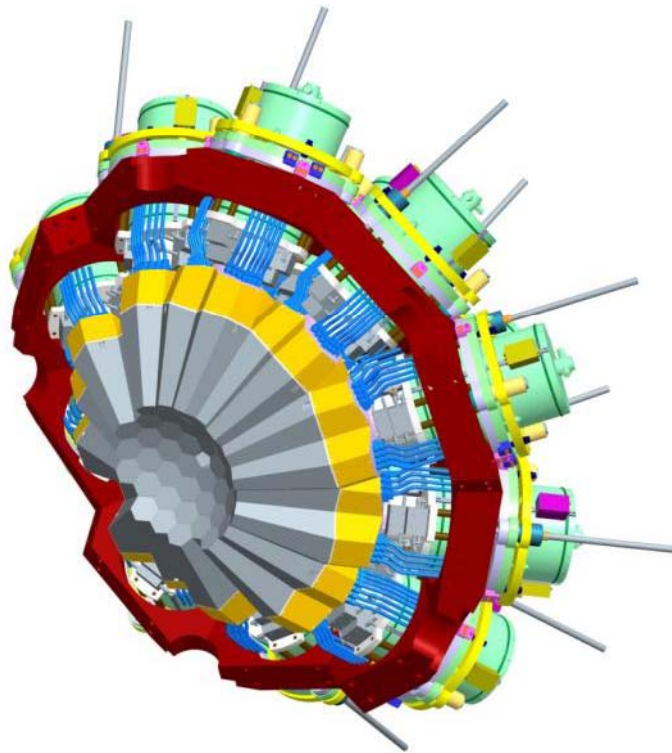




Science & Technology Facilities Council

Nuclear Physics Group

AGATA: Advanced Gamma Tracking Array



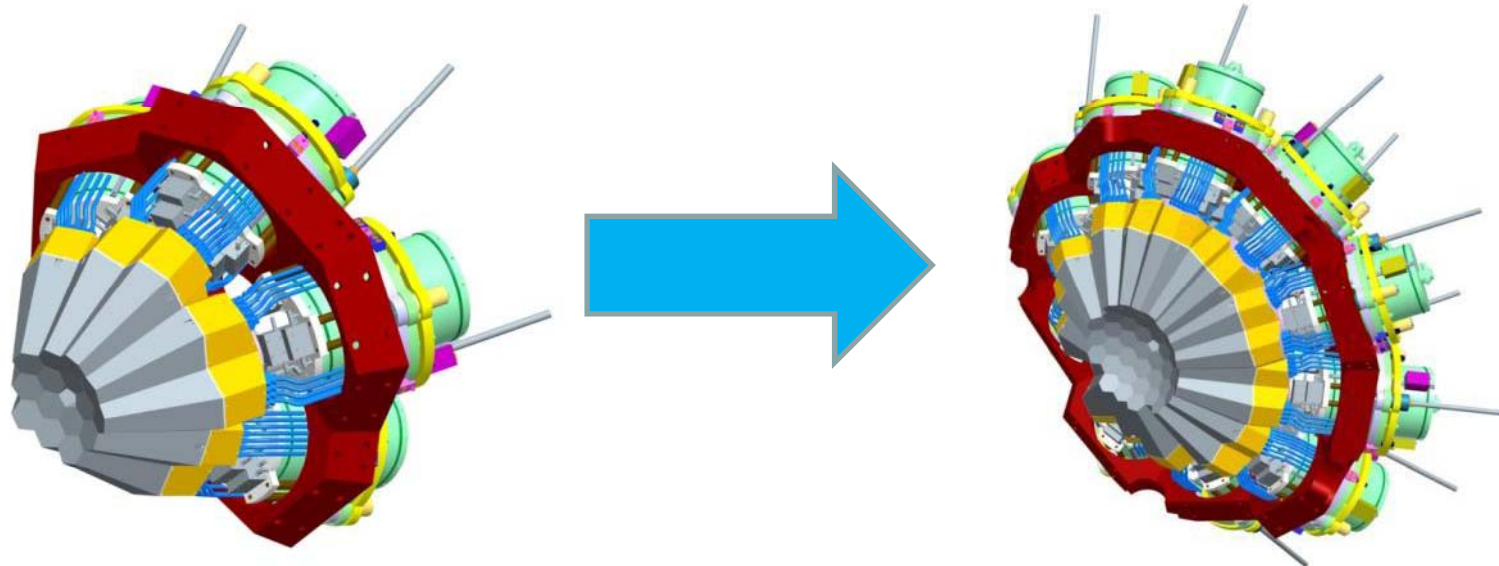
Introductions Presentations

- John Simpson
 - International Project Leader
 - Chair of AGATA management Board
 - Technical co-ordinator
 - International status and overview
- Andrew Boston
 - Characterisation WP1 leader
- Paul Nolan
 - Chair of AGATA Steering Committee
 - UK Spokesperson
 - Status of this grant and future
- Mike Cordwell
Project manager

International status and Overview

- What's new since last OC
- Demonstrator to First Physics campaign
- MoU (exploitation and development)
- Status
- UK Contribution

Transition



Demonstrator
Research and development phase

First Phase
Operation and construction

New Memorandum of Understanding

Signed by almost all countries

Defines planning, funding, construction and operation of AGATA to 4π

First phase "the 1/3" 20 triple system.

http://npg.dl.ac.uk/AGATA/AGATA_MoU_web.pdf

The AGATA Collaboration

Memorandum of Understanding

Huge Collaboration



Bulgaria: Univ. Sofia



Denmark: NBI Copenhagen



Finland: Univ. Jyväskylä



France: GANIL Caen, IPN Lyon, CSNSM Orsay, IPN Orsay, CEA-DSM-DAPNIA Saclay, IreS Strasbourg



Germany: GSI Darmstadt, TU Darmstadt, Univ. zu Köln, LMU München, TU München



Hungary: Debrecen



Italy: INFN and Univ. Firenze, INFN and Univ. Genova, INFN Legnaro, INFN and Univ. Napoli, INFN and Univ. Padova, INFN and Univ. Milano, INFN Perugia and Univ. Camerino



Poland: IFJ PAN Krakow, SINS Swierk, HIL & IEP Warsaw



Romania: NIPNE & PU Bucharest



Sweden: Chalmers Univ. of Technology Göteborg, Lund Univ., Royal Institute of Technology Stockholm, Uppsala Univ.



UK: Univ. Brighton, STFC Daresbury, Univ. Edinburgh, Univ. Liverpool, Univ. Manchester, Univ. Paisley, Univ. Surrey, Univ. York



Turkey: Univ. of Ankara, Istanbul University



Spain

New MoU

- In operation
- Signed by STFC
- Defines build up, operation and exploitation of full project
- New management structure
- Defines in more detail the build up to a 1/3 array
- UK 950k€ 455 FTE (months) previous grant
- UK signed up bid for 2460 k€ capital 550 FTE (months)
- This grant 893 k€ capital 470 FTE (months)

New MoU commitments

- UK this grant
- Other major countries (status given in report)
 - All countries on different timescales
 - Germany 1M€, bid again 2012
 - Italy 1.2M € approved, will bid up to 2.5M € and beyond
 - France 2.5M € approved
 - Sweden Bid 2010 to MoU
 - Spain joining
 - Other countries (Turkey, etc.)
- Key fact:
- 28 capsules already ordered! 29 soon
- Aiming for "1/3" by 2014

Plans

Meeting of laboratory directors and PAC Chairs
(LNL, GSI, GANIL)

Good agreement and positive discussions

ASC Decisions:

AGATA remain in LNL until end June 2011

Transfer to GSI, earliest start October 2011

At least 15 month operation period

Transfer to GANIL, earliest start spring 2013

AGATA@GSI part of NuSTAR (PRESPEC/HISPEC)

Organisation

MoU: New management structure for first phase

AGATA Management board.

Current AMB to continue in short term.

Will evolve into new structure

Discussions ongoing

Project definition being prepared

Detailed description of short term
(planning, funding, responsibilities)

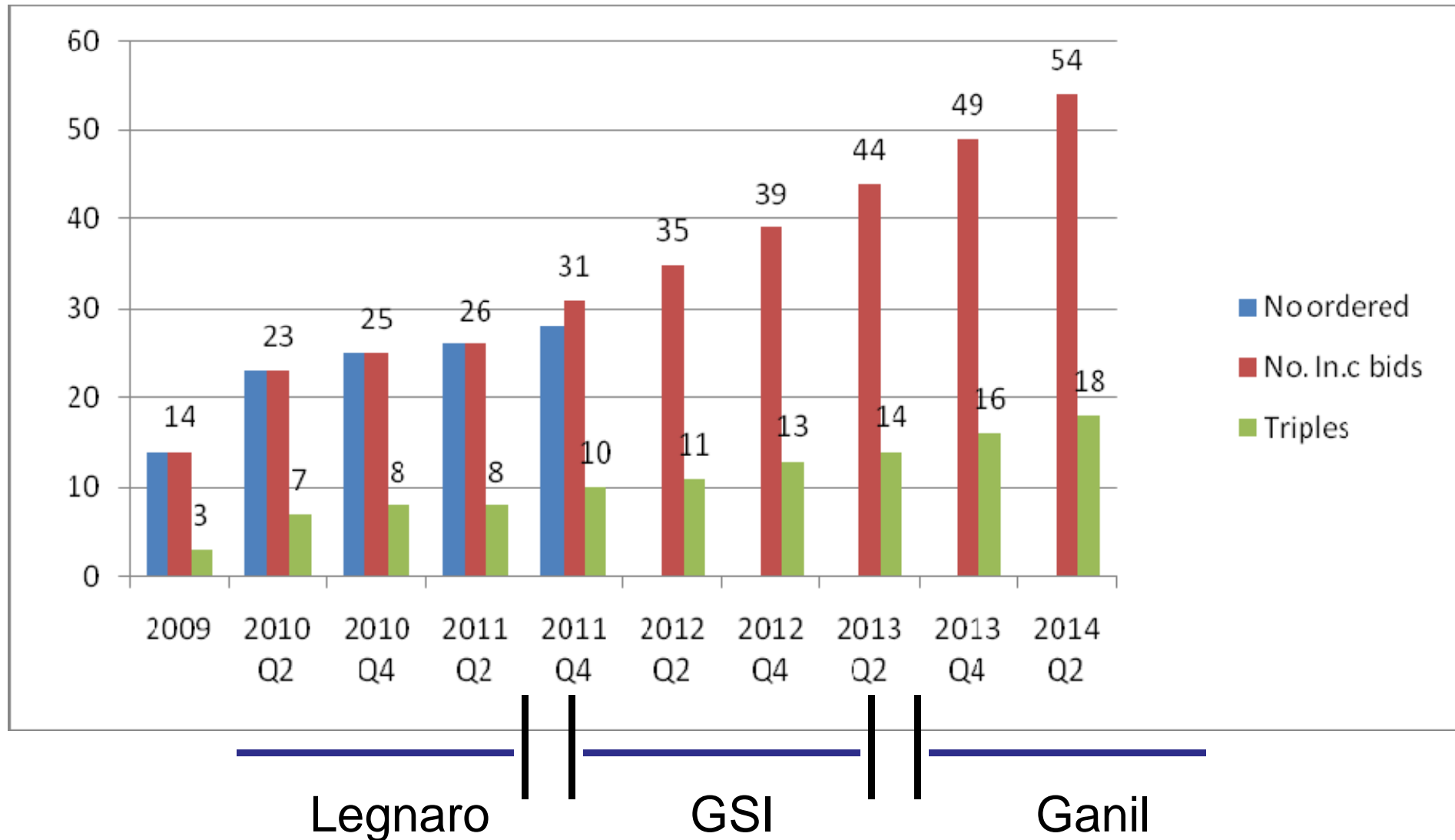
GSI phase

All parts of project will remain the same 10-12 triples.

Need to start to define system beyond GSI (in parallel)

AGATA roadmap to be prepared, short, medium, long term

Detector Deliveries: Overview



Meetings

LNL Launch of AGATA Collaboration Council
(One member per institute) 8th April

Party

AGATA inauguration 9th April 2010

Reception

AGATA Physics Istanbul 4-7th May 2010

Announcement in December

Topics: Status and early results

LNL physics, proposal for next two LNL PAC's

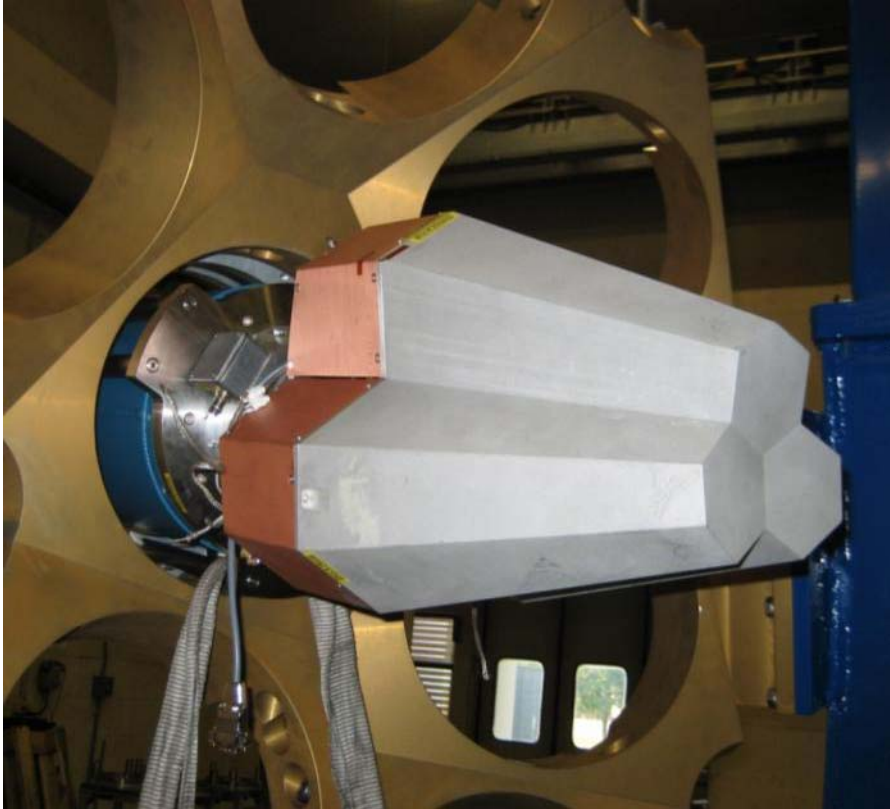
GSI physics and proposals

Andres Gadea and **Sean Freeman** LNL Physics campaigns

Wolfram Kortem and **Mike Bentley** GSI Physics campaigns

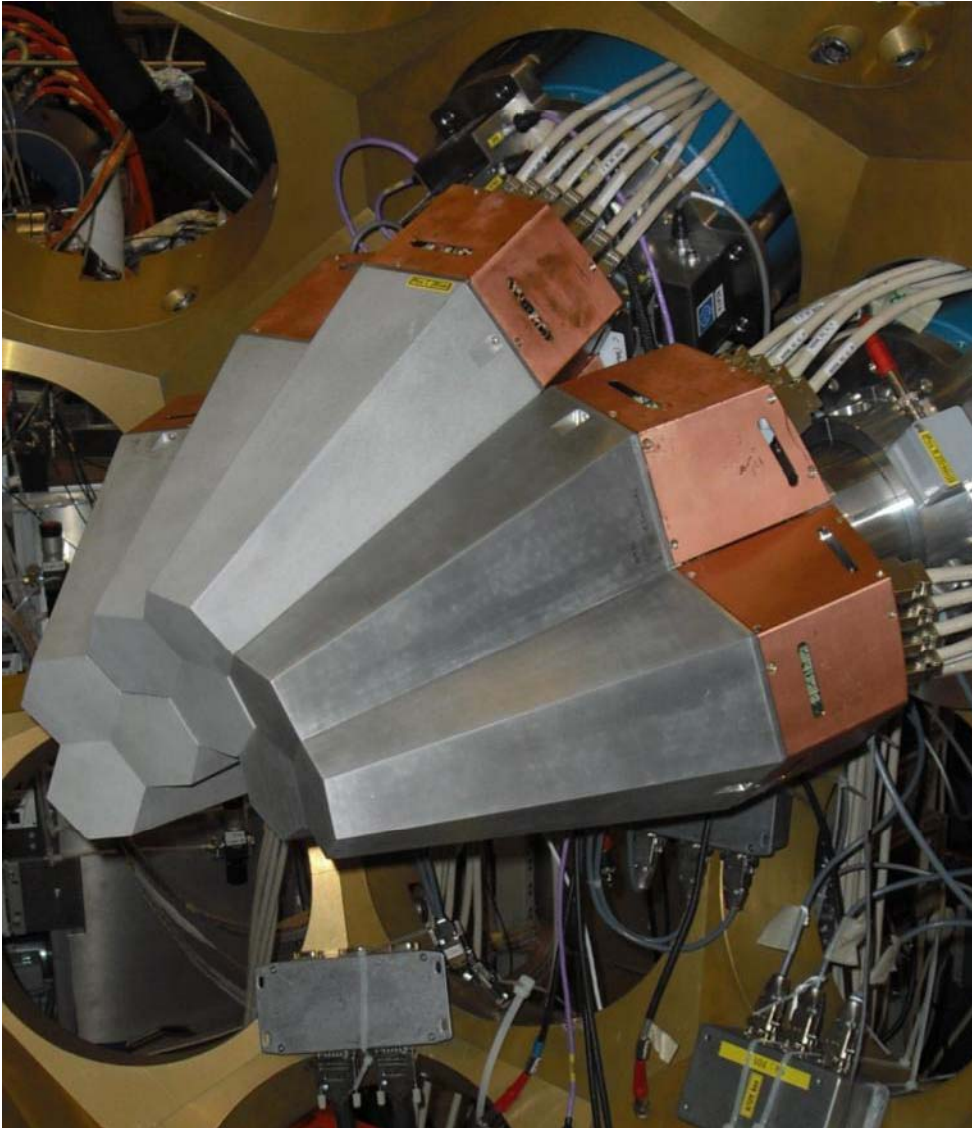
(AGATA@GSI is part of PRESPEC) + Local organisers:

Status One year ago ...



- Only ATC1 available
- Autofill system
- No AXIS power supplies
- Digitizers available
- Preprocessing partially available
- Narval
- No user-friendly interfaces

Today January



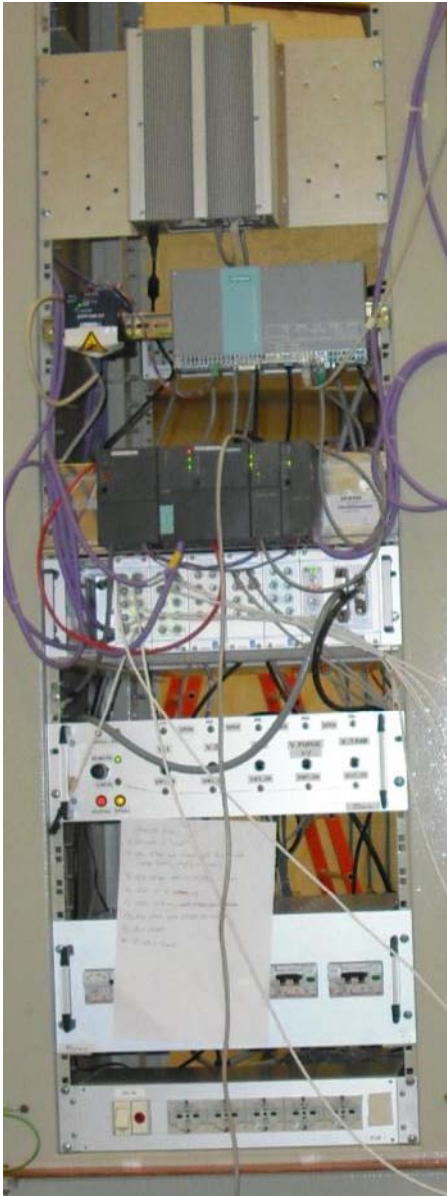
- Three detectors
- Autofill system
- AXIS power supplies
- Digitizers
- Preprocessing
- GTS tree
- AGAVA
- Narval
- Almost user-friendly interfaces

The detectors



- ATC1@LNL since Jul08, mounted Dec08
- ATC2@LNL since Jul09, mounted Jul09
- ATC3@LNL since Dec09, mounted Dec09
- Good energy resolution
- ATC4 from April 2010

Autofill system



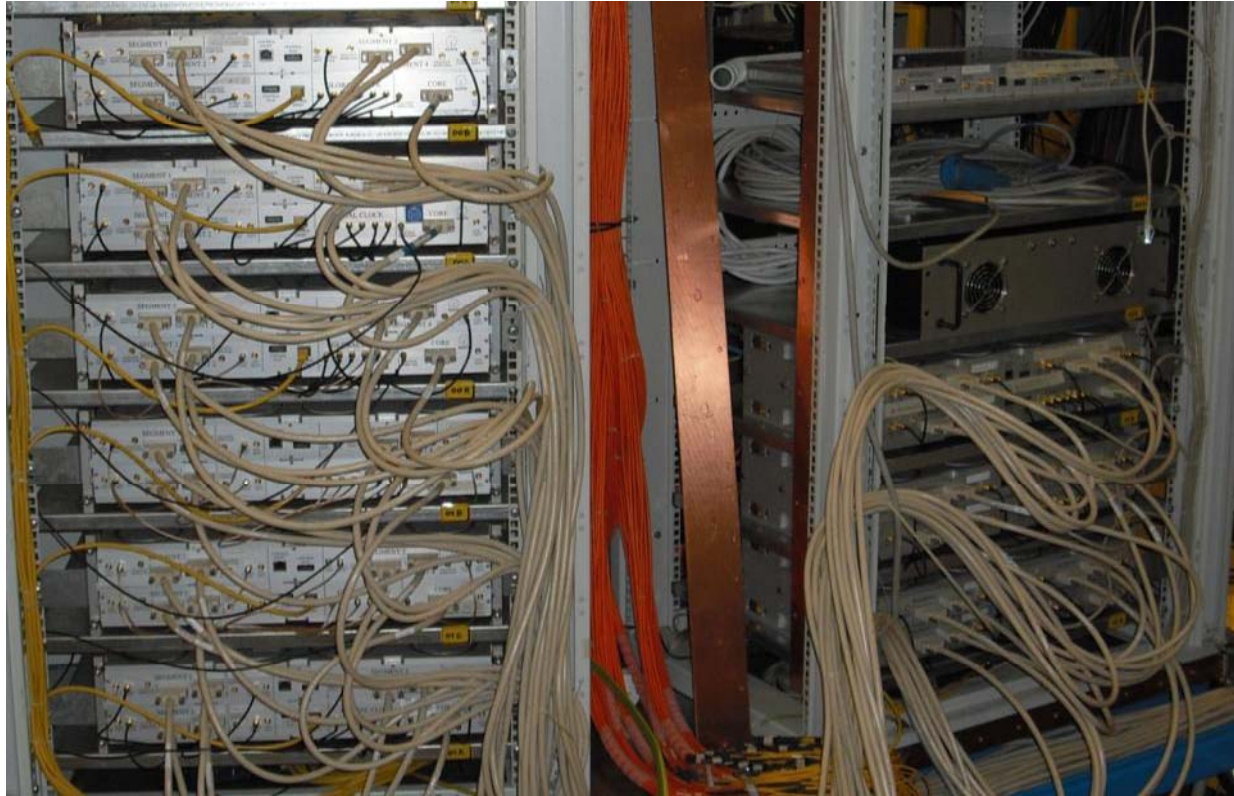
- Autofill in reliable operation since Dec08
- Only problem so far (human mistake triggered by GUI bug) lead to accidental warmup of ATC1 and ATC2 in Nov09

Power supplies



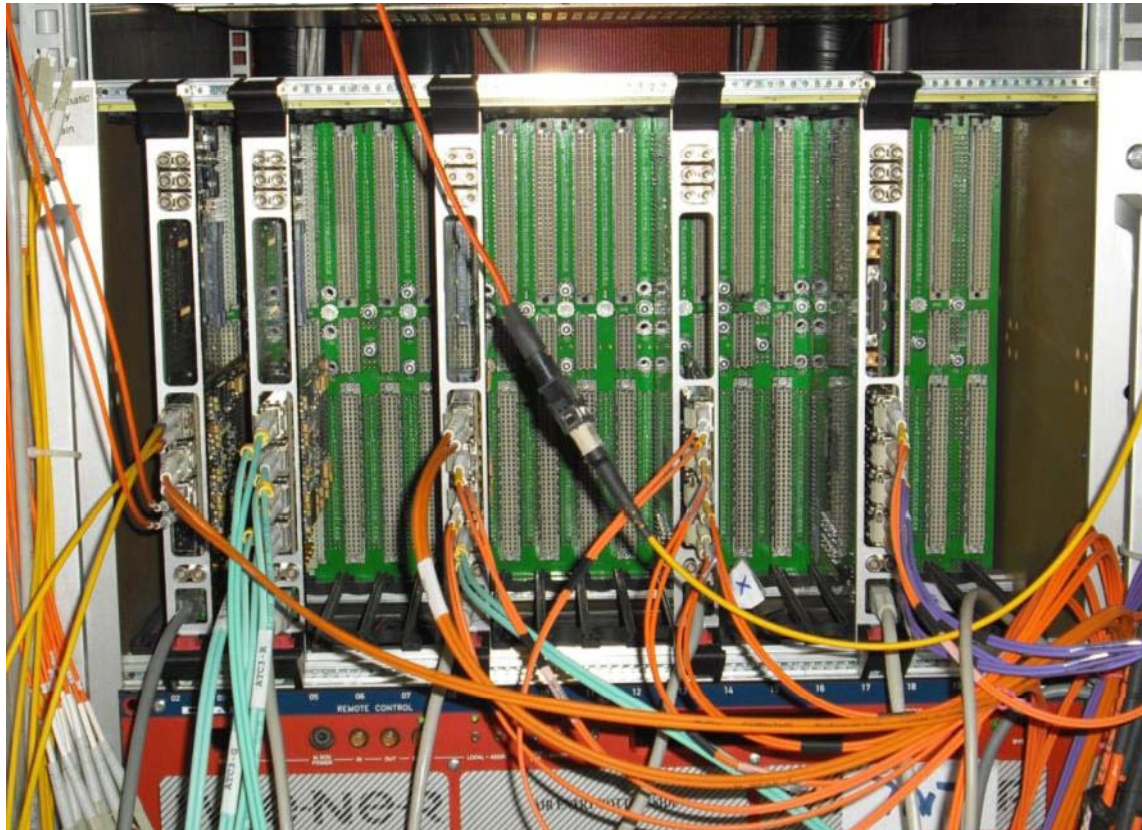
- First AXIS power supply installed Feb09
- Second AXIS power supply installed Sep09
- Other three power supplies installed between Nov09 and Dec09

Digitizers



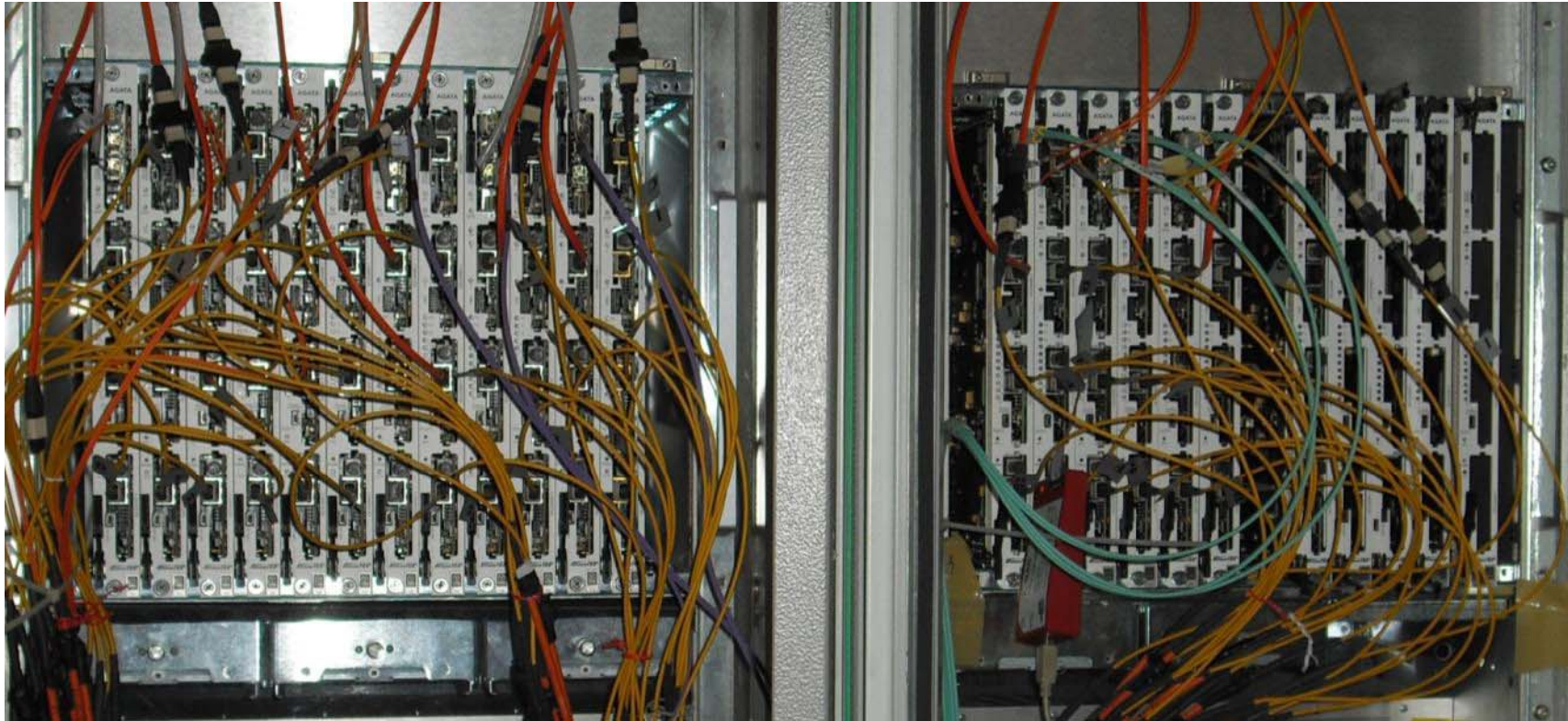
- 9 digitizers installed
- Prototype available
- 1 extra digitizer just delivered

GTS



- 14 (+1) mezzanines in use
- Other mezzanines already produced, under test
- GTS tree capable of handling the whole Demonstrator

Preprocessing



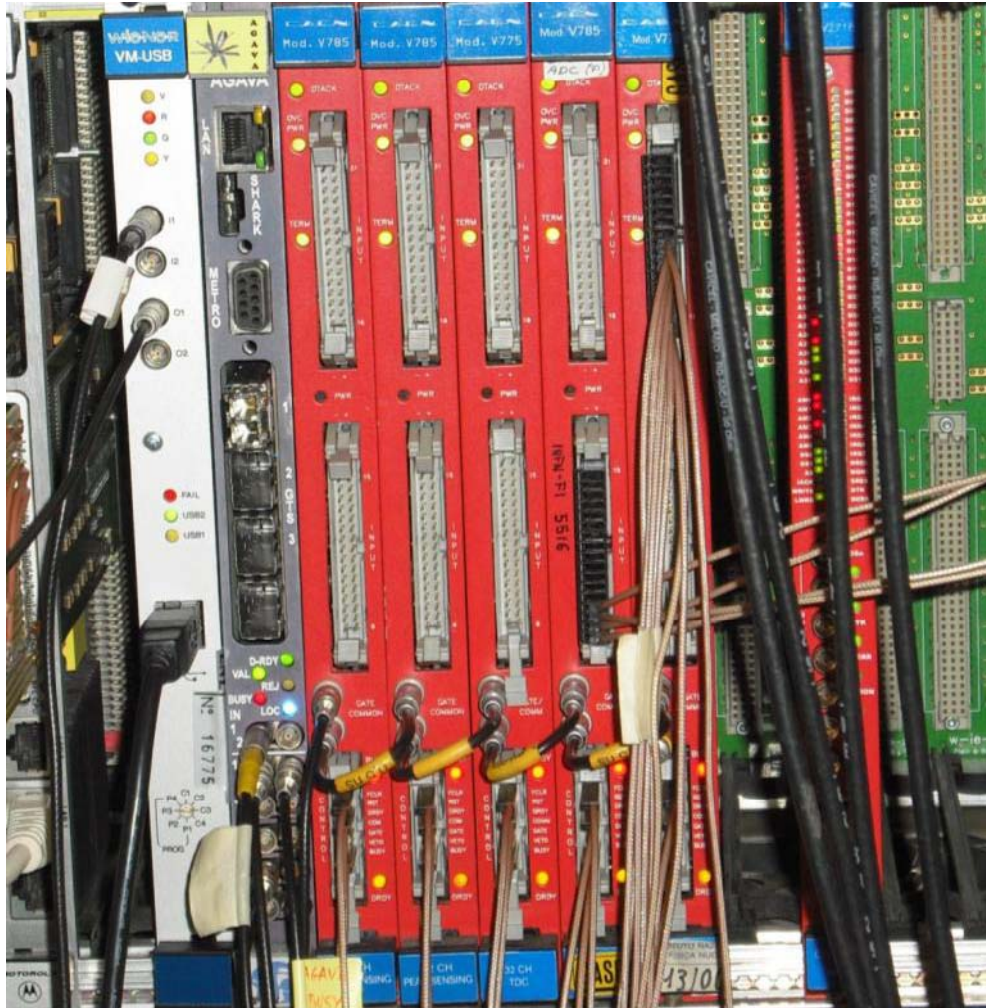
- 17 carriers, 69 mezzanines, 14 TCLK, 18 Linco available
- Huge improvements with slow control!

Computing farm



- 26 pizza boxes
- Almost 108TB storage space
- Narval running for on-line and off-line data analysis (PSA, tracking, ...)

Ancillary detectors



- The AGAVA interface has been commissioned and used in-beam

General schedule of the AGATA@LNL

- 2008, second half
 - Commissioning of infrastructure (PSU, DSS, ...)
 - Installation of first detector(s)
 - Commissioning of electronics and DAQ with one triple cluster using radioactive sources
- 2009
 - Installation of remaining detectors
 - Series production of electronics
 - Commissioning with at least 3 triple clusters
 - Coupling to PRISMA and other ancillary detectors
 - First in-beam experiments
- 2010
 - Experimental campaign using the PIAVE+ALPI beams

The Commissioning runs

- Week 12: $^{30}\text{Si}@70\text{MeV}+^{12}\text{C}$ fusion-evaporation, AGATA only
 - Solved issues with software and detector positioning
- Week 27: $^{56}\text{Fe}@220\text{MeV}+^{197}\text{Au}$ Coulomb excitation, AGATA+DANTE
 - Optimisation of the signal basis
- Week 43: $^{32}\text{S}@130\text{MeV}+^{110}\text{Pd}$ fusion-evaporation
 - First in-beam test with AGAVA
 - High-multiplicity events
- Weeks 46 and 49: $^{58}\text{Ni}@235\text{MeV}$ ^{96}Zr multi-nucleon transfer, AGATA+PRISMA
 - Optimisation of the software and DAQ setup

Physics campaign started

- 18/2/2010
- First official physics experiment
- Beam on target
- Three triple clusters
- AGATA plus DANTE
- Coulomb excitation of ^{42}Ca

The near future

- First physics experiment ended this week!!
- Several proposals submitted to LNL PAC
- Meeting 18-19th February
- 6 AGATA proposal approved (1 UK spokesperson)
- 187 days requested, 62 approved

UK Contribution

- Project Management (effort)
- Digitizer electronics (effort, capital)
- Mechanical Design (effort, capital)
- Detector characterisation (effort)

Project management: AGATA Organisation

AGATA Steering Committee

Chairperson: P.J. Nolan, Vice Chairperson: B. Cederwall
G.deAngelis, A.Atac, F. Azaiez, D.Balabanski, A. Bracco, D.Bucurescu, B.Cederwall,
J. Gerl, J.Jolie, W.Korten R.Julin, W.Meczynski, **P.M.Walker**

AGATA Management Board

J.Simpson (Project Manager)

D.Bazzacco, G.Duchêne, P. Reiter, A.Gadea, J.Nyberg, Ch. Theisen, E. Farnea

AGATA Working Groups and leaders

Detector module P.Reiter	Front-end Processing D.Bazzacco	Data Acquisition Ch. Theisen	Design and Infrastructure G. Duchêne	Ancillary detectors and integration A.Gadea	Simulation and Data Analysis J.Nyberg
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AGATA Teams

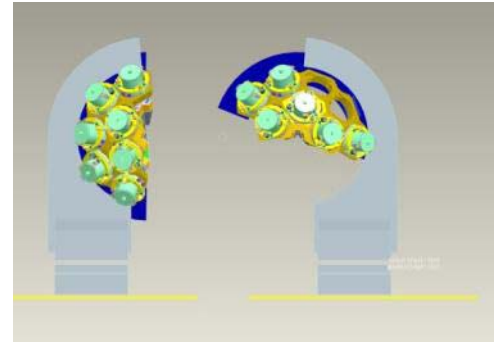
Detector and Cryostat B. Bruyneel	Digitisation P.Medina	Data acquisition X.Grave	Mechanical design J.Strachan	Elec. and DAQ integration P. Bednarczyk	Gamma-ray Tracking A.Lopez-Martens
Preamplifