

Team Infrastructure

B. Million

- Detector Support System
 - Low Voltage (Preamplifier, Digitiser...)
 - High Voltage System
 - Cryogenic Autofill
 - Process Control
 - Graphical User Interface (*TH*)
- Grounding (*NK*)

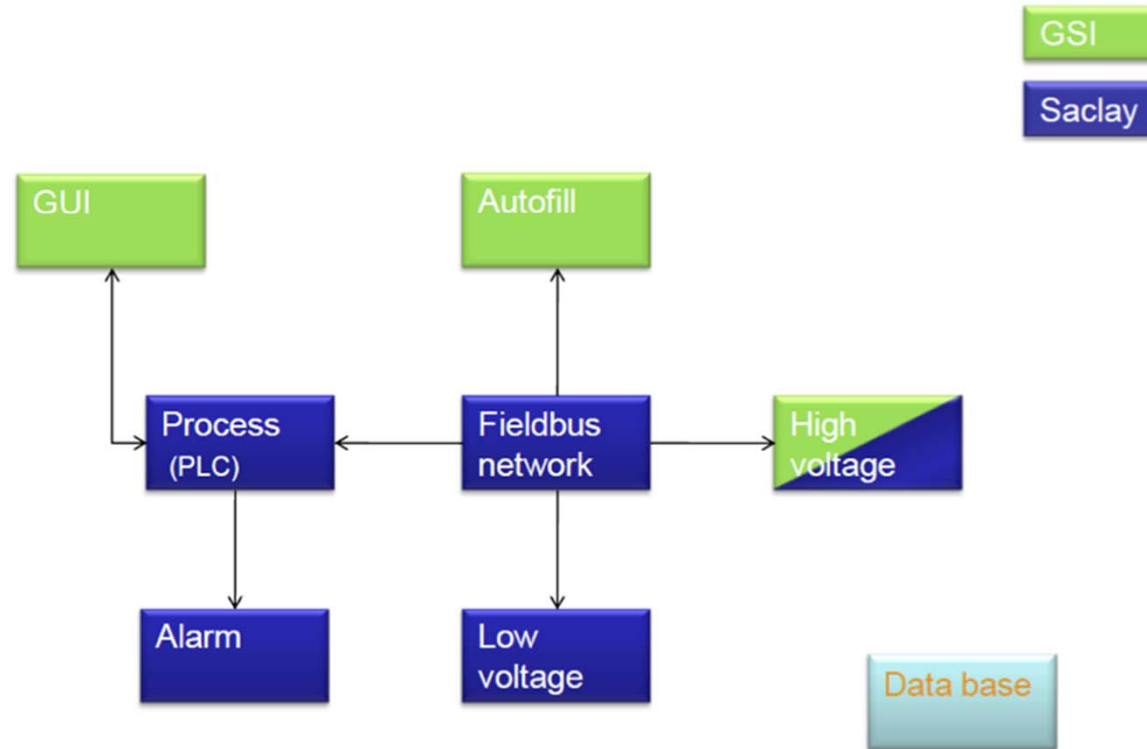
Meetings since Darmstadt AW:

13/10/2011
25/11 – PLC
20/12
25/01/2012
17/02
22/03
02/05
22/05 – Autofill

AGATA Detector Support System

planned for
up to 10 detectors
for 1st GSI campaign
(up to dic.2012)

