



Sterowanie i monitorowanie eksperymentu



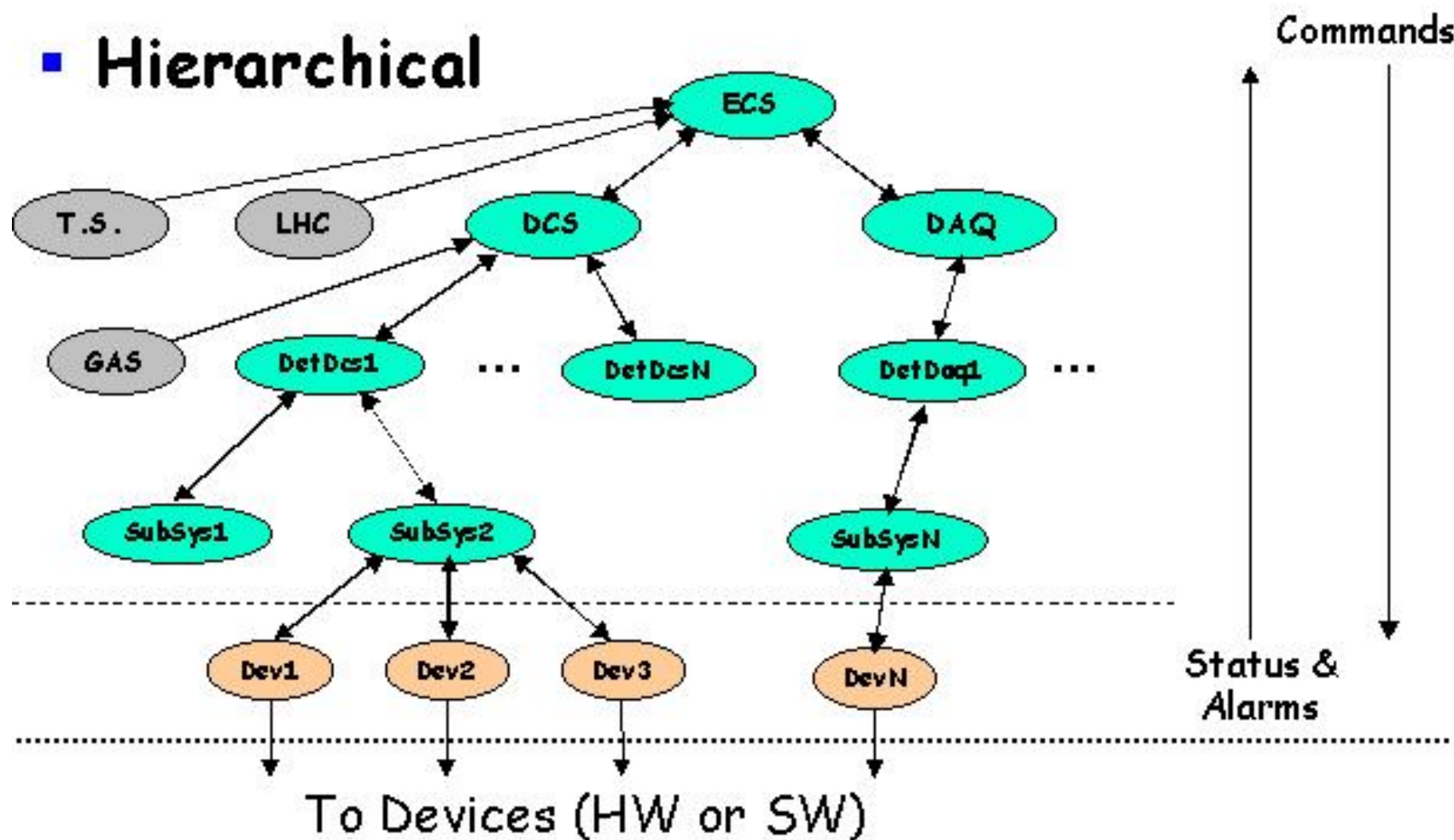
Jak to zrobimy ?

- **Keyword: Homogeneity**
 - A Common Approach in the design and implementation of all parts of the system:
 - Facilitates inter-domain integration
 - Helps providing an uniform Look and Feel
 - Allows an easier upgrade and maintenance
 - Needs less manpower



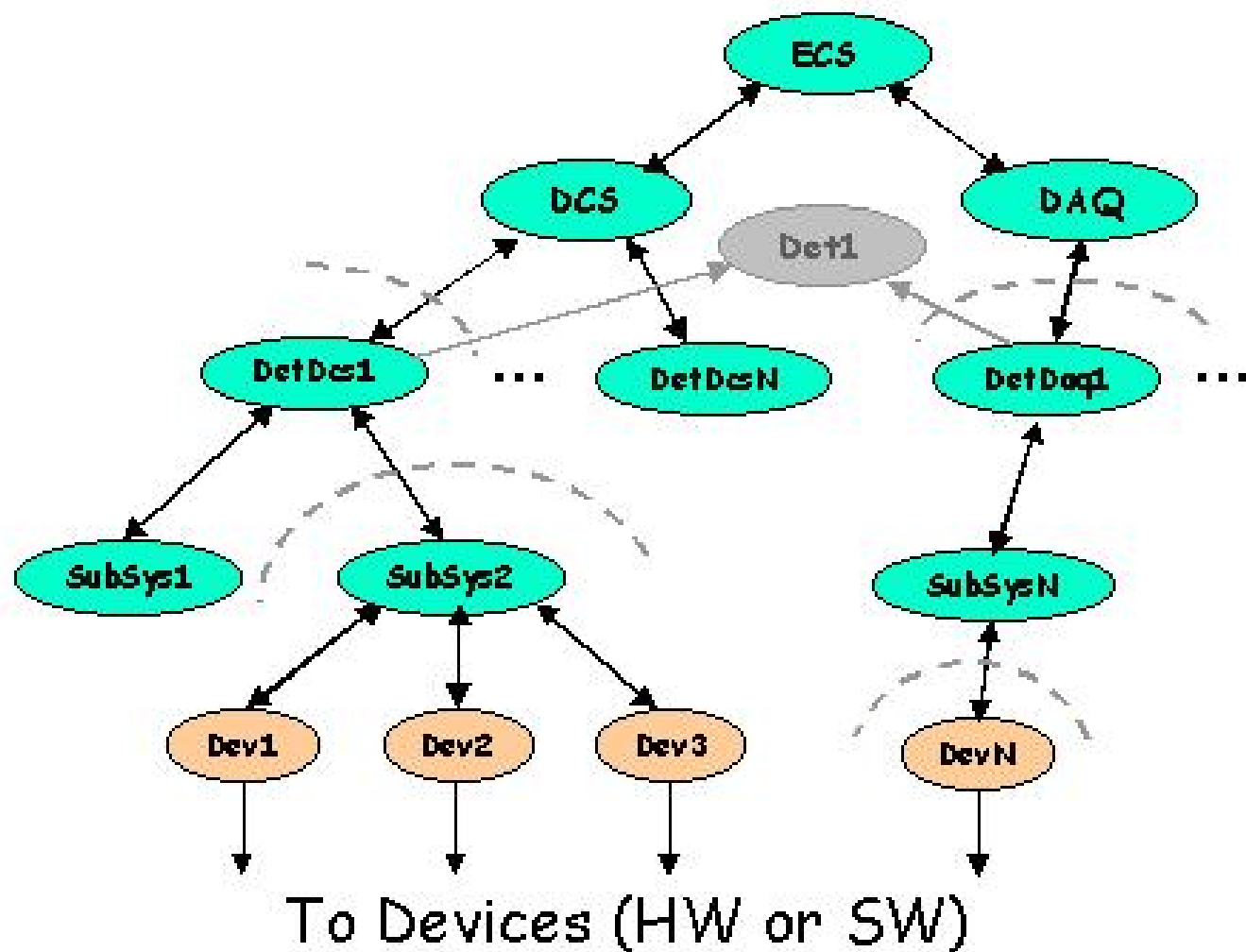
Architektura systemu kontrolnego

■ Hierarchical





Podzielność (partitioning) 1

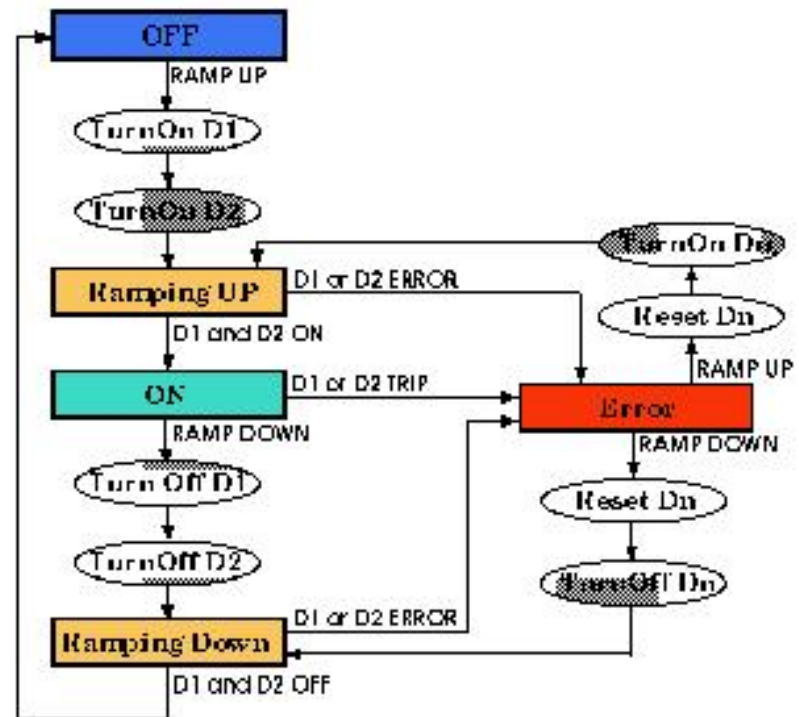




Konfigurowanie systemu 3

Finite State Machine methodology

- Intuitive way of modeling behaviour, provide:
 - Sequencing
 - Synchronization
- Some FSM tools allow:
 - Parallelism
 - Hierarchical control
 - Distribution
 - Rule based behaviour





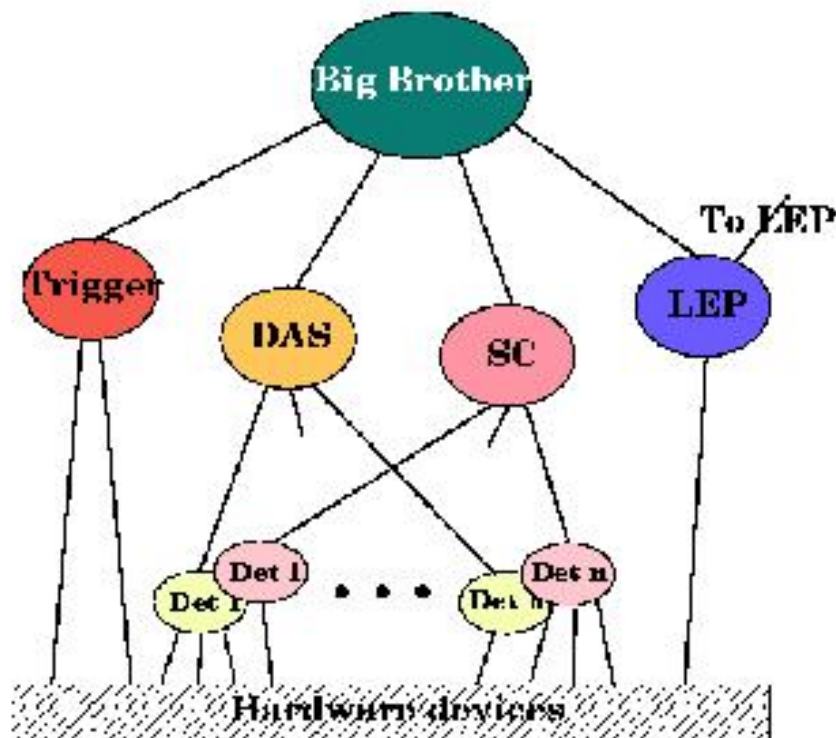
Automatyzacja

- **What can be automated**
 - Standard Procedures:
 - Start of fill, End of fill
 - Detection and Recovery from (known) error situations
- **How**
 - Expert System (Aleph)
 - Finite State Machines (Delphi)



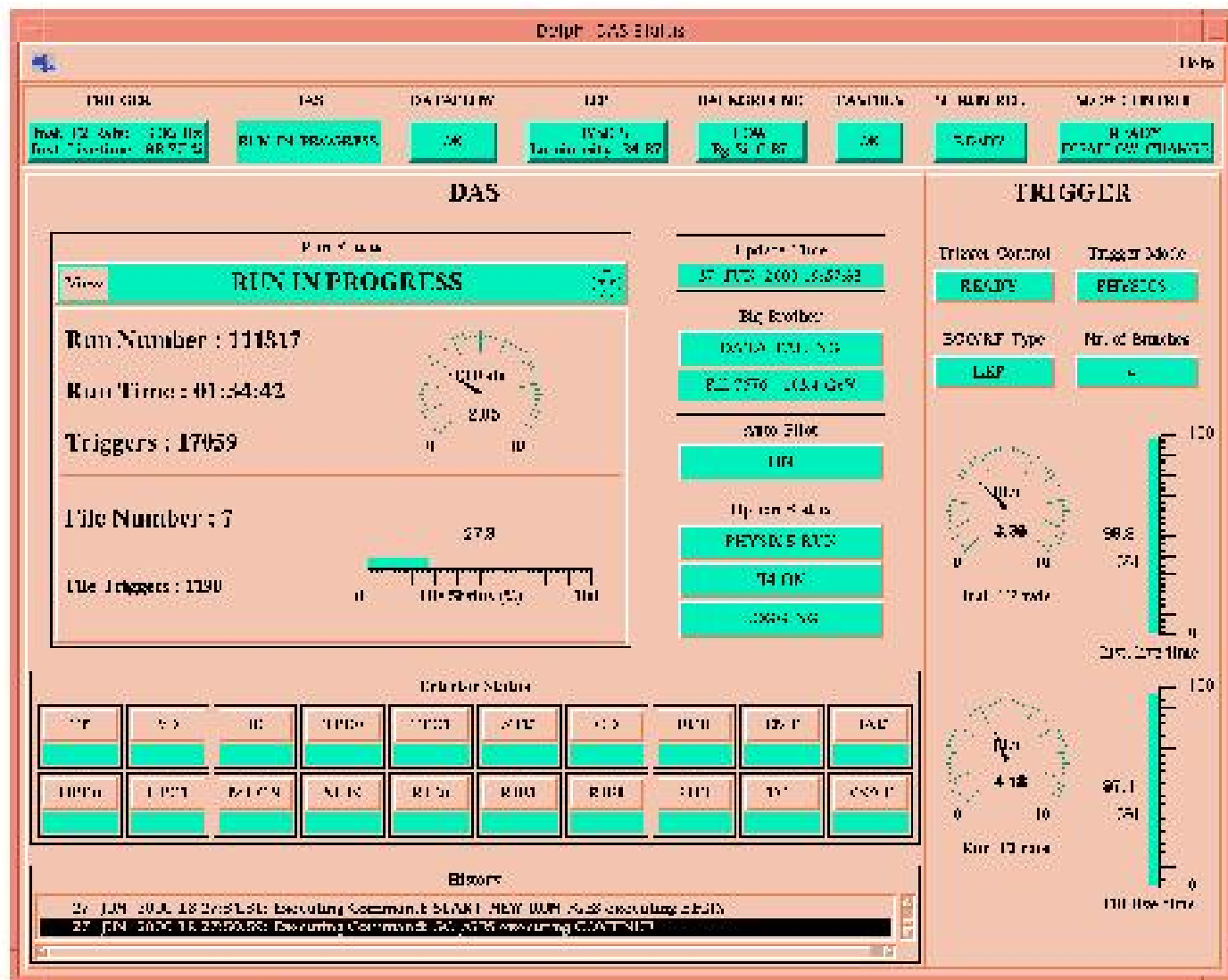
System kontrolny DELPHI

- Hierarchical
- Fully Automated
- Homogeneous
 - One single control mechanism
 - One single communication system
 - One user interface tool



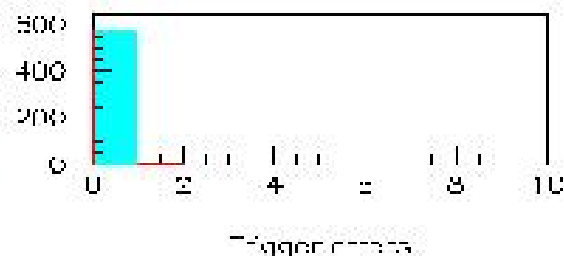
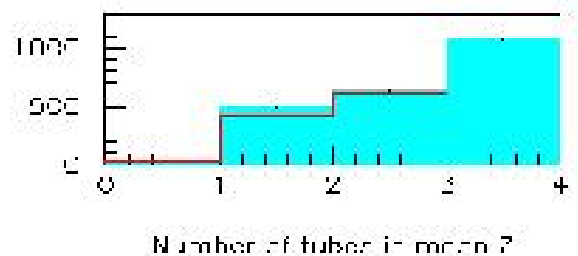
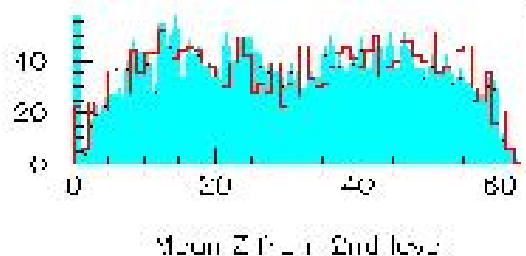
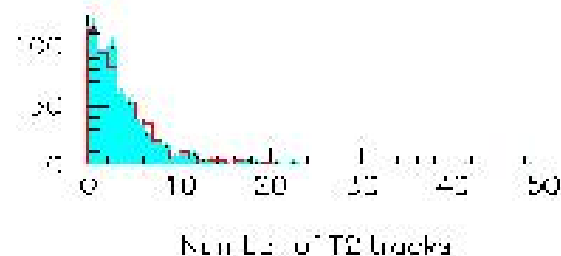
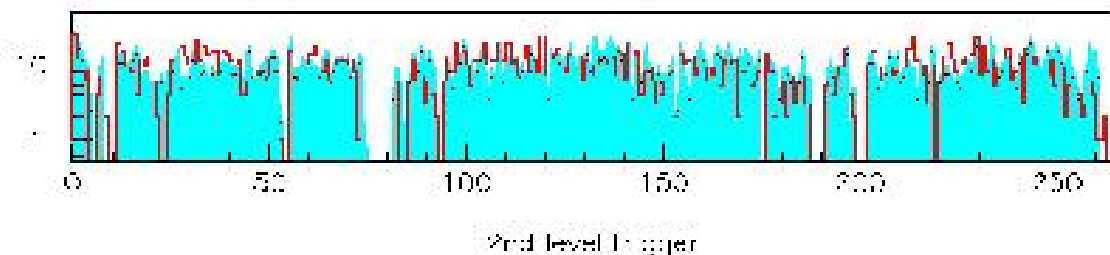
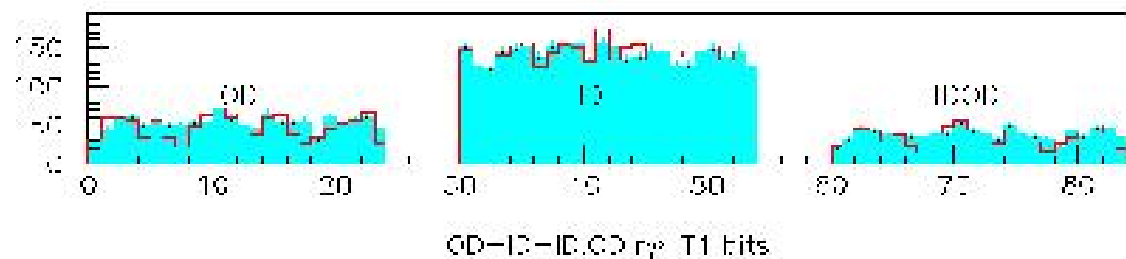


Interface użytkownika (UI)





Narzędzie kontroli





System sterowania na LHC

- **Based on Commercial SCADA Systems**
(Supervisory Control and Data Acquisition)
 - Commonly used for:
 - Industrial Automation
 - Control of Power Plants, etc.
 - Providing:
 - Configuration Database and Tools
 - Run-time and Archiving of Monitoring Data including display and trending Tools.
 - Alarm definition and reporting tools
 - User Interface design tools



ATLAS TRT DCS - Artist view

Central DCS (ID central station ?)

Cooling

LAN

Subdetector Control Stations

HV system

RS-232 ?
LAN ?
CAN ?

LAN

LAN

CAN fieldbuses

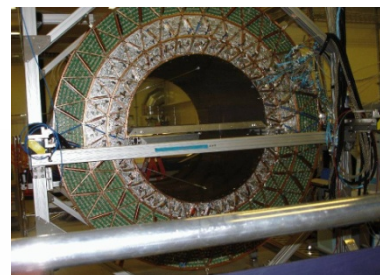
GGSS

Active Gas

Temperatures

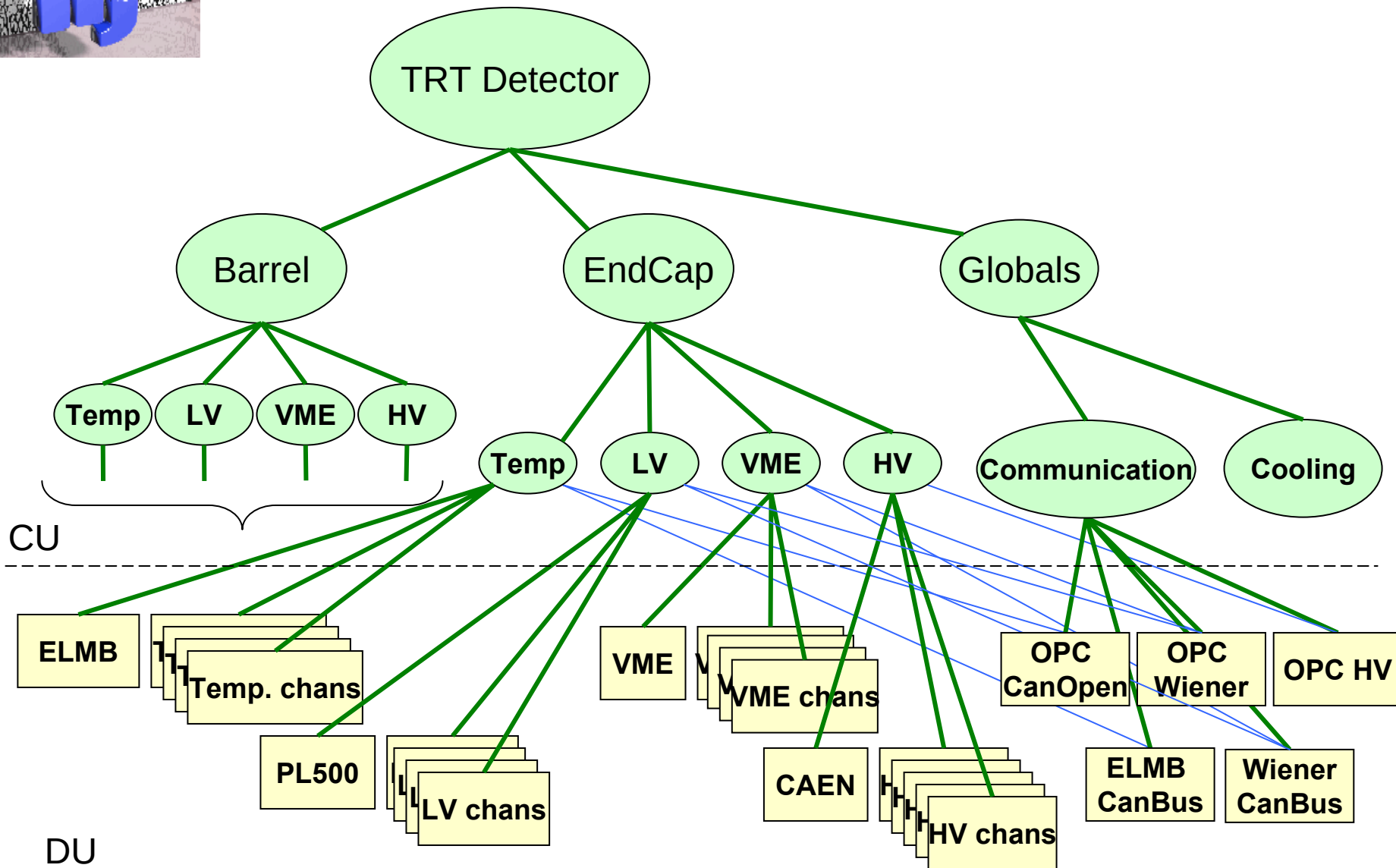
LV system

Crates
Racks



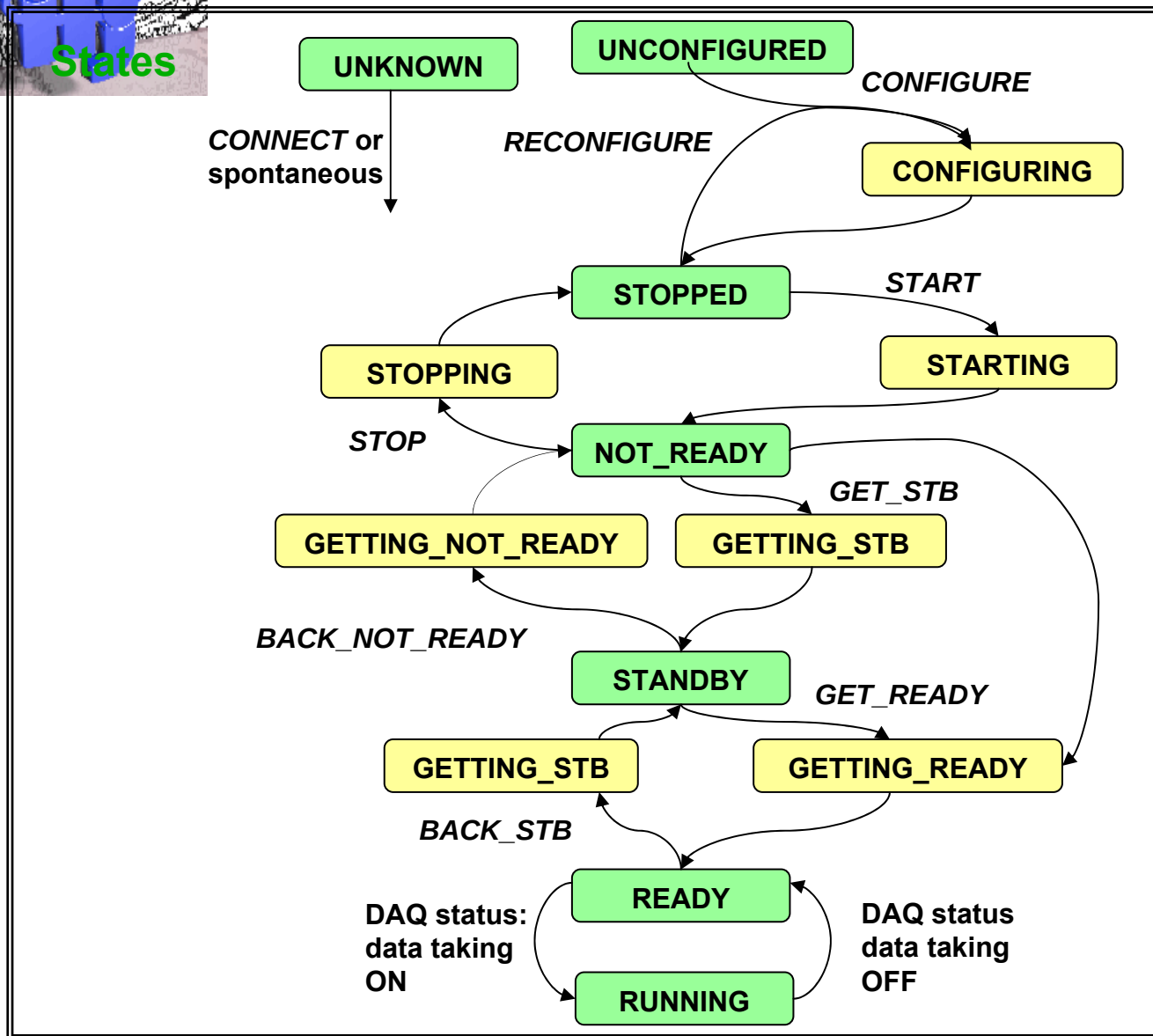


Detektor TRT w SR1 - Hierarchia FSM





FSM (*TRT* type) and Statuses



Statuses

FATAL

ALARM

WARNING

OK

spontaneous

Legend:

READY

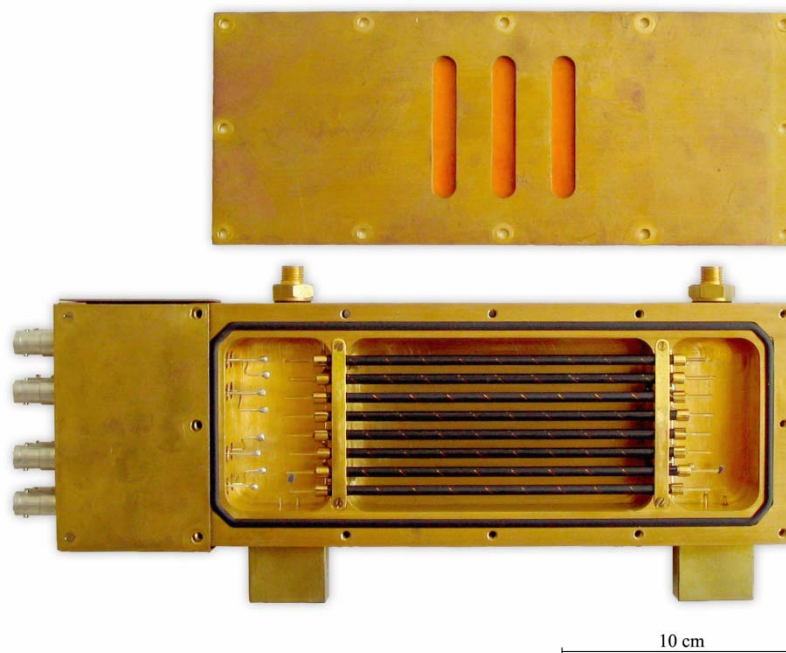
Stable state

STARTING

Transient state

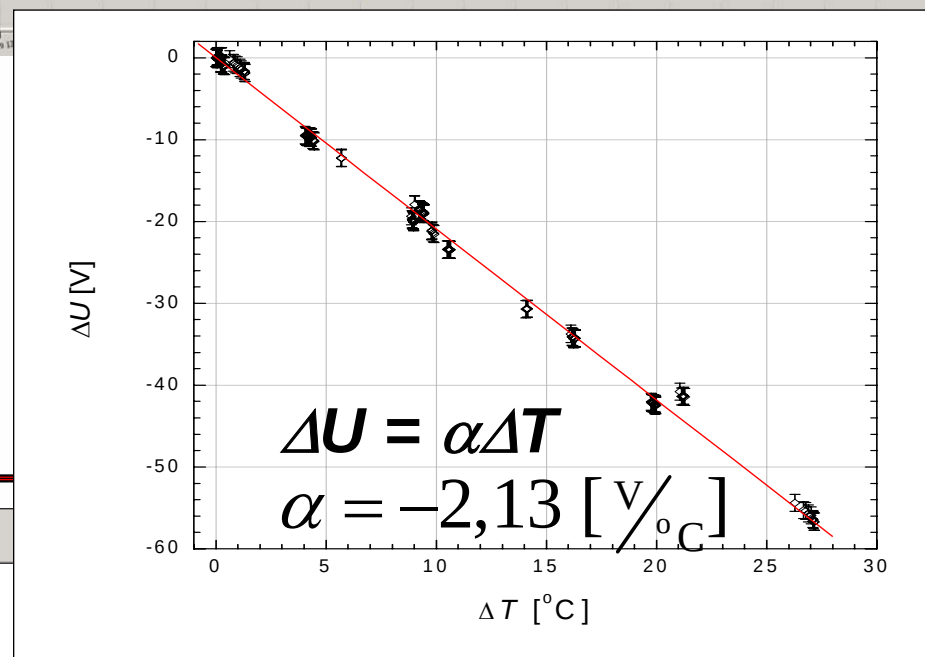
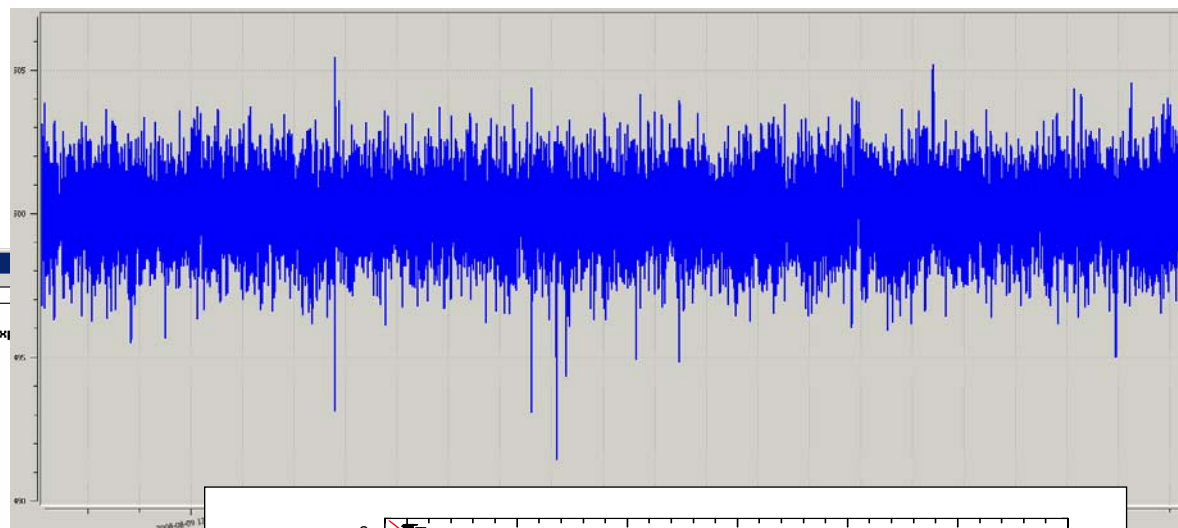
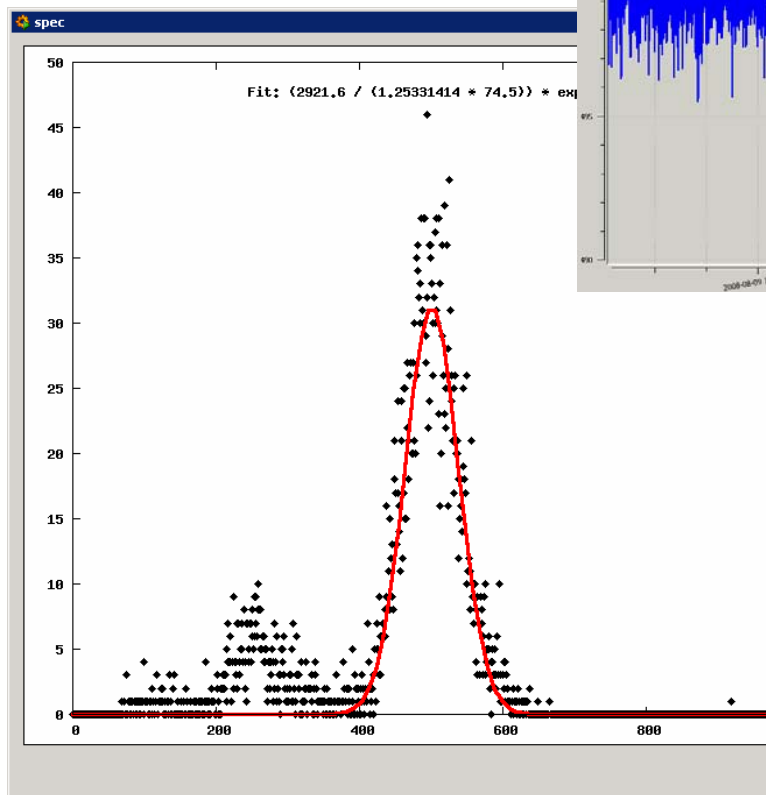


Stabilizacja ATLAS TRT



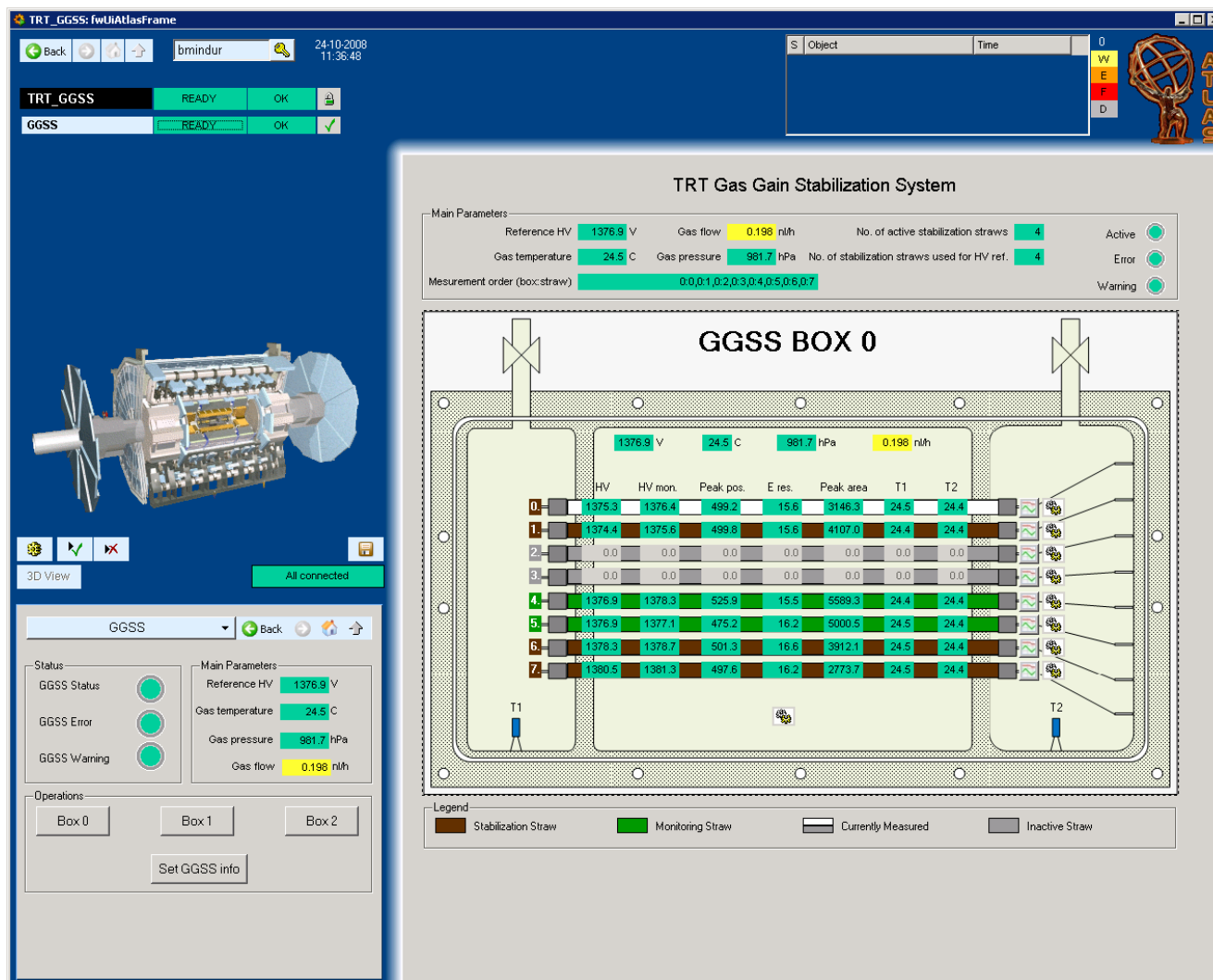


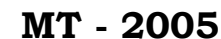
Stabilizacja ATLAS TRT





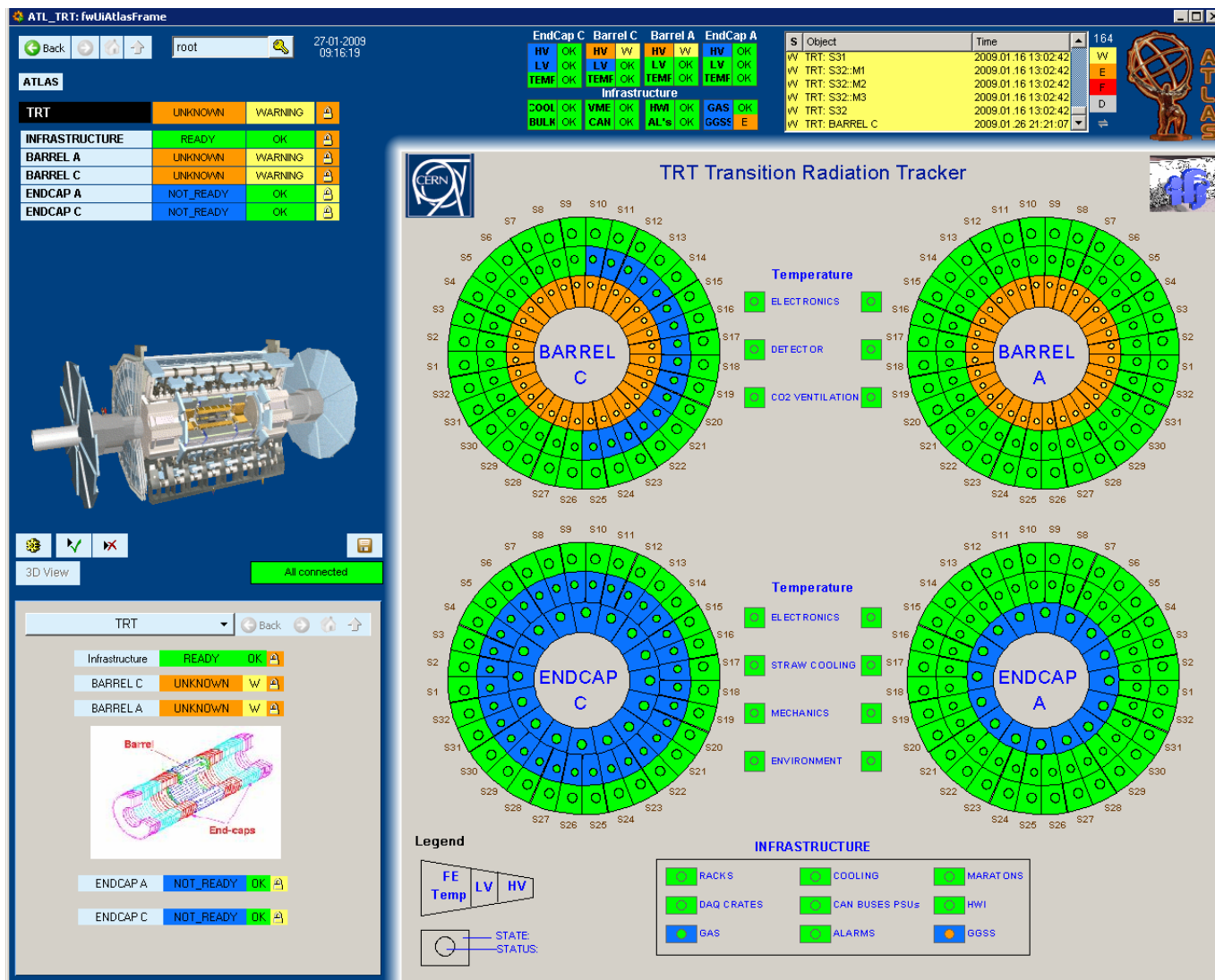
Stabilizacja ATLAS TRT





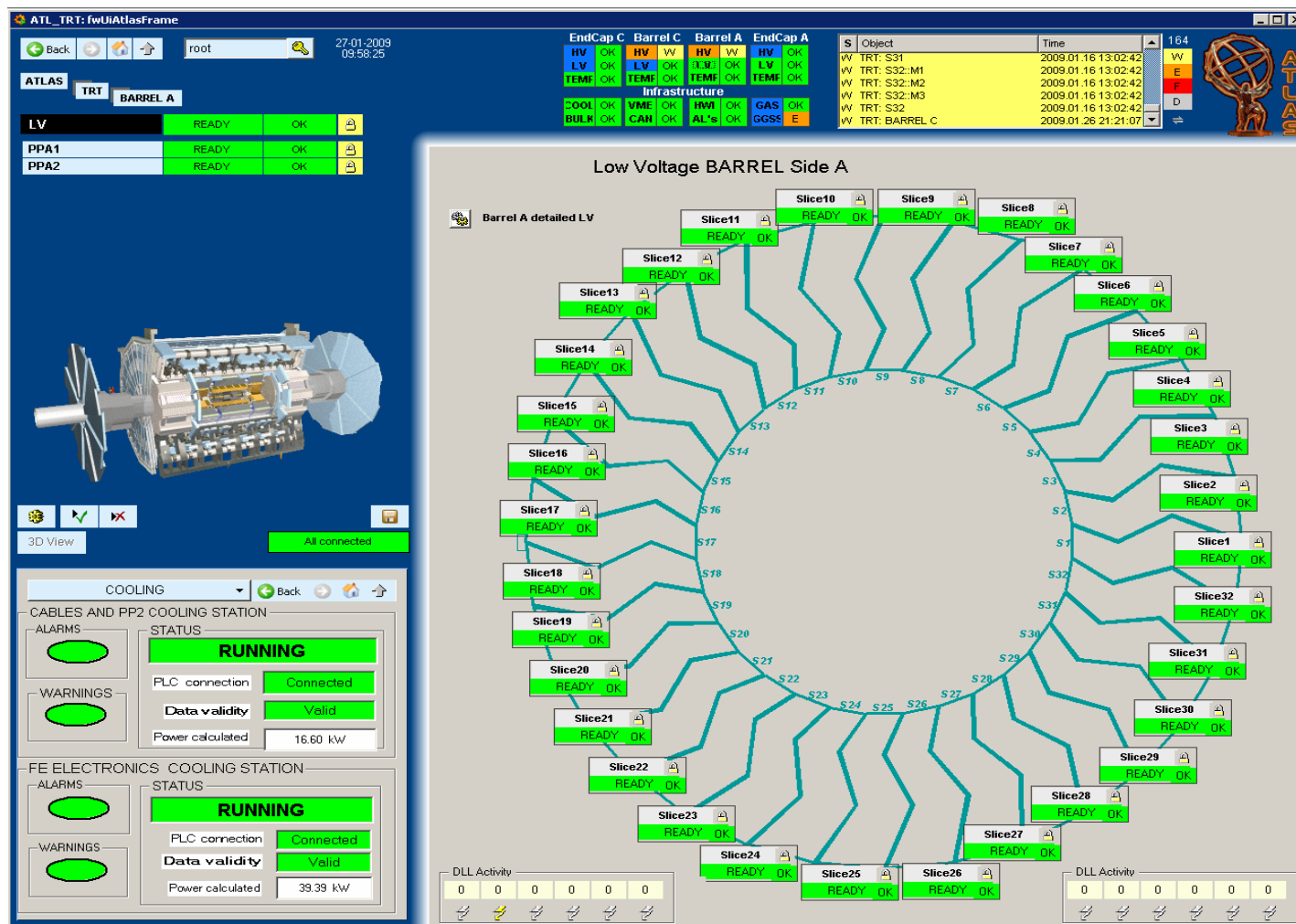


Monitorowanie ATLAS TRT



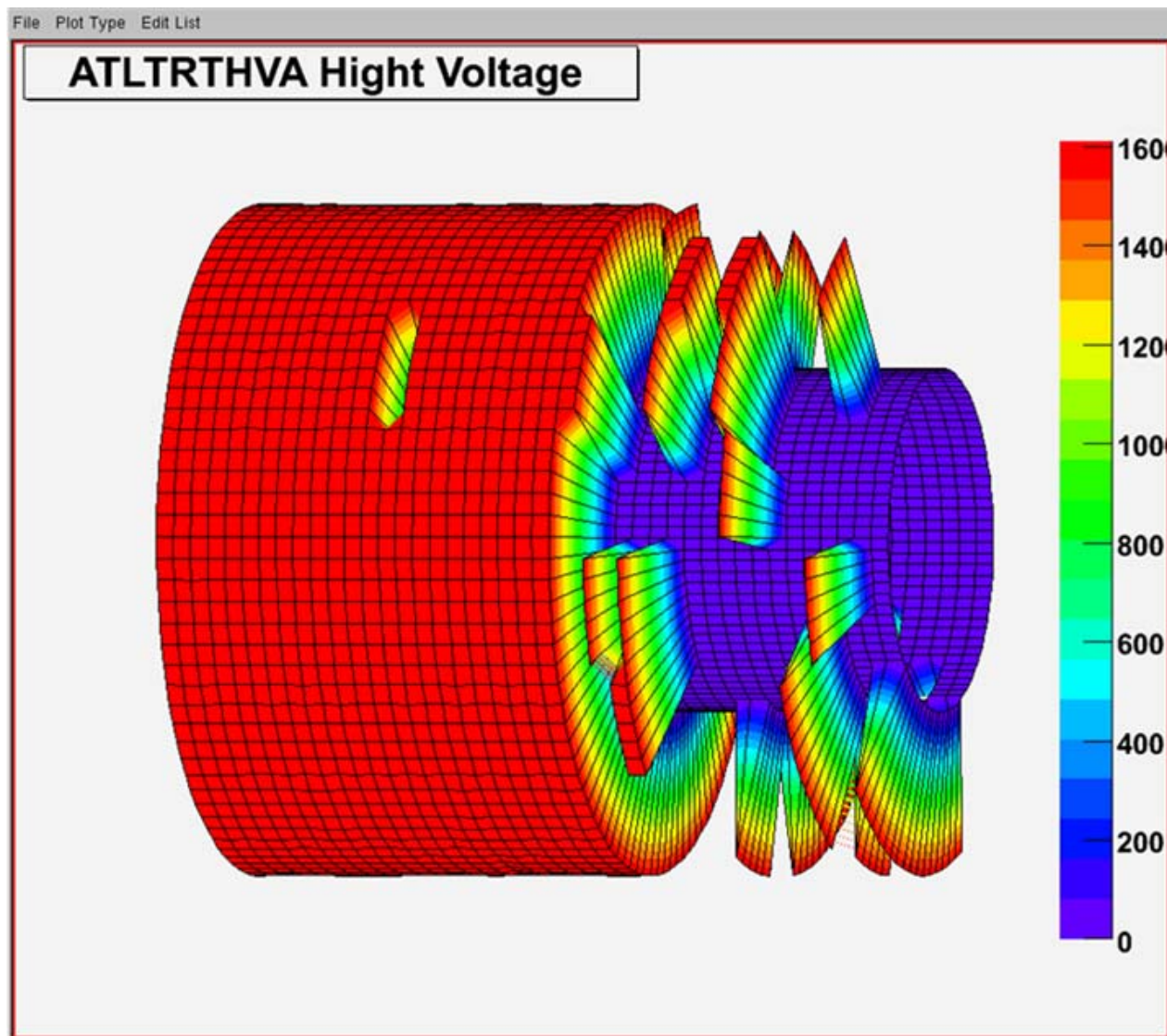


Monitorowanie ATLAS TRT





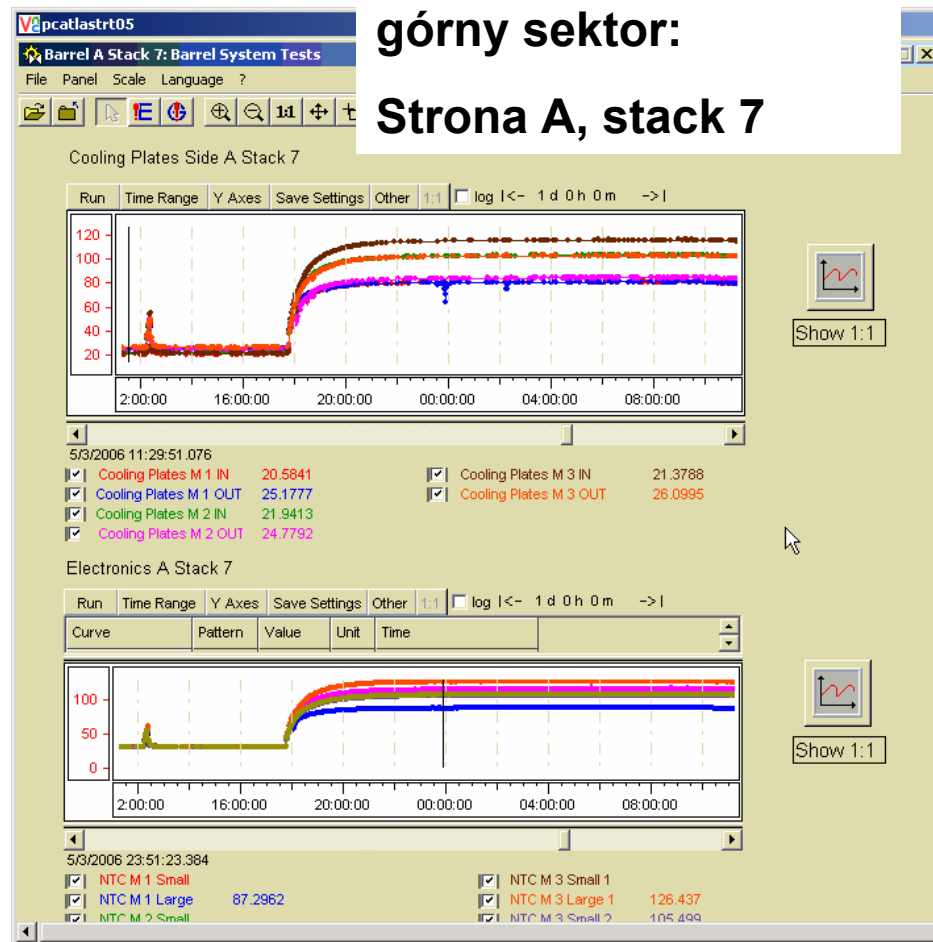
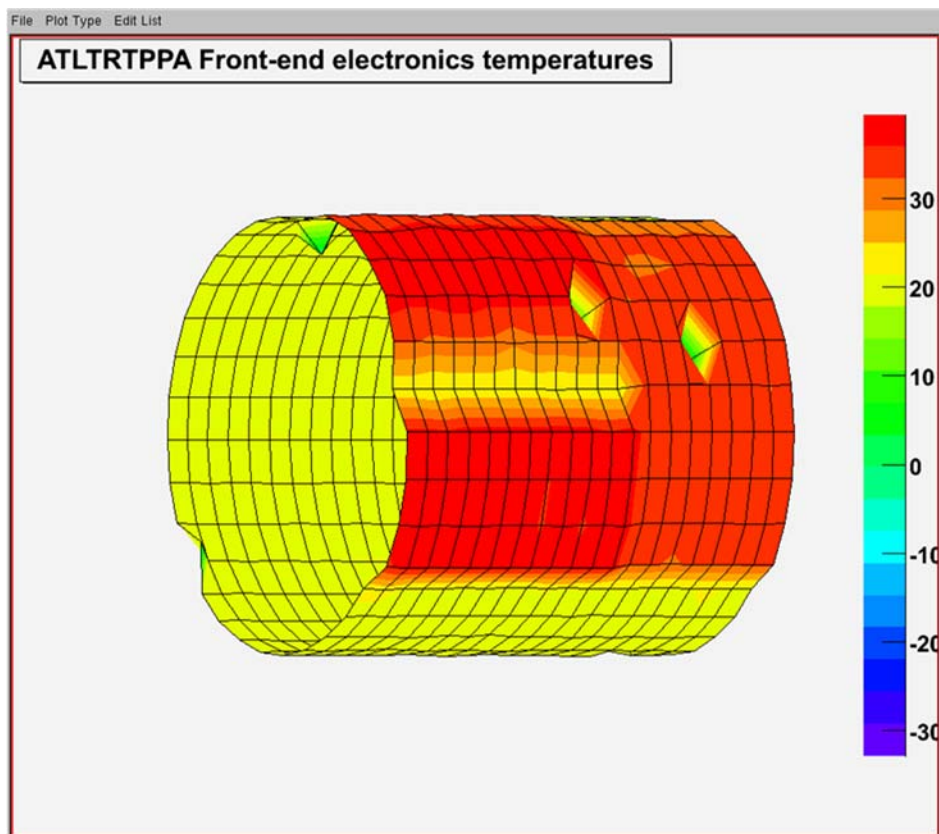
Monitorowanie ATLAS TRT





Monitorowanie ATLAS TRT

Temperatura,
górny sektor:
Strona A, stack 7





Belle

Quality Assurance Monitoring - Netscape

File Edit View Go Bookmarks Tools Window Help

file:///C:/Documents%20and%20Settings/Michal/Pulpit/belle1.htm

Mail AIM Home Radio My Netscape Search Bookmarks Instant Message WebMail Calendar Radio DSCF0003a.JPG People



[MAIN PAGE](#)
[HADRON-C MONITOR](#)
[BHABHA MONITOR](#)
[MU-PAIR MONITOR](#)

[OFFLINE MONITORING](#)
[DST PROD. STATUS](#)
[LUMINOSITY RUN](#)
[BELLE RUN INFORMATION](#)
[QAM DOCUMENTATION](#)
[MEETING MINUTES](#)
[THE QAM MANAGER](#)

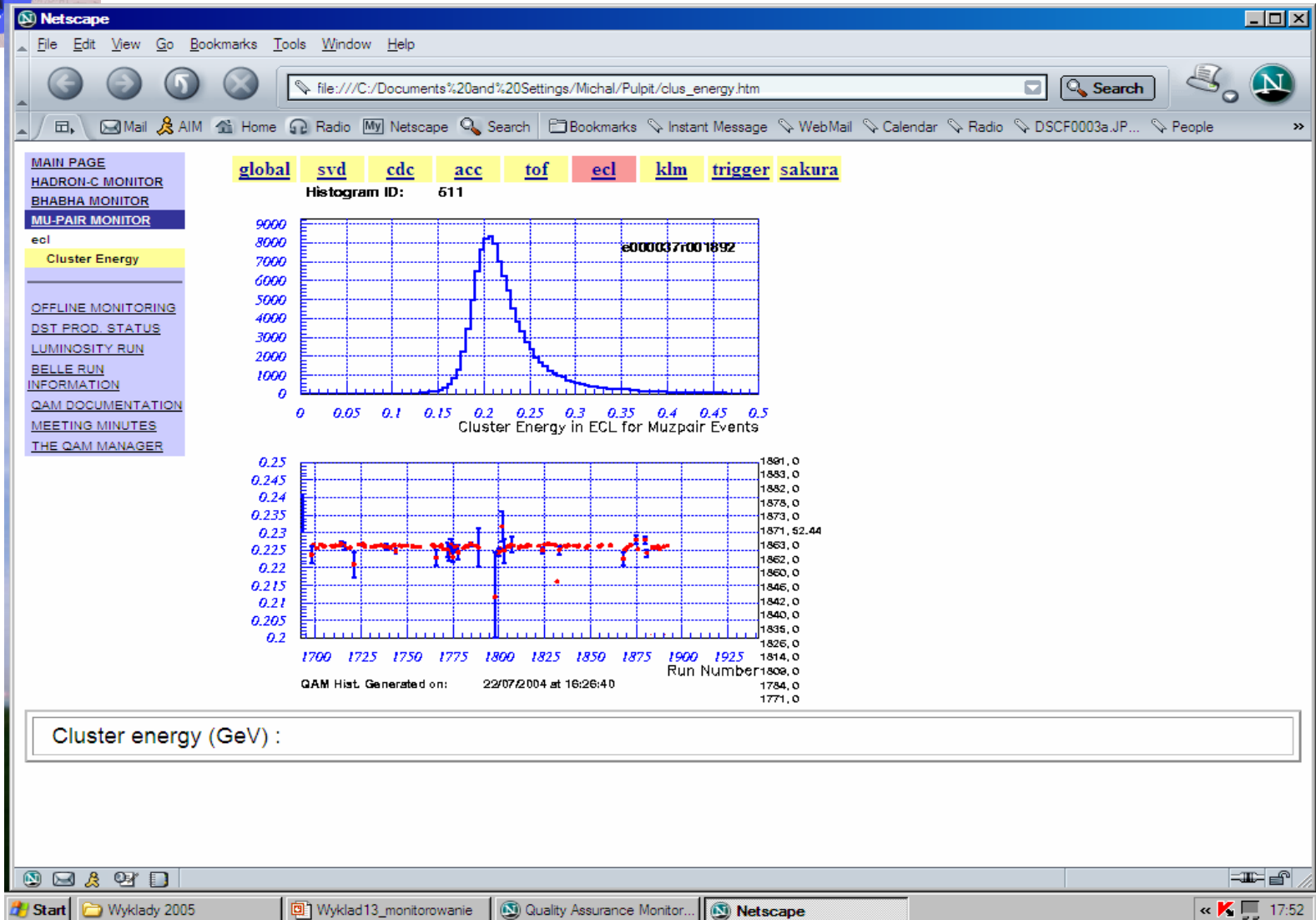
[global](#) [svd](#) [cdc](#) [acc](#) [tof](#) [ecl](#) [klm](#) [trigger](#) [sakura](#)

- ♦ **GLOBAL MONITORING** involves the monitoring of the global parameters that use the Mu-Pair events and a careful check of the run dependence of those parameters.
- ♦ **SVD MONITORING** involves the monitoring of the SVD detector related parameters that use the Mu-Pair events.
- ♦ **CDC MONITORING** involves the monitoring of the CDC detector related parameters that use the Mu-Pair events.
- ♦ **ACC MONITORING** involves the monitoring of the ACC detector related parameters that use the Mu-Pair events.
- ♦ **TOF MONITORING** involves the monitoring of the ToF detector related parameters that use the Mu-Pair events.
- ♦ **ECL MONITORING** involves the monitoring of the ECL detector related parameters that use the Mu-Pair events.
- ♦ **KLM MONITORING** involves the monitoring of the KLM detector related parameters that use the Mu-Pair events.
- ♦ **TRIGGER MONITORING** involves the monitoring of the TRIGGER parameters that use the Mu-Pair events.
- ♦ **SAKURA MONITORING** involves the monitoring of the SAKURA parameters that use the Mu-Pair events.

Start Wykłady 2005 Wykład13_monitorowanie Quality Assurance M... 17:49

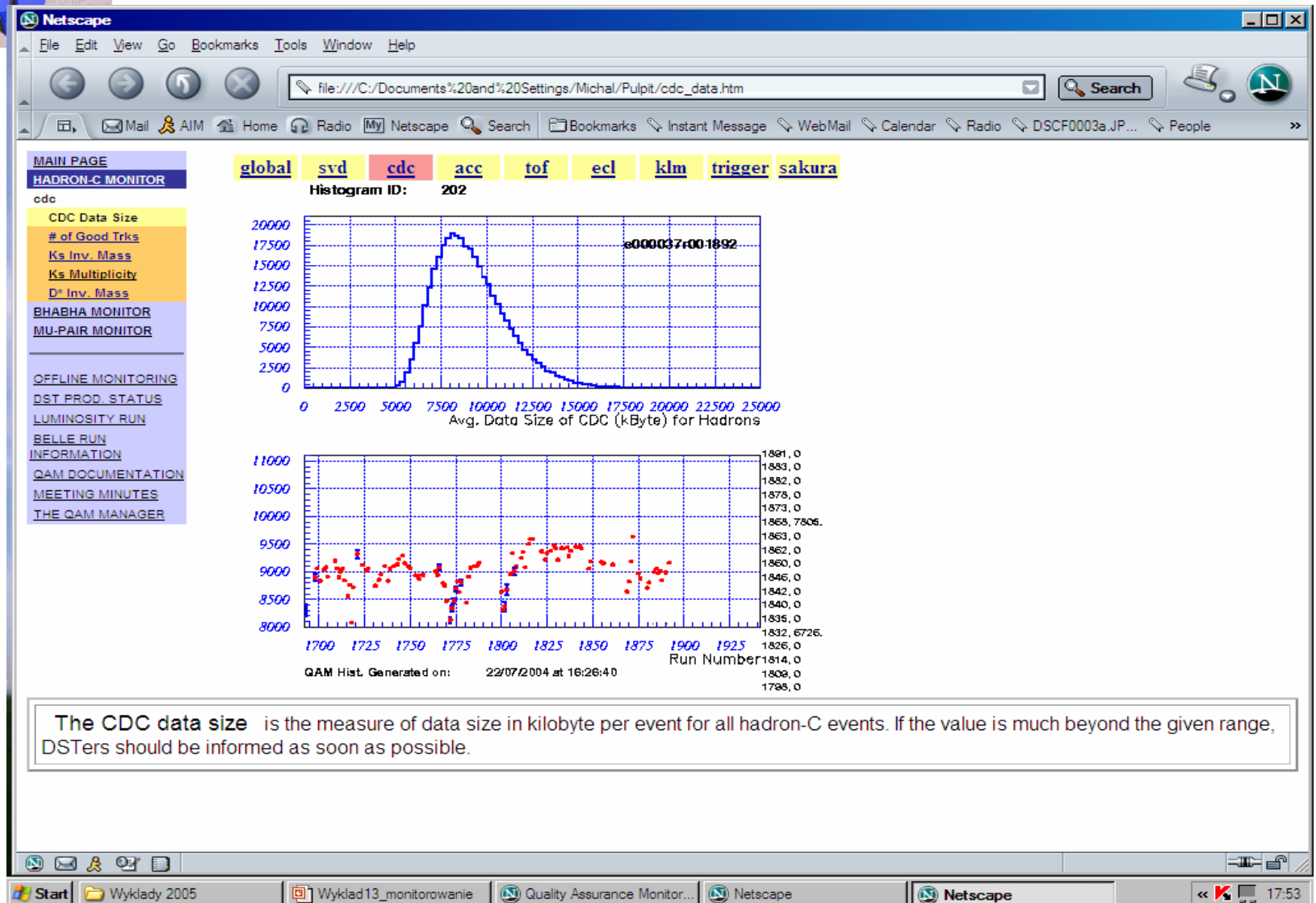


Belle



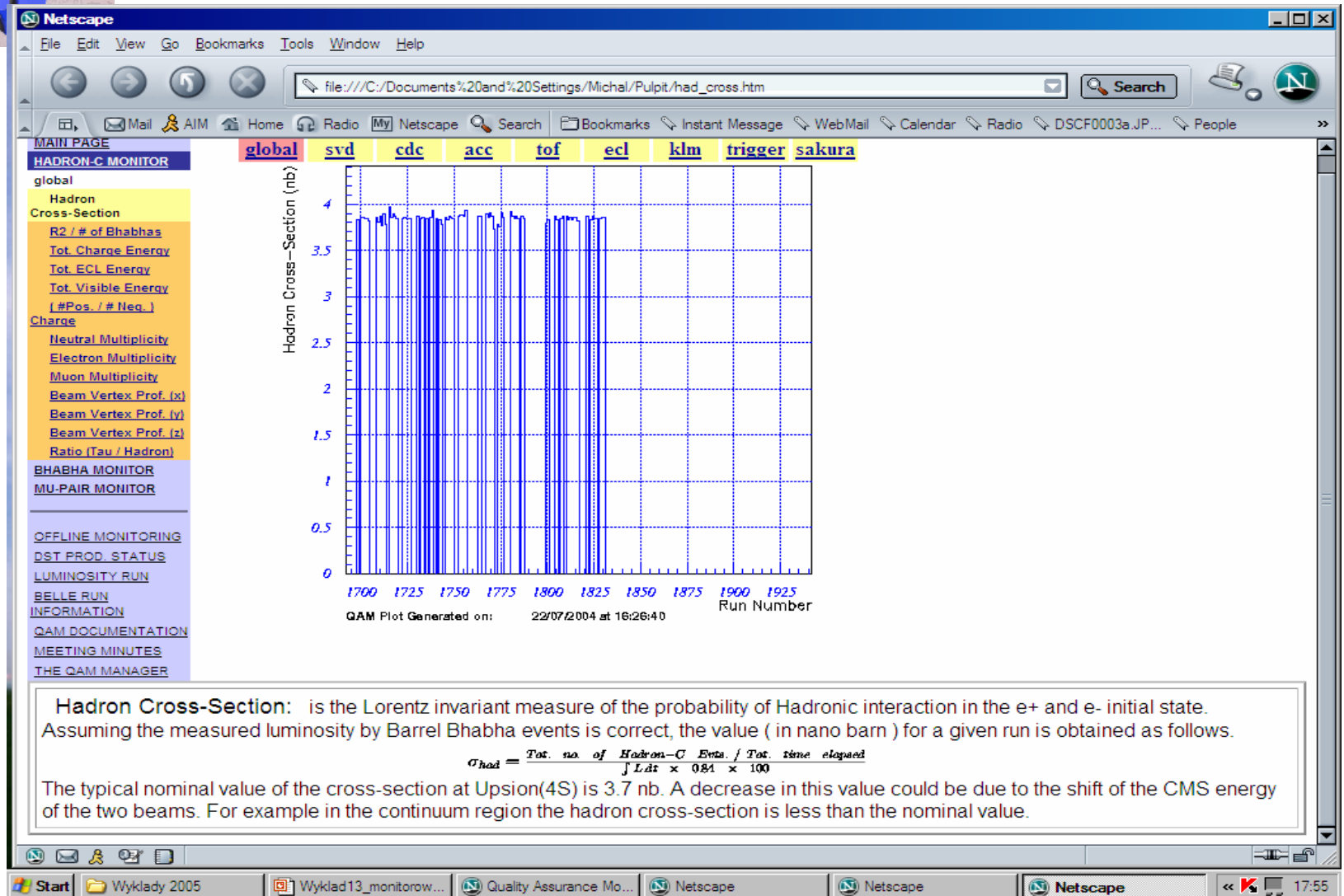


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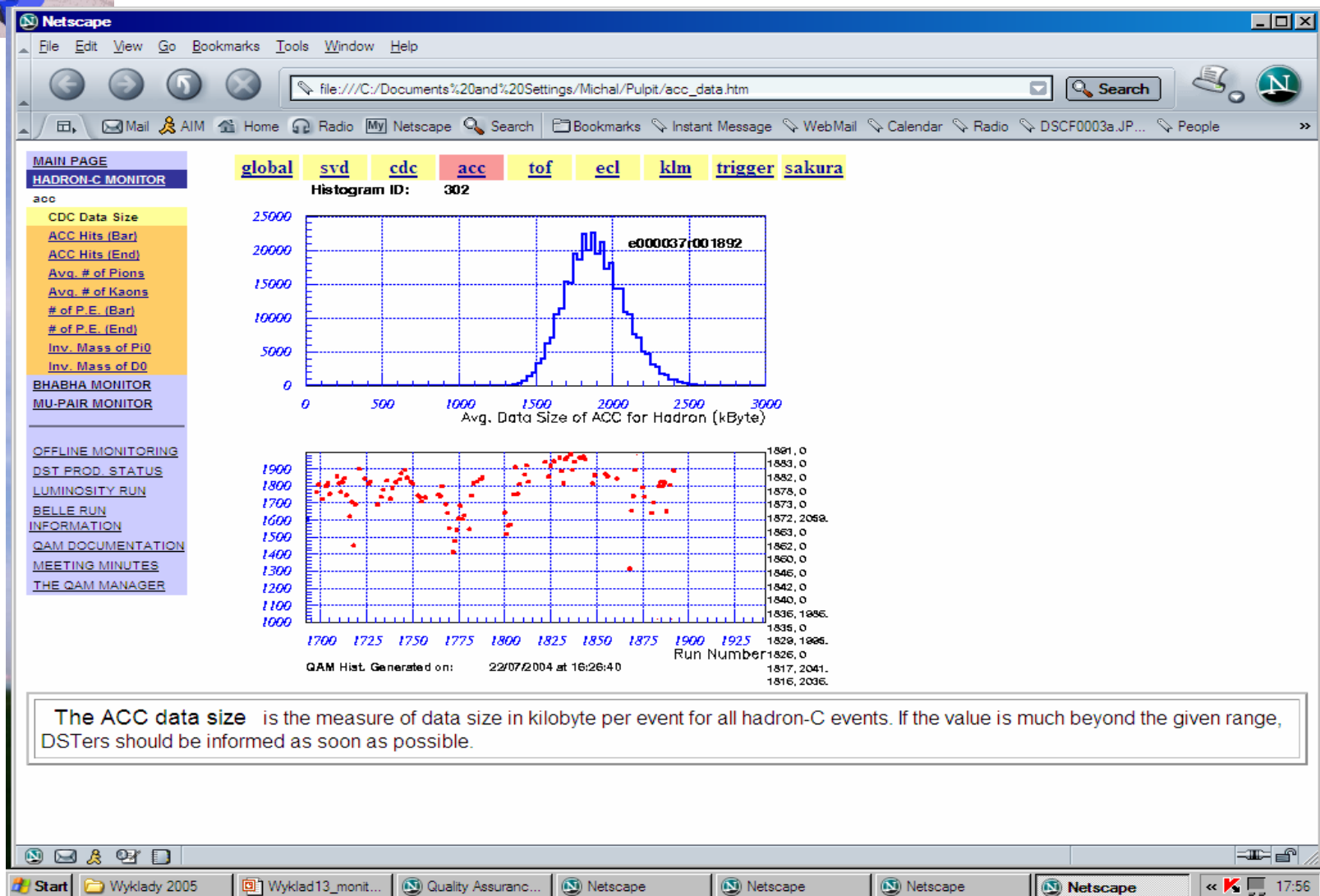


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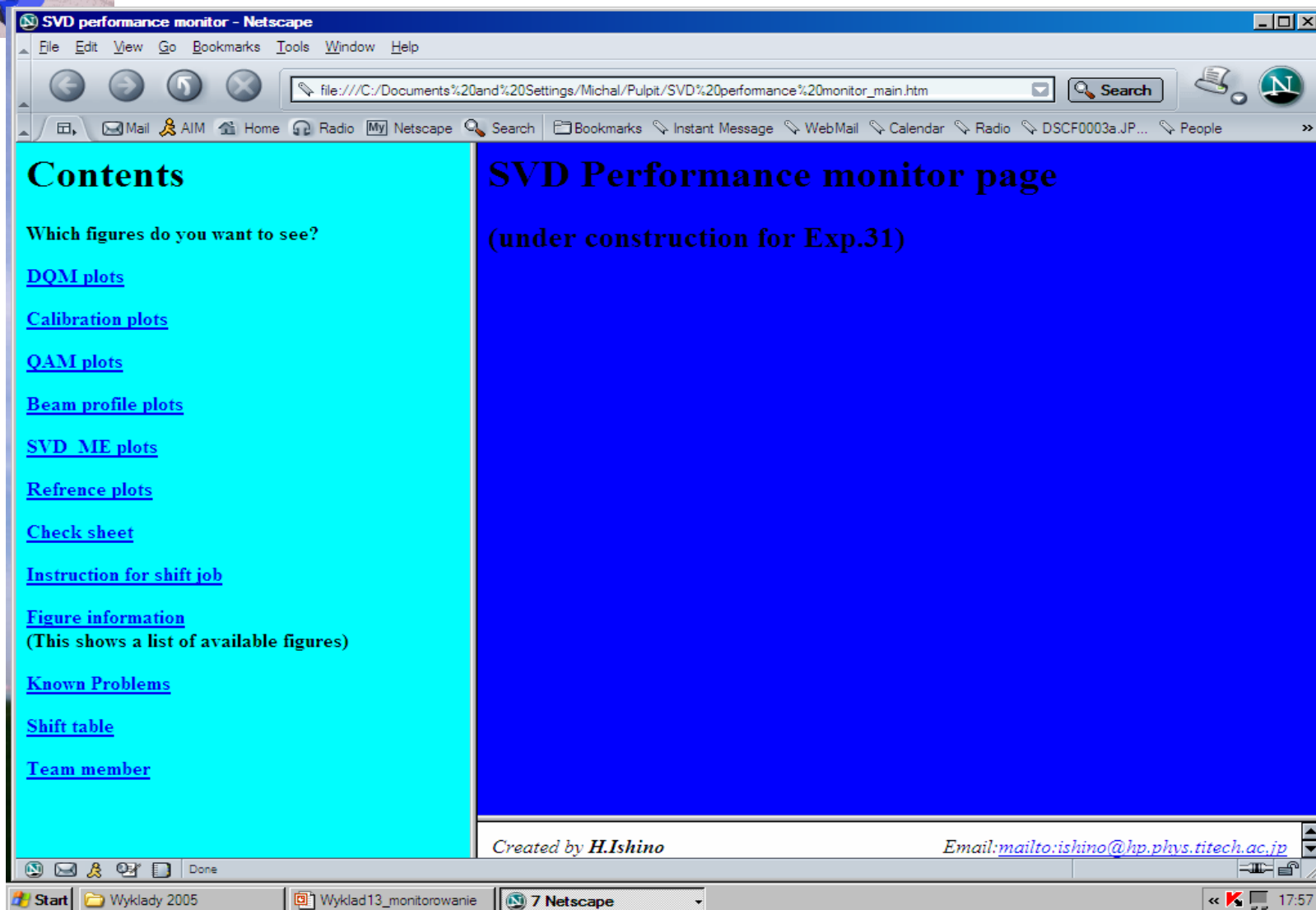


Belle monitor





Belle monitor





Belle monitor

SVD performance monitor - Netscape

File Edit View Go Bookmarks Tools Window Help

file:///C:/Documents%20and%20Settings/Michal/Pulpit/SVD%20performance%20monitor_page.htm

Search

Mail AIM Home Radio My Netscape Search Bookmarks Instant Message WebMail Calendar Radio DSCF0003a.JP... People

DQM histograms

Exp Number = exp049

Run Number = 000013

[Ave. Noise \(ADC counts\) vs chip](#)
[Ave. Common-mode \(ADC counts\) vs chip](#)
[Ave. occ.ratio vs chip](#)
[RMS for Common-mode Level vs chip](#)
[Truncated Error rate](#)
[Total Data Length \(words\)](#)
[Total Occupancy \(%\)](#)

[Go to Time Variation Plots](#)

Go to other plots

[Go to Calibration plots](#)
[Go to Svd me plots](#)
[Go to QAM plots](#)
[Go to Beam Profile plots](#)
[Go to S/N plots](#)

Go to other runs

SVD Performance monitor page

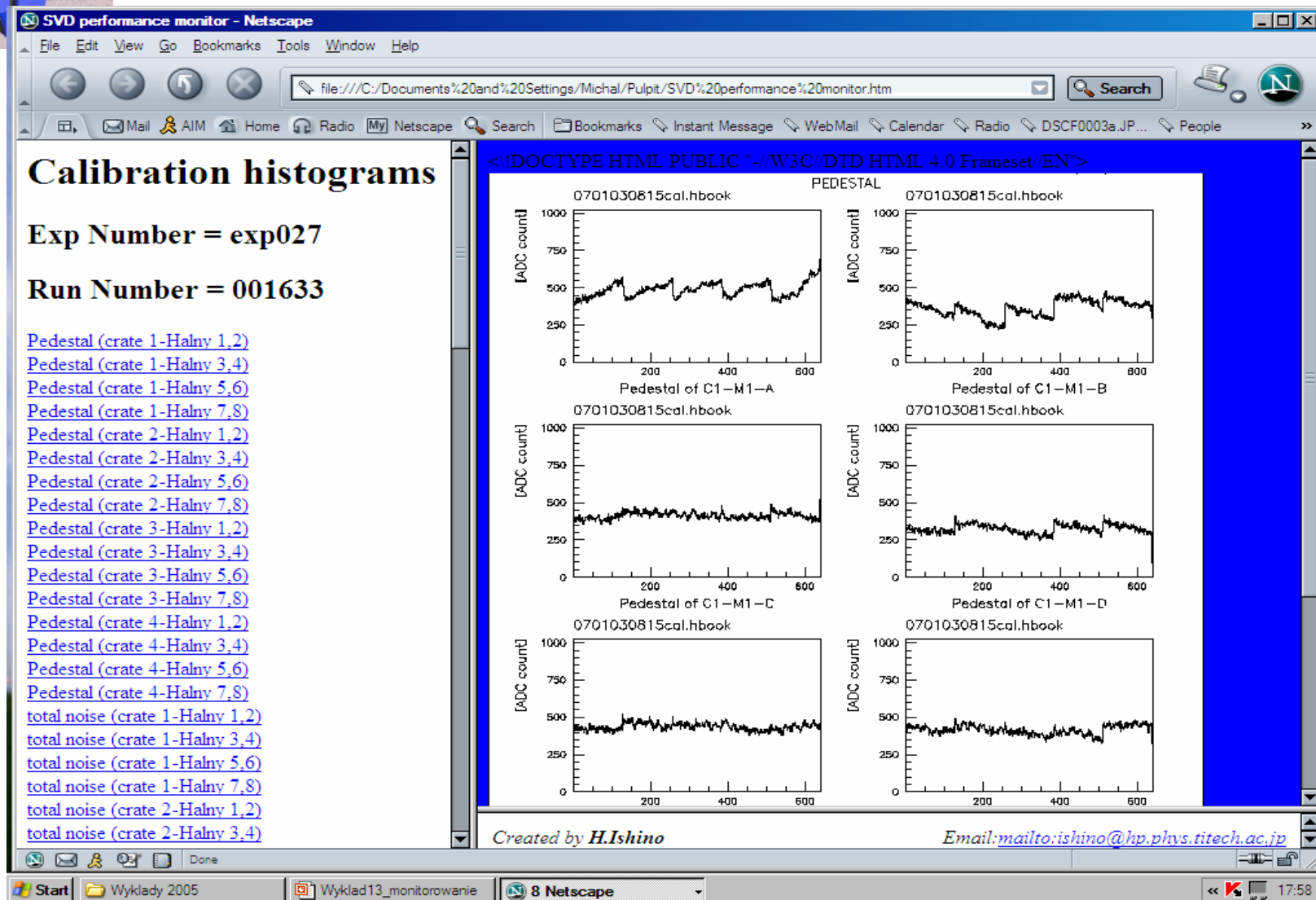
(under construction for Exp.31)

Created by [H.Ishino](#) Email: <mailto:ishino@hp.phys.titech.ac.jp>

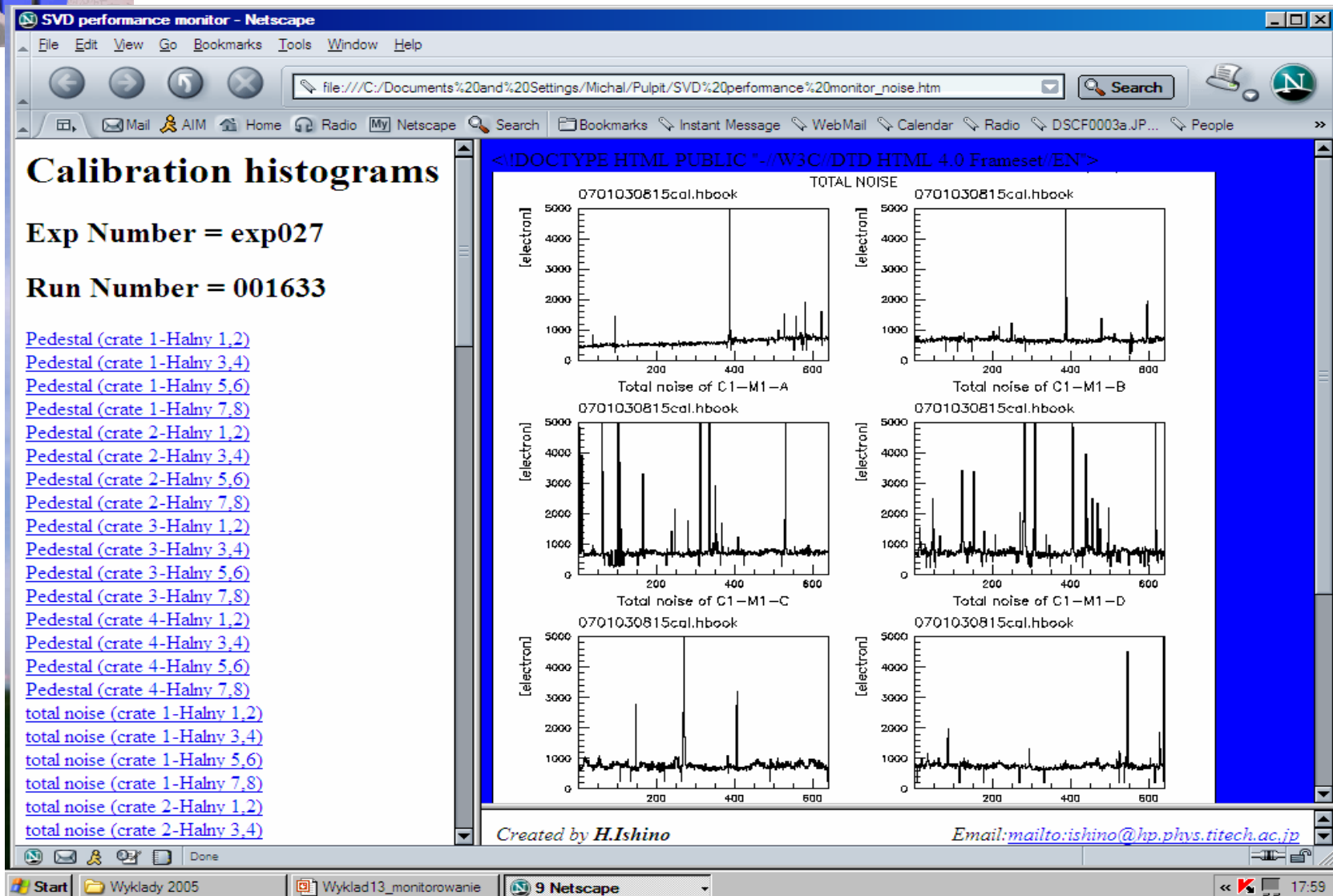
Start Wykłady 2005 Wykład13_monitorowanie Gazeta.pl - portal internet... SVD performance monitor... SVD performance mo... 18:10



Belle monitor

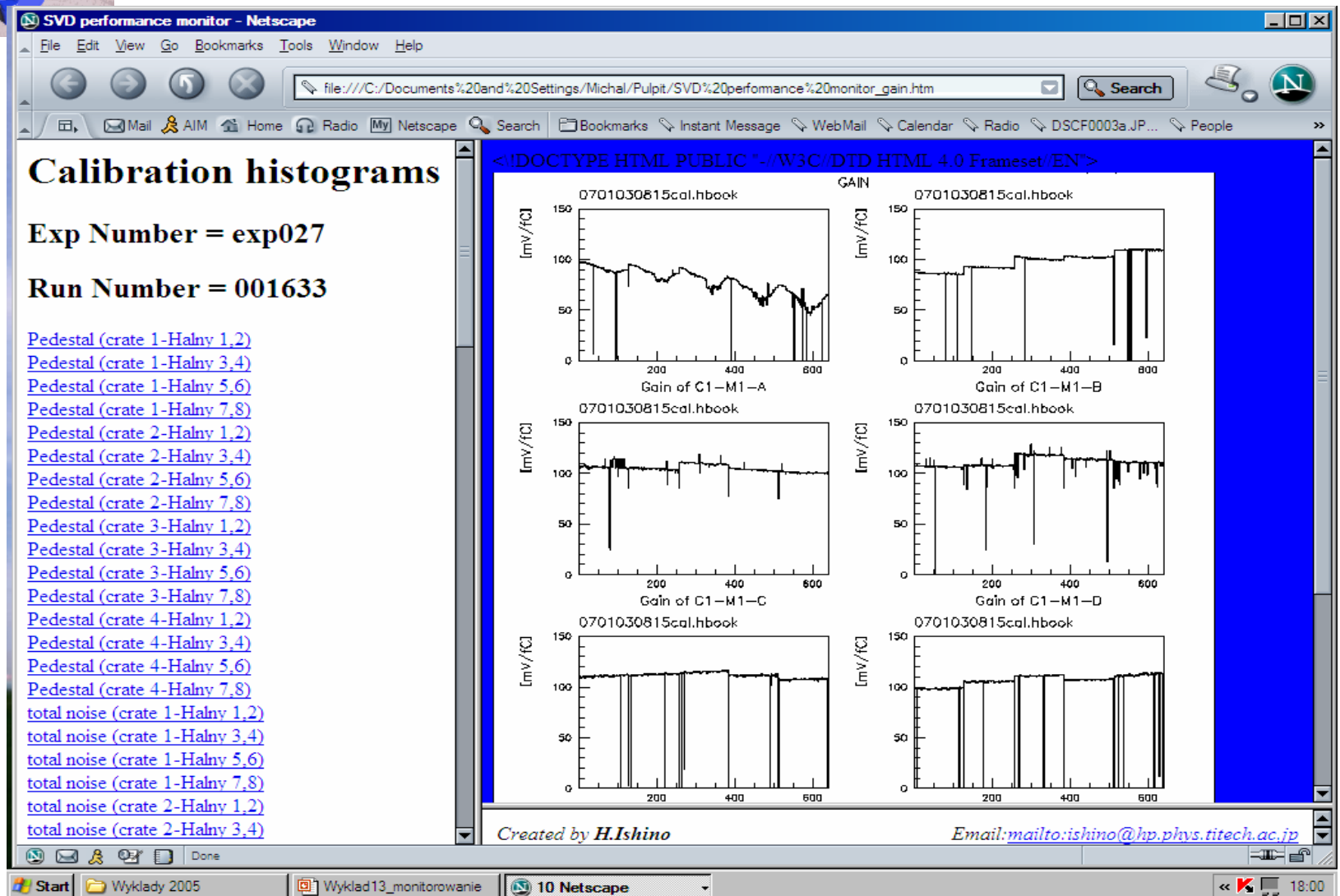


Belle monitor



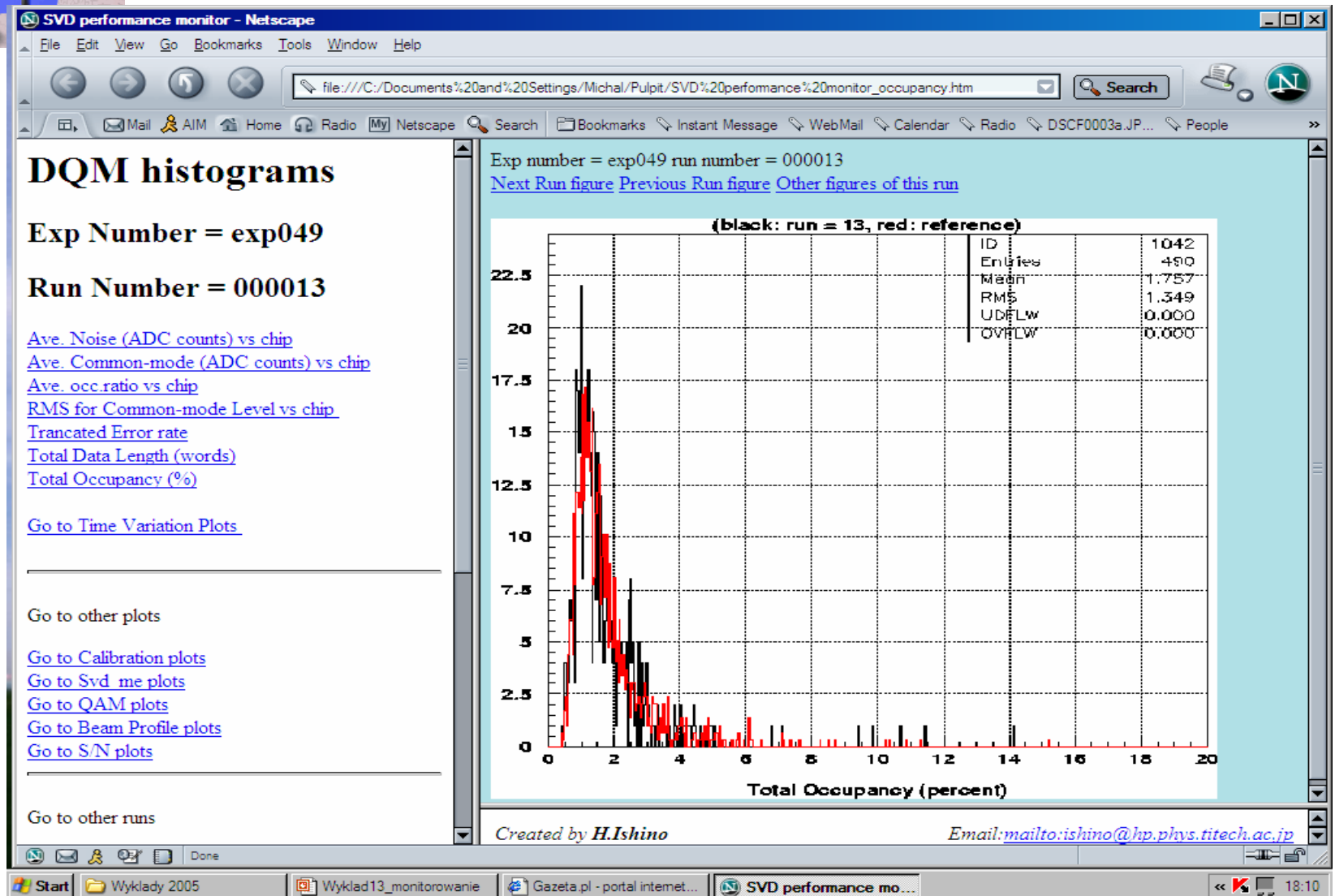


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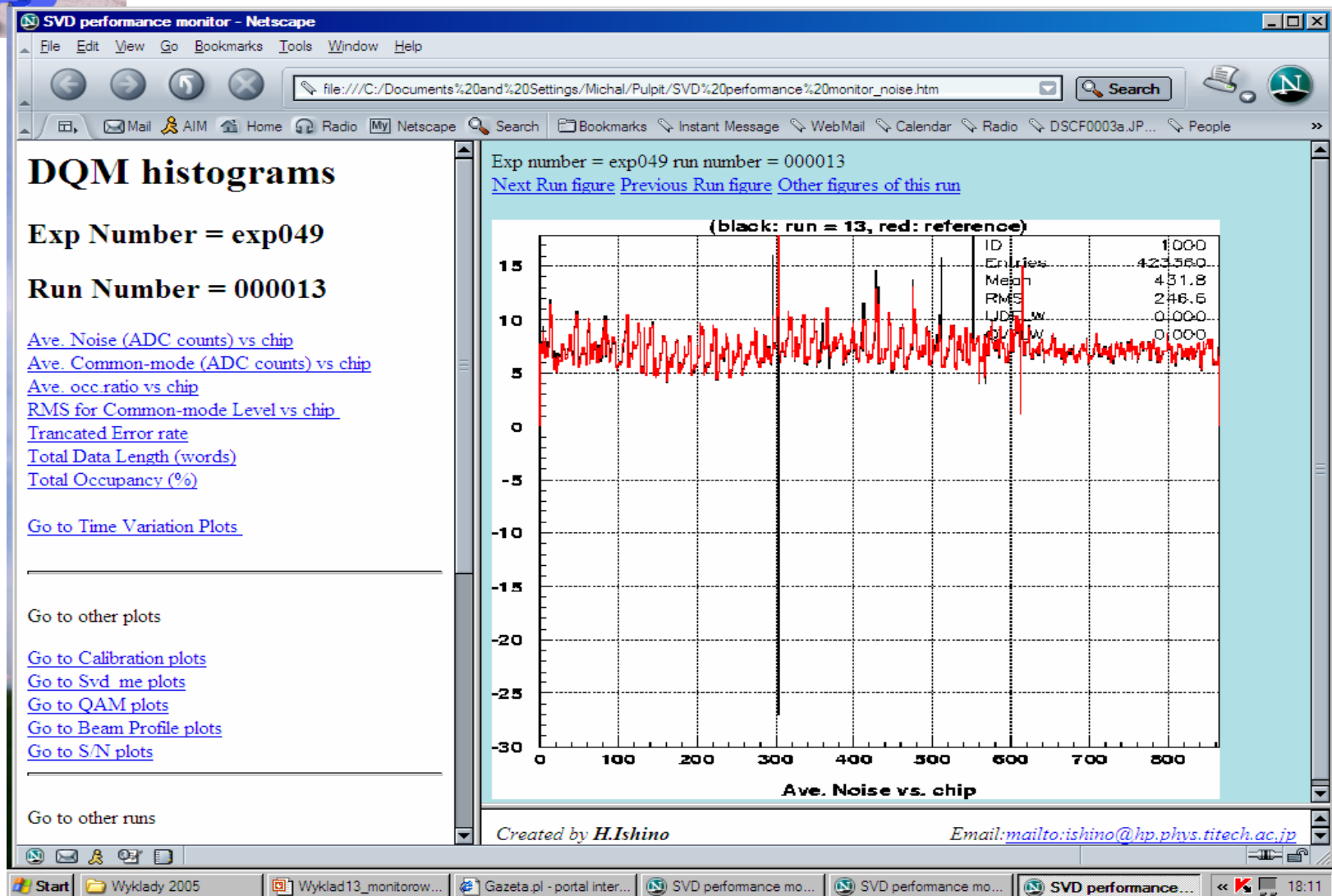


Belle monitor





Belle monitor

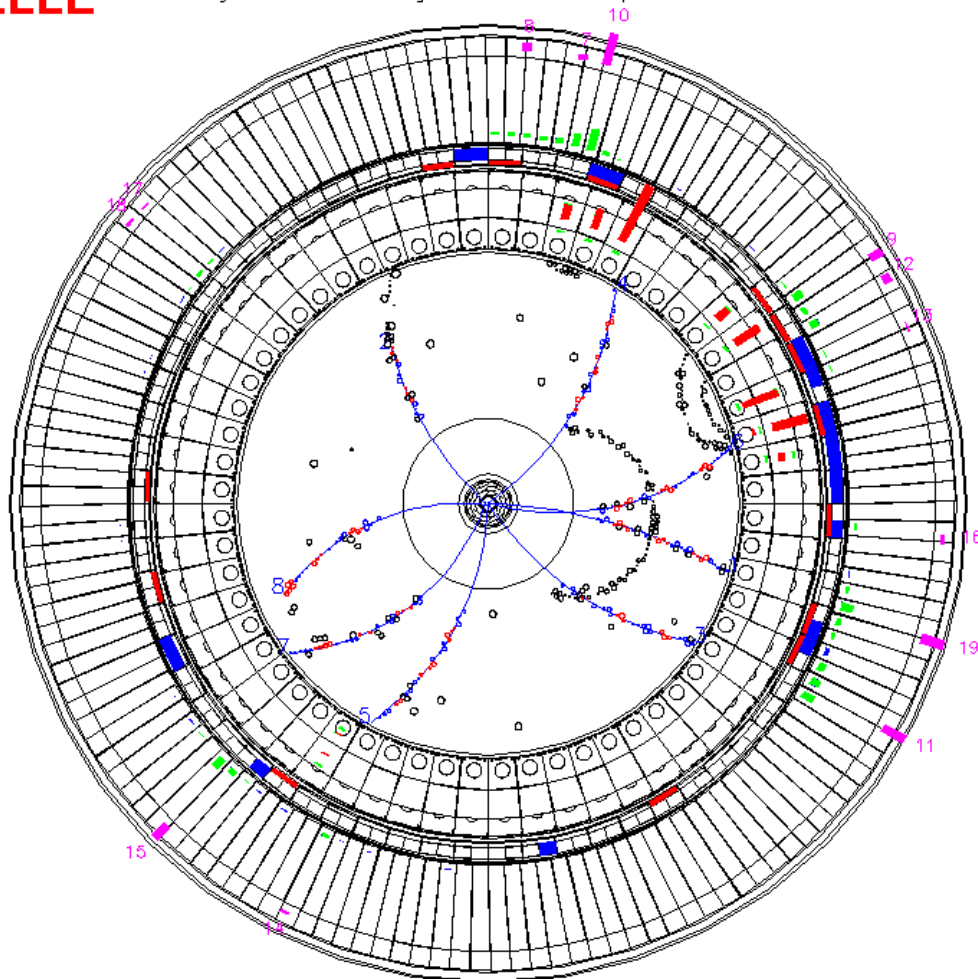




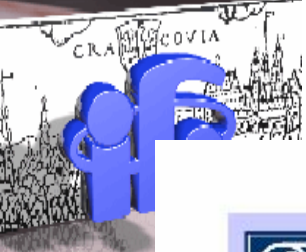
Belle event display

BELLE

Exp 3 Run 21 Farm 2 Event 7854
 Eher 8.00 Eler 3.50 Date/TIME Tue Jun 1 14z37z44 1999
 TrgID 0 DetVer 0 MagID 0 BField 1.50 DspVer 2.01



z
 x
 10 cm



DELPHI event display

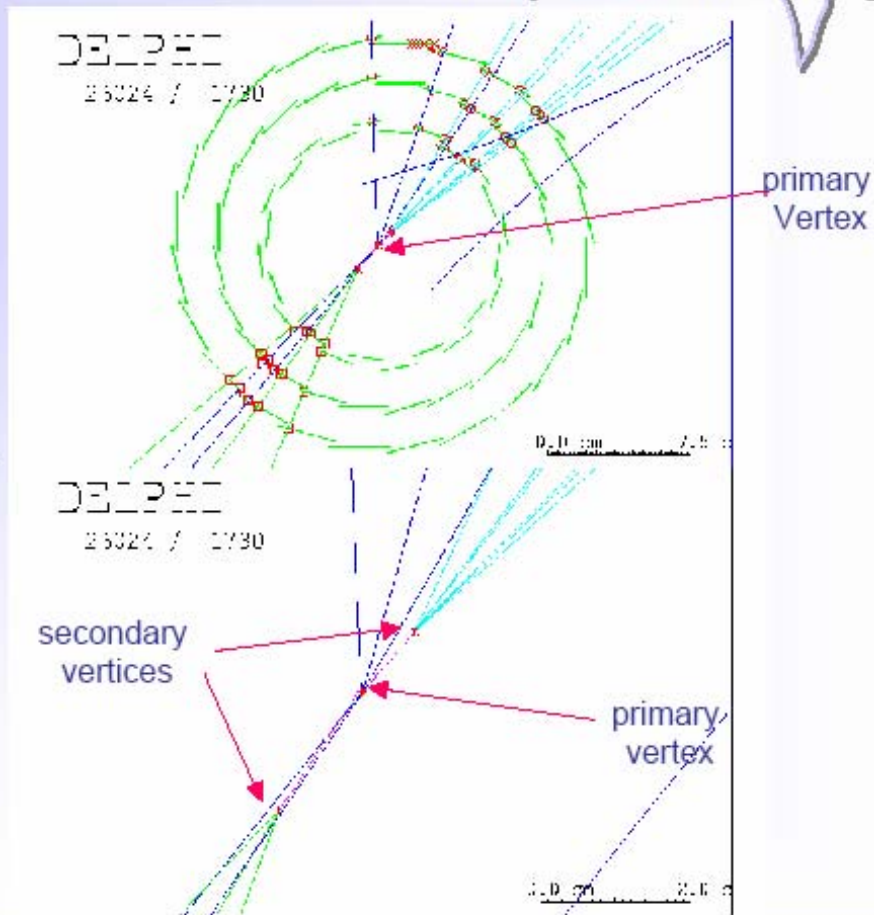


Introduction

1. Introduction

Reconstructed
B-mesons in the
DELPHI micro vertex
detector

$$\tau_B \approx 1.6 \text{ ps} \quad l = c\tau\gamma \approx \gamma \cdot 500 \text{ } \mu\text{m}$$



CERN Academic Training Programme 2004/2005



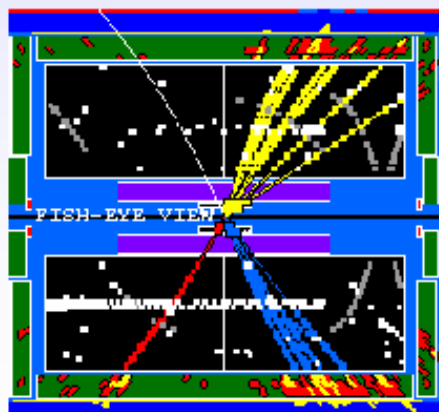
ALEPH event display



Introduction

A W^+W^- decay in ALEPH

e^+e^- ($\sqrt{s}=181$ GeV)
 $\rightarrow W^+W^- \rightarrow qq\mu\nu_\mu$
 $\rightarrow 2$ hadronic jets
 $+ \mu + \text{missing momentum}$



ALEPH

DALY 09

CMX=181

McH=16

Peb=97.6

EV1=.730

BtL=1.6

RV2=.535

Ewa=50.5

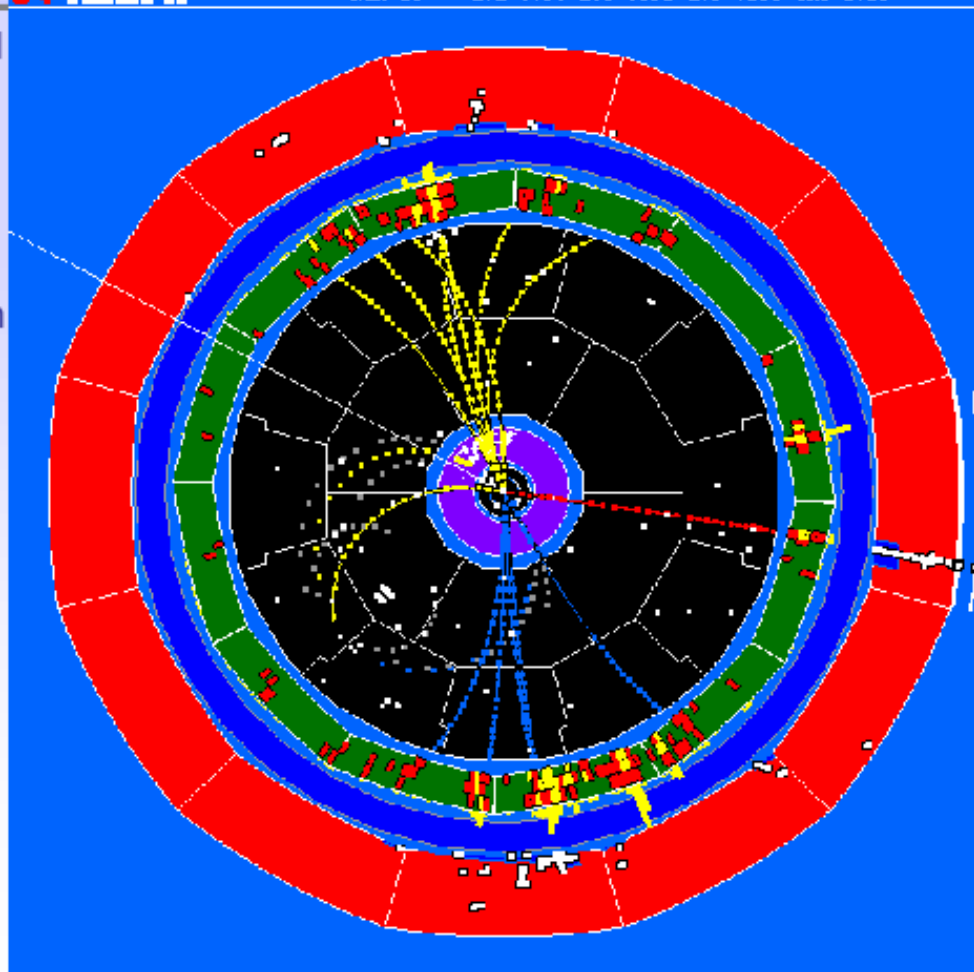
RV3=.295

Ina=19.6

TAC=1.53

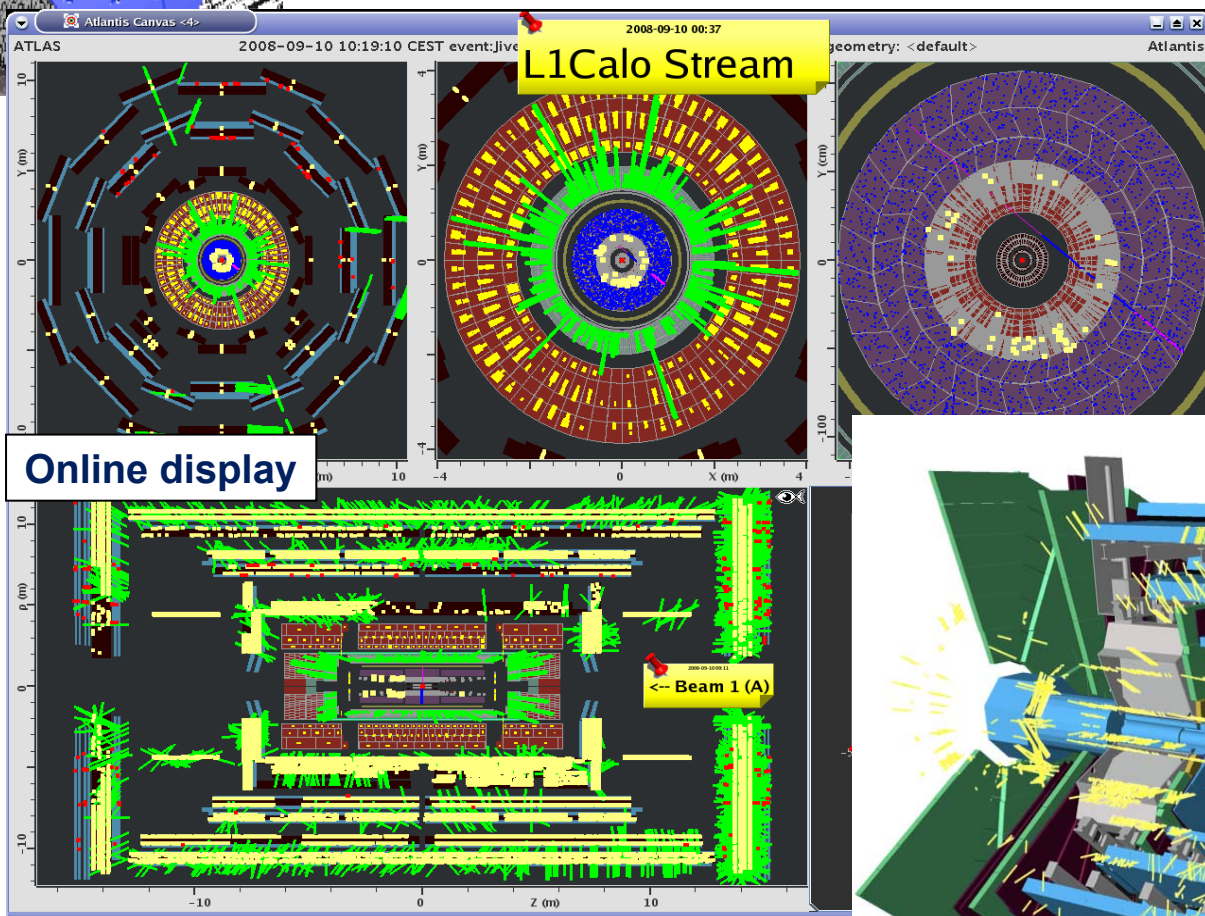
1.

Introduction

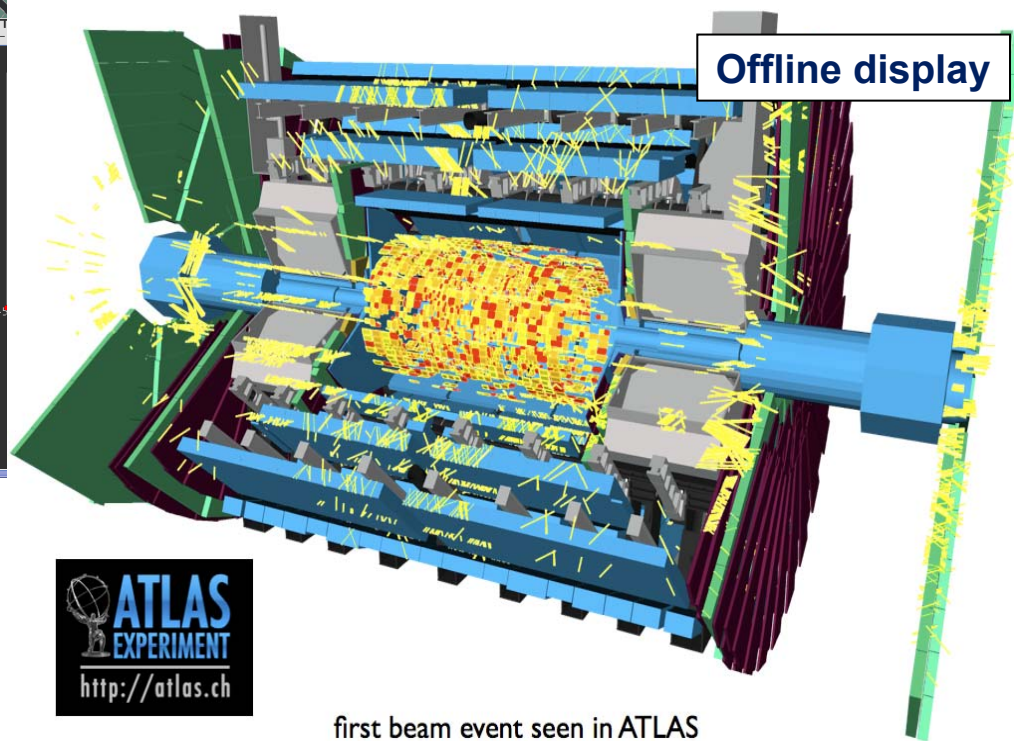


CERN Academic Training Programme 2004/2005

The very first beam-splash event in ATLAS



10:19, 10th September 2008



The LHC is fully installed and it started operation with single beams on 10.09.08. Now it is delayed until summer 2009 after an incident that happened 19.10.08



first beam event seen in ATLAS