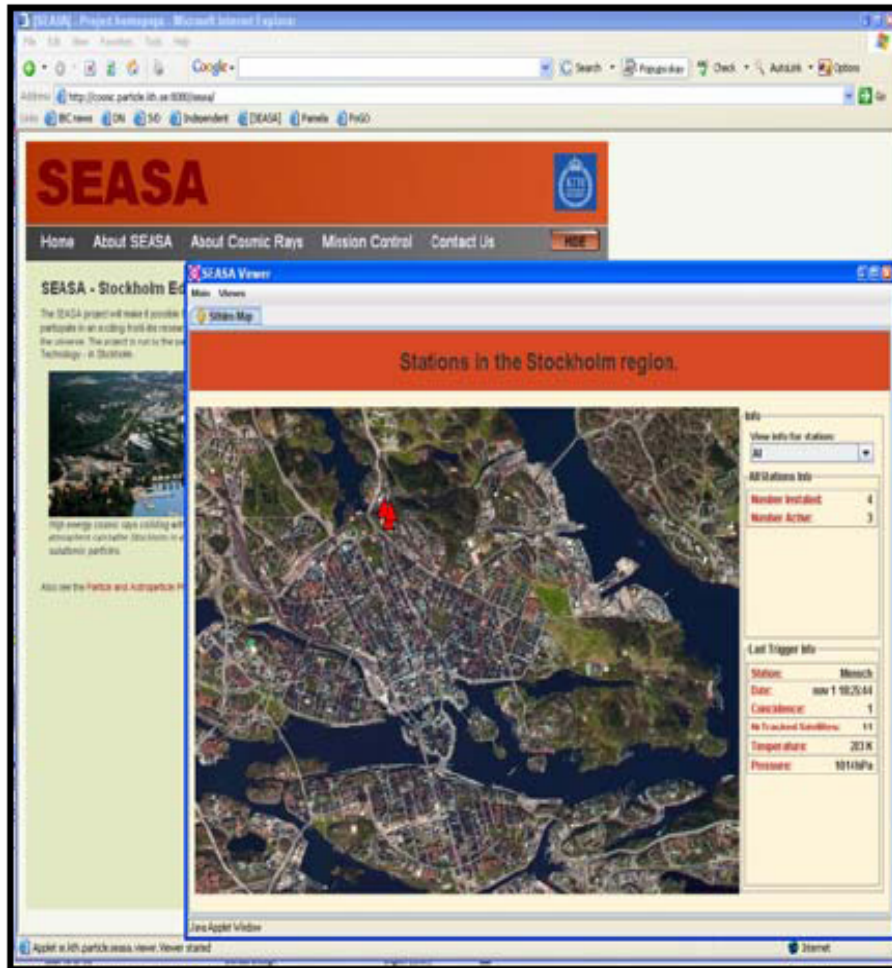
SEASA Data Acquisition





CRSP'06 - some biased choices

SEASA Web Interface



CRSP'06 - some biased choices

SEASA Student Theses



Air Shower Simulations for the SEASA
Experiment

Petter Hofverberg



Implementation and performance of a
multi-detector station set-up for SEASA

Henrik Johansson



A study of cosmic ray air shower properties



Scintillator detectors and an autonomous GPS
time-tagging system for the SEASA project

Magnus Rennyrr



POLITECNICO DI MILANO

Facoltà di Ingegneria dell'Informazione

Corso di laurea in Ingegneria Elettronica
Indirizzo Optoelettronica

PROGETTAZIONE E REALIZZAZIONE DI UNA
STAZIONE DI RIVELATORI PER IL PROGETTO
SEASA (STOCKHOLM EDUCATIONAL AIR
SHOWER ARRAY)

Relatore: Dott.^{ssa} Chiara GUAZZONI

Correlatore: Doc. Mark PEARCE

Tesi di Laurea di
Maurizio RIGHINI
Matricola 640795

Anno Accademico 2004/2005

LISA ÅSTRÖM

Imaging the High Energy
Cosmic Ray Sky

Master's Thesis
Royal Institute of Tech
Stockholm, Sweden.

PETTER HOFVERBERG



KTH Engineering Sciences

Licentiate Thesis
Stockholm, Sweden 2006

Oc

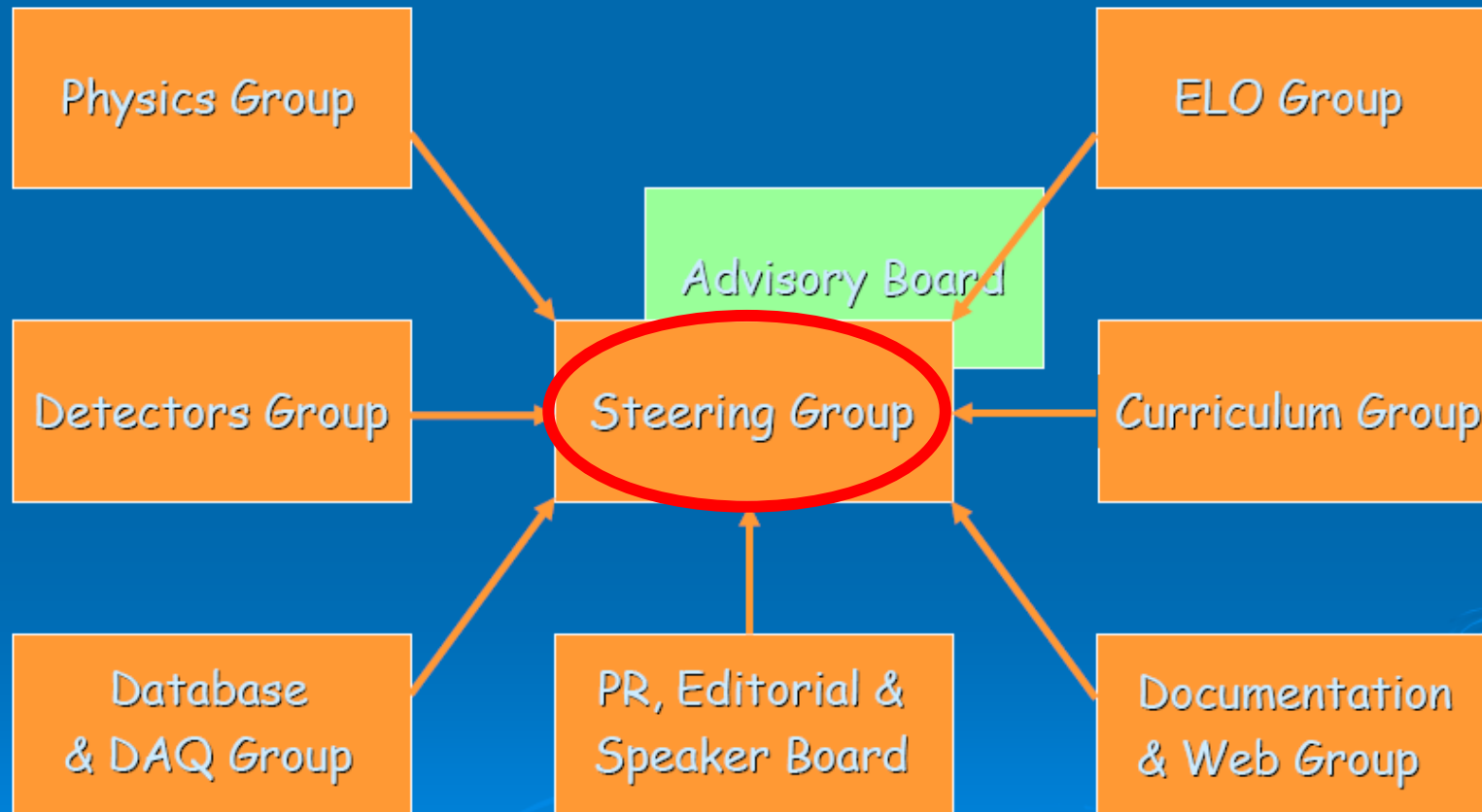
06, CEI

CRSP'06 - finally, **SET-UP** of

EUROCOSMICS

Organisation...

by Jan-Wilhelm van Holten and Bob van Eijk





CONCLUSIONS

- v Old paradigm of Outreach fully exploited in HEP
 - ☒ Seminars, Web sites (w/ Films), Summer into Science...
 - ☒ Events associated to big Conferences (20th ECRS,...)
- v CRSP'06 success! **Eurocosmics set-up** (next: 17/X)
- v What can HEP really offer NEW for OUTREACH?



CONCLUSIONS

- v Old paradigm of Outreach fully exploited in HEP
 - ⊞ Seminars, Web sites (w/ Films), Summer into Science...
 - ⊞ Events associated to big Conferences (20th ECRS,...)
- v CRSP'06 success! Eurocosmics set-up (next: 17/X)
- v What can OUTREACH really offer NEW for HEP ?
 - ⊞ Great success with Real Students (interaction explodes)!
 - ⊞ Immediate Rewarding of communication (eyes flashing!)
 - ⊞ Can't deploy Scientists far away ?
Bring Schools to the Scientist (really or virtually)!...

+ Interaction w/ detectors, + Interactions w/ Scientists!

➔ + Interaction w/ scientists, + Inter. w/ Human Science!



...Spring'07 in LIP, Lisboa, Portugal

(spring: period from March 21st to June 21st)



Welcomes you with pleasure

Dates?

April

Easter: 8th

May/June?

ecsite:

May 29-June 2