DSS Overview



Pete Jones
University of Jyväskylä

10th AGATA Week, Lyon
22-26 November 2010



Bénédicte Million
INFN – sez. Milano

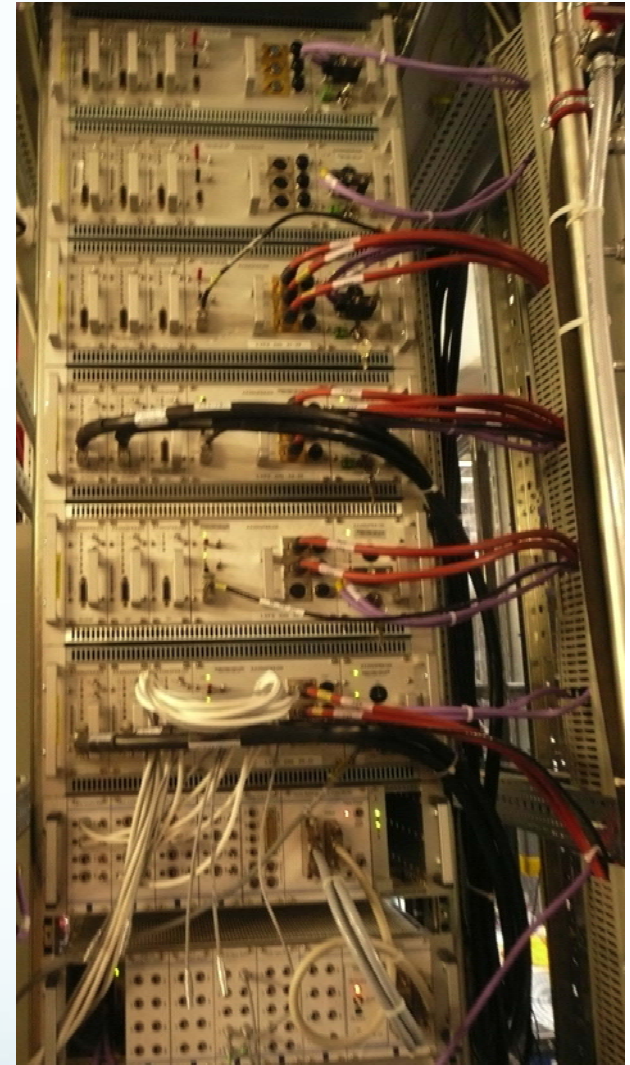
12th AGATA Week, GSI
11-13 June 2012

Low Voltage Power Supply (IRFU-Saclay)

- Axis crates
 - all modules upgrade (retrofitting) done
 - 1 axis profibus controller repaired (n.1)
 - 2 axis profibus controller inspected (3, 4)
- All 14 crates ready for **GSI**

- LV-cables modified for new LV-patch boxes
- LVPS mounted and functioning test done end of February 2012 → 1 module 48V

giving problem:
→ advice given ...
NO feedback



Low Voltage Filter

(IRFU-Saclay / Strasbourg)

GSI: 12 new LV-patch boxes built as
Prot. n. 2 test conclusion was:

In conclusion, the “new” LV filter behaves the same way as the “old” one. There are no appreciable differences both in terms of energy resolution and of noise spectra (january 2011).



LV-filter done in Saclay
Mounting made in Strasbourg by M. Filliger

No 6,5V connector as HV-box will not be done

Planned to integrate LN2 monitor card ... but ...

LN2 monitor card:

Cologne has ordered 70 LN2 (oct. 2011)
but one of the component (CAV414 IC) is not produced anymore (dic. 2012)

A. Wiens confirms via mail (aprile 2012):

new version of missing IC announced for autumn 2012.

*Production and test of new LN2 monitoring circuit **within 2012**.*

An alternative new solution would take some development time and a testing period which is probably larger than the waiting time for the ICs.

At the moment the development time can not be estimated because one first has to design alternative ideas. A new development leads also to additional costs and man power which is limited in our workshop.

→ **No LN2 monitor cards before 2nd GSI-campaign**

A. Wiens has left Cologne University last May.

Infrastructure team thanks him for the work done in these years.

P. Reiter informs **Bart Bruyneel** will follow the point until a Cologne local person is available.

High Voltage Power Supply

At **GSI**: 2 CAEN SY527 crates and 13 HV cards have been
lent from GAMMAPOOL,
12 HV cards (12 channels each) have been inspected
and refurbished by CAEN → available
(1 HV-card not inspected as in use by Cologne
group)
functioning test done last week by R. Menegazzo
→ 143 channels are working properly

→ enough channels, even in case
MINIBALL is used

→ available up to ...?



Future HV for GANIL phase - 1:

➤ Development of HV box in view of GANIL:

Saclay cannot continue on HV-box developments as SIS department wrote (17/02/2012):

“In the present context and with our commitments on different projects such as R3B, Iseult, SPIRAL 2 ..., thus SIS could not take in charge the new study of the card for the high voltage system for the GSI and GANIL phase”.

Time for a new group to start from scratch is really too short to complete the work for GANIL phase.

Future HV for GANIL phase – 2

➤ **AMB asked for inquiry on commercial HV system**

(that includes individual BSD)

R. Menegazzo/I. Kojouharov looking at it.

HV system requirements

- 45 and 180 HPGe detectors (1π and 4π)
- Ripple < 50 mV
- Current resolution < 100 pA
- Individual HV enable
- **Common, floating or individual floating ground ?**
- System available for local test

→ **which is the dead line for this decision ?**

→ **GAMMAPOOL Caen-HV system available up to ... ?
need to make new request ?**

Future HV for GANIL phase – 2

Cost: 400euro/channel + 6-7keuro for frame

CAEN:

- current HV modules
- New high performance boards available (current resolution 50 pA, lower ripple) in NIM and VME standards with possibility to produce mainframe boards
- frame with 192 channel max.

Wiener+ISEG:

- system available at GSI
- High performance boards available (current resolution < 50 pA, ripple 20 mVpp) with the possibility of different grounding connections

HV cards available for test

Crate to be made ... need time

DSS Infrastructure

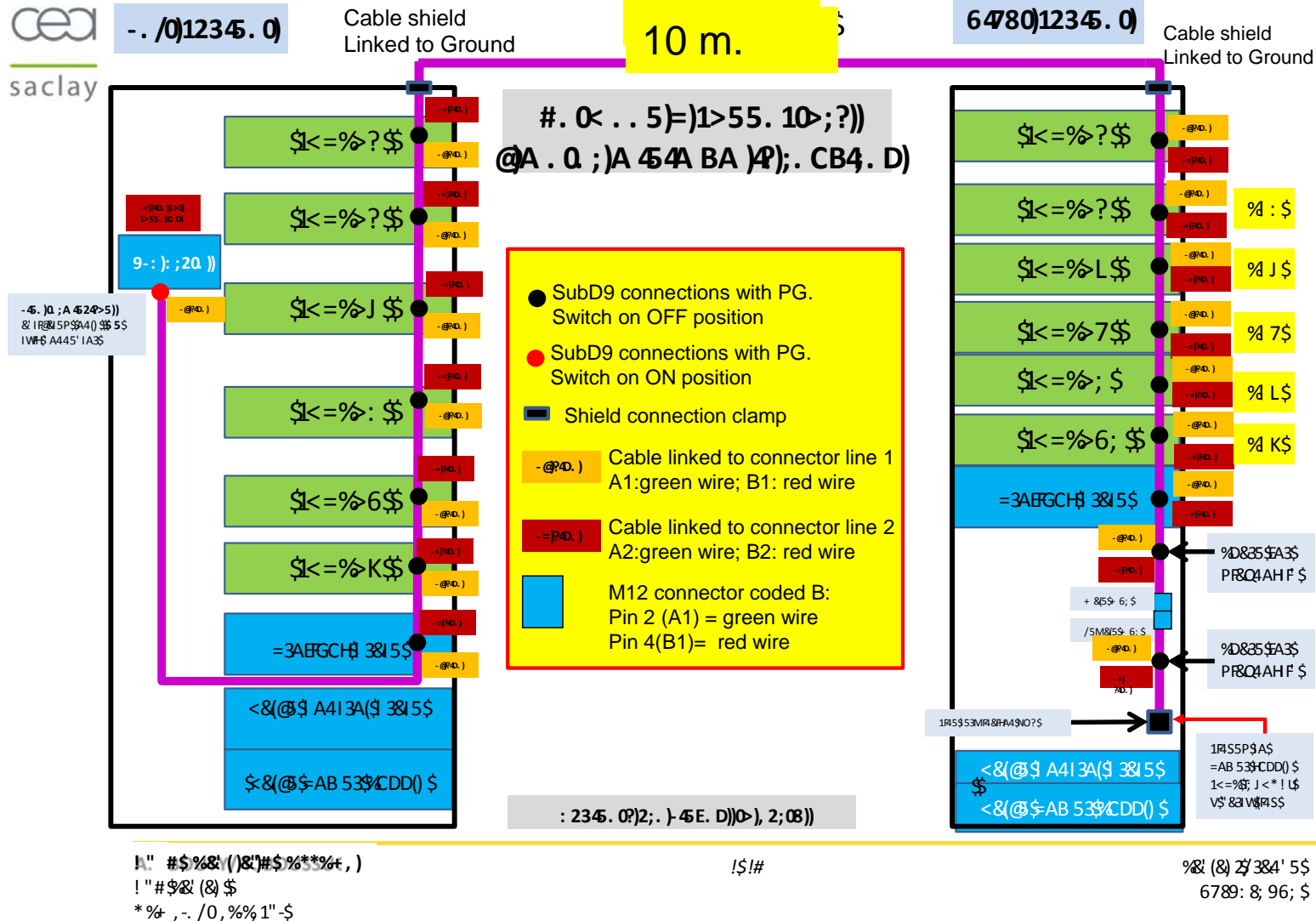
Modular approach for 8 detectors

LNL: $5T = 15$ crystals

GSI first phase: $5T + 5D = 25$ crystals

GSI later phase: $7T + 5D = 31$ crystals

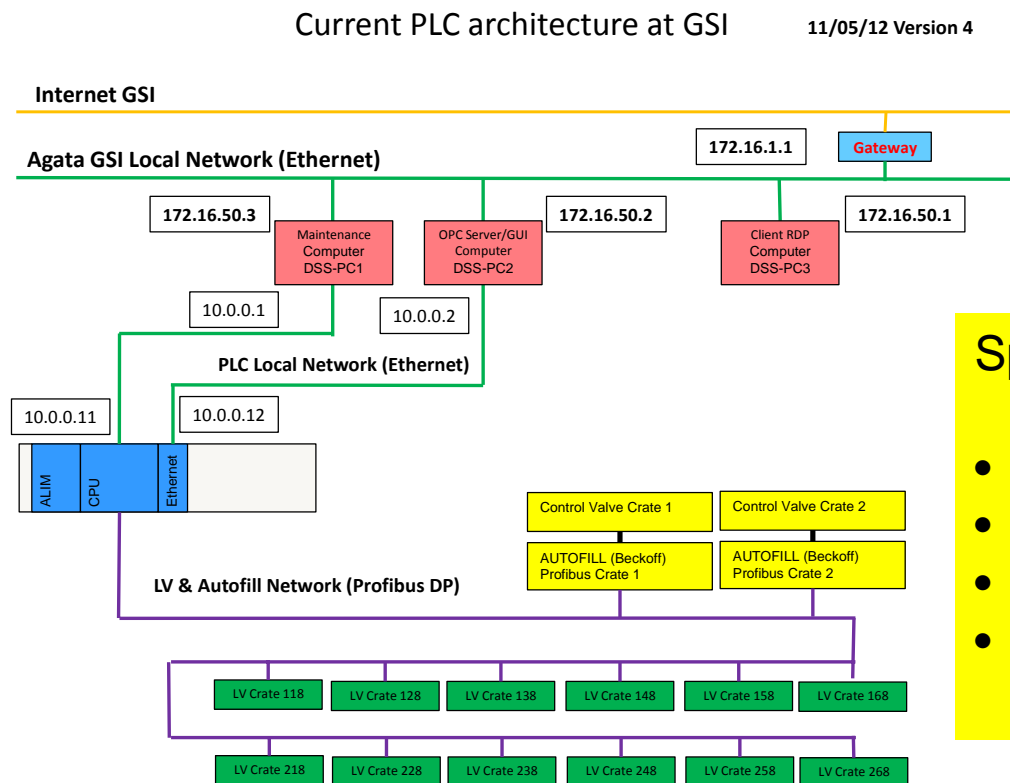
New PROFIBUS cable with correct length to be made by Saclay/GSI



DSS PLC / Control / GUI

Was running smoothly in **LNL**: 1 PLC for up to 8 detectors

R. Touzery and T. Joannem (Saclay, since nov. 2011) involved on PLC upgrade to take into account the specific situation of GSI.



V. Lushta has been hired in GSI

Specificity for GSI:

- 2 Intermediate tanks
- 2 filling line
- 2 detector simultaneous filling
- Detector filling priority over tank filling

PLC development:

- Specific meeting GSI/Saclay on 25/11/2011 to clarify requests
1stVCC sent to Saclay on 23/02/2012
- specific working day GSI/Saclay in Saclay on March 5, 2012:
1st test of PBC, VCC and PLC upgrade
- specific working day GSI/Saclay in GSI on March 26th:
2nd test of PLC upgrade on 1 filling line, (with maintenance PC GUI)
→ problem with flash card, GUI inserted on microbox

PLC tested in Saclay – working fine

Connection problem between OPC, PLC and GUI → solved last week

Yesterday (Monday 11 june) T. Joannem and T. Habermann confirmed
PLC-OPC-GUI connection is working correctly in GSI

3° partial test of PLC upgrade on 2 filling lines and with GUI has been done this morning ...

full PLC-test: ... waiting for hardware to be ready
need GUI to be completed

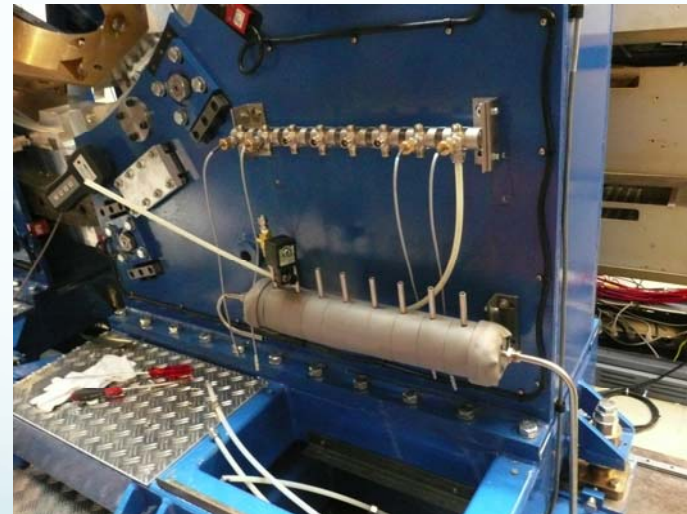
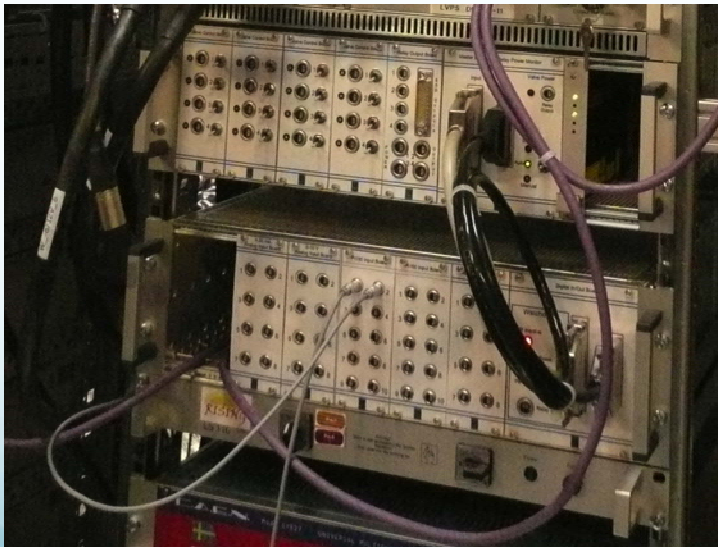
Cryogenic Autofill

LNL: version for 8 detectors

GSI: New Valve Control Crate developed (by GSI)
Profibus crate

LN2 mechanical support defined with mechanical team

Still to be completed



Bénédicte Million
INFN – sez. Milano

12th AGATA Week, GSI
11-13 June 2012

Temporary solution:

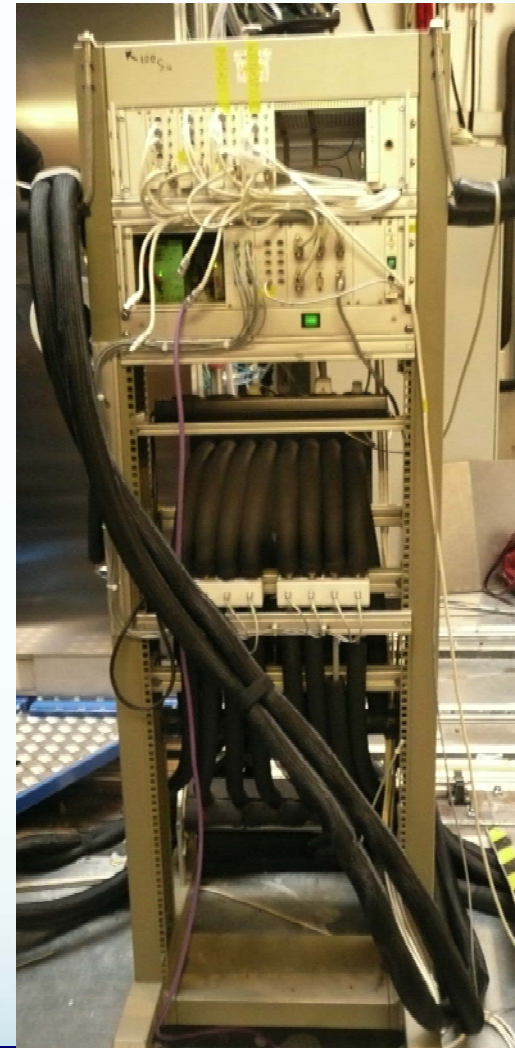
As AGATA system is delayed, **RISING AF system** has to be used in first weeks

→ **protocol accepted by Detector group on 28/3/2012**

RISING-PRESPEC AF use has been proposed with the following conditions:

- At least 4 fills per day
- GUI prepared to control every autofill filling
- Already for “warm” detector alarm (-175°C)
both the HV and LV have to be shutdown within 1h except if the problem has been solved within this time.

Rising AF system working up to now in a stable way. Minor problems have called for 1 manual filling during night and software correction on next day



Shutdown:

a precise procedure has to be defined together with Detector Group as for “hot” detector alarm both HV and LV might have to be shutdown.

In fact warming up of the detector will be faster than usual due to pre-amplifiers heating.

Of course, in case a detector is warming up and cannot be cooled down immediatly, pumping should be done.

Still to be done, as soon as phase 0 Autofill is in commissioning ...

Individual BSD:

- proposed by GSI (IK)
- principle accepted by Detector working group (May, 10th).
- Proposition to be inserted in LV-patch box → should be technically discussed with Saclay (A. Lotodé) for possible interference with LV-filter

But will not be done before phase 0 AGATA DSS autofill system has been

- **completed,**
- **commissioned,**
- **inserted for normal use.**

For now **Hardware Shutdown** will be done through dry contacts for phase 0 Autofill.

Alarms

have been agreed and GSI will prepare the Alarm rack:

- Defective PT100
- Detector filling timeout
- Mode has been changed (manual/local..)
- Detector status 'warm' (filling + alarm)
- Detector status 'hot' (warning + alarm)
- Detector status 'too hot' (HV shutdown + alarm)
- LN2 level
- PLC crash (the value is 1 when the PLC is working and 0 if not)
- Profibus malfunction (it is the watchdog which will take care of this not the PLC)
- Tank and main pipeline filling timeout

Watchdog card – still a problem to be cured

Grounding

(N. Karkour, CSNSM)

Requirements (Aprile 2011)

- racks welded to movable platform
- a copper brade soldered along connection between main platform and rack platforms (with Cu plate)
- 4 Cu brackets (width 150mm, thickness 6mm) for grounding of rotation wheel
- Safety switches under each grounding bracket to avoid rotation motor being engaged if bracket still in place.



1st Measurements: 19-20/01/2012 (N. Karkour, M. Tripon)

mechanical structure, to integrate all the AGATA detectors Digitisers LV and HV supplies, EMC susceptibility and ground connection.

All the recommendations were executed perfectly, grounding tests were made with success.

2nd grounding measurements with detectors planned and being done today !

With the detectors and the electronics installed in order to measure the signal integrity on the preamplifiers.

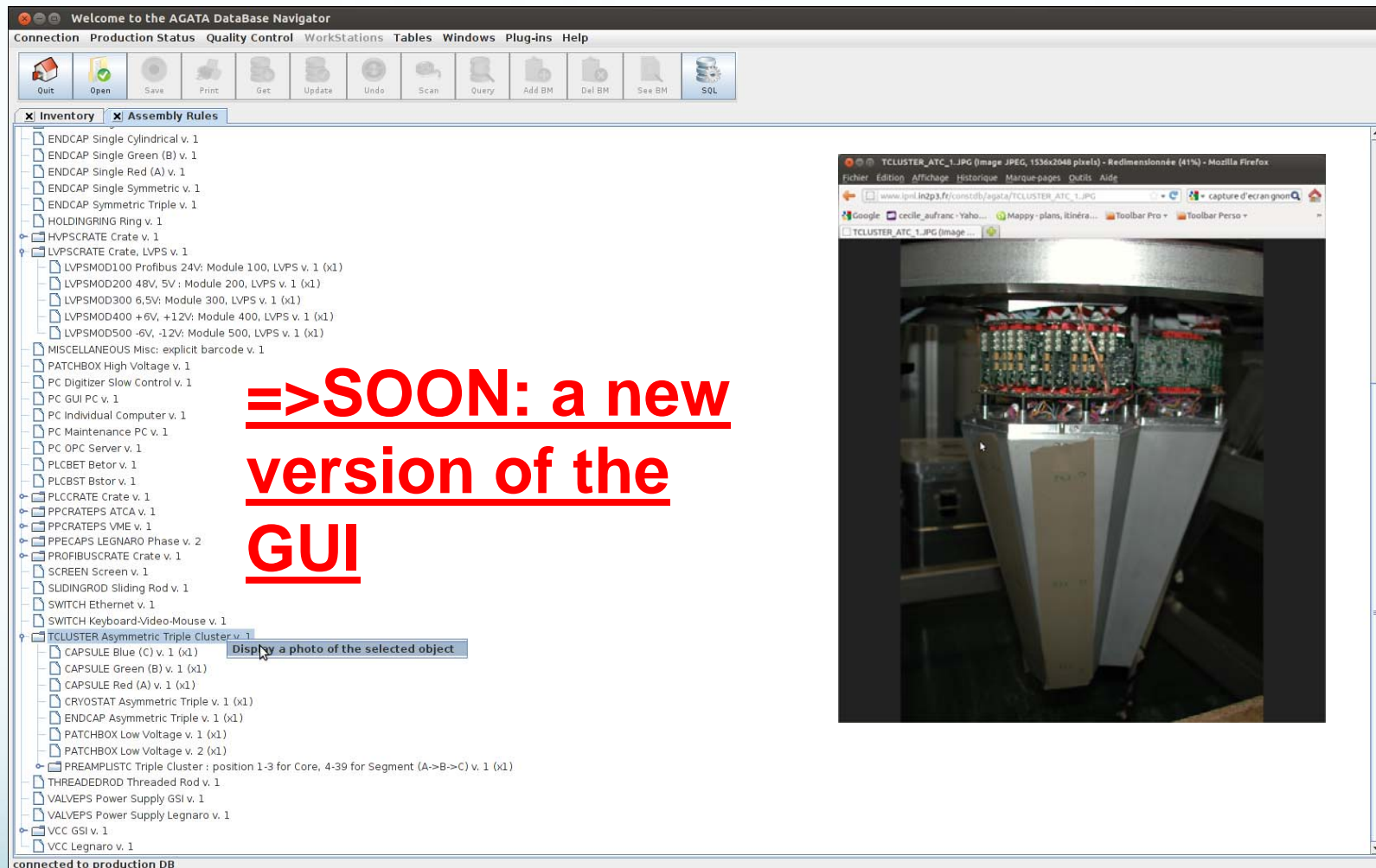
Construction DATABASE – 1

(O. Stezowsky/C. Aufranc, IPN Lyon)

- 3 campaigns to insert 300 objects: 2 in LNL and 1 in GSI
still few object to be inserted
- Production and distribution
of barcode sheet in the
production centers
- Photos for different objects

Barcode on LVPS





Construction DATABASE – 2

Going on:

- Insertion of new objects
- Functionality of transfer:
 - ✓ emails are sent automatically
 - ✓ At reception, objects belong to new center by a single scan of the transfer barcode
- Assembly of objects
 - ✓ Electronics: which mezzanine in which carrier → Topology Manager
 - ✓ Detector: which capsule in which Cluster → PSA (base of signals)
- Actions:
 - ✓ Measures (CAT, ...)
 - ✓ Informations (Owner, ...)
- Broken objects/Repairs

**All this information has to be inserted by contact person
or to be passed to C. Aufranc for insertion**

=>Role of the contact persons:

update the DB and transmit the informations to be as close as possible to the reality

- GSI (F. Ameil),
- Saclay (B. Bruynel),
- Cologne (B. Birkenbach),
- Ganil (J. Ropert, L. Ménager, M. Tripon, B. Raine, E. Clément),
- Liverpool (H. Boston),
- Orsay (X. Lafay),
- Strasbourg (M.-H. Sigward),
- Padova (R. Menegazzo)

Construction Database Informations

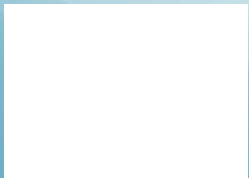
- Documentation: with useful video tutorials

<http://agata.in2p3.fr/DB/Home.html>

- For any questions/comments, don't hesitate:

=> a unique email: agatadb@ipnl.in2p3.fr

- Connections between objects to define and implement
- Synchronization with the Topology Manager in progress
(interaction with DAQ group)



AOB


- Wooden Boxes for transportation from one lab to other lab have been kept by GSI, except a few used by Saclay

Summary

To be done :

- AGATA - Autofill System to be completed, commissioned and used (Watchdog, full hardware system assembling, alarm rack, dialer, hardware shutdown ...)
- Procedure for switching off HV and LV to be defined with Detector group
- LN2 cards to be finalized
- HV future system:
 - GAMMAPOOL CAEN HV system available up to ?
 - Own AGATA HVPS to be decided

EXTRA slides



Bénédicte Million
INFN – sez. Milano

12th AGATA Week, GSI
11-13 June 2012

Using temporarily the RISING/PRESPEC Autofill for AGATA first detectors in GSI

Written by B. Million, 22.03.2012, GSI

The AGATA DSS Autofill (AF) system is being prepared for the AGATA detector at GSI. It is based on the DSS Performance Specification adapted to the GSI peculiar situation with the presence of two intermediate LN2 tanks in the experimental area.

In the first weeks of AGATA@GSI, the AGATA DSS AF will still be under commissioning and the RISING/PRESPEC AF will be temporarily used. This AF system has been used for RISING/PRESPEC with good success and includes most of the alerts that have been requested for the AGATA DSS AF. In particular:

The following alerts issued by PLC monitoring are included:

- Pipeline timeout
- Tank filling timeout
- Detector filling timeout
- Detector status “warm” (*detector temperature above – 175 °C*)
- Detector status “hot” (*detector temperature above – 165 °C*)
- Detector status “too hot” (*detector temperature above – 155 °C*)
- PROFIBUS malfunction (*the DSS is not running*)

And additionally the following alerts issued by hardware monitoring are included:

- Outage of 24 V AC feeding the valves alert
- Watchdog alert (*PLC connection lost*)
- Oxygen alarm alert
- General overflow monitoring Pt100 alert

As the following two alerts have been requested for AGATA DSS AF but are not included in RISING/PRESPEC AF:

- Defective Pt100 (not applied for RISING/PRESPEC AF)
- Exit of the AF program (not applied for RISING/PRESPEC AF)

during the RISING/PRESPEC AF use for the detectors present in GSI in the first weeks both the status of the detector and of the filling must be checked out after each filling (at least 4 regular fillings per 24 hours and eventual forced fillings):

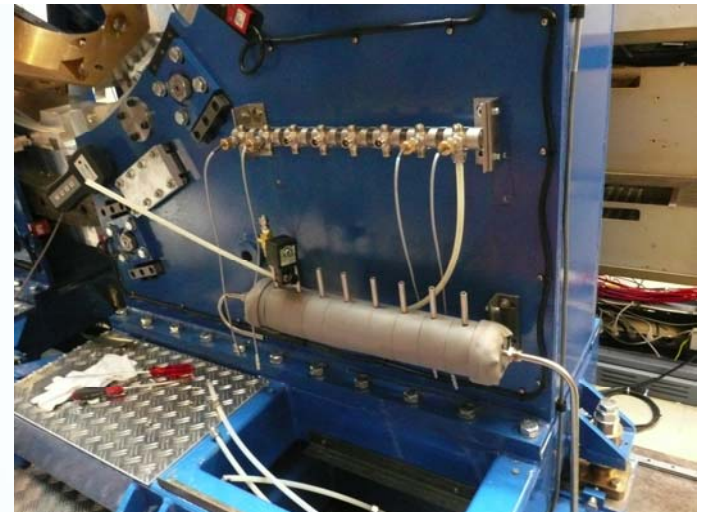
- Filling time,
- Detector temperature on both PT100 placed on each cryostat,
- Operational status of the AF (“alive”, “is running”, “aborted”).

In case of “Detector warm” alert the detector will be secured by a forced filling and by having an operator switching off both LV and HV within 1h unless the problem is solved within this time.

Except for this case, the response to the various situations will follow the procedure and time response that has been used up to now and that has been defined for the AGATA DSS AF system.

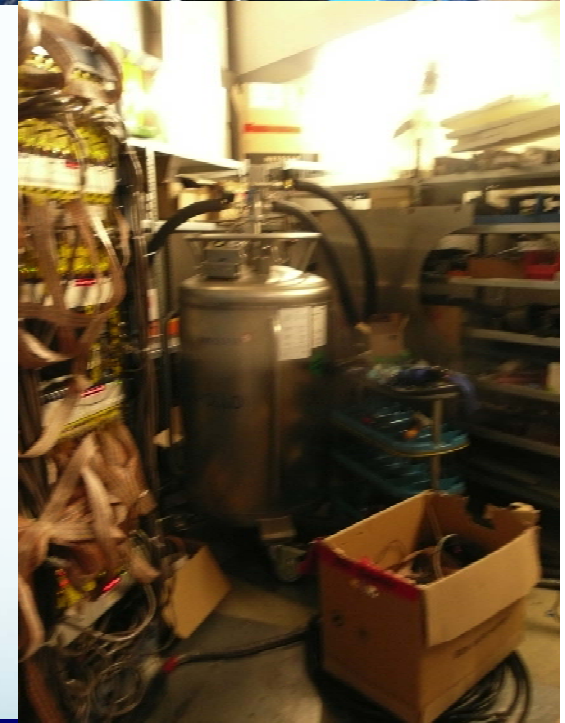
PLC + Autofill Test in Saclay


have been done partially
when crates were sent to Saclay
VCC and PBC planned on January 30th
arrived in Saclay for 1st test
on March 5th, 2012



First test in GSI planned for

- mid march
- 23 march
- 5 april
- 11 may commissioning must start for use with ATC end of may
- ... still to be completed ...





Bénédicte Million
INFN – sez. Milano

12th AGATA Week, GSI
11-13 June 2012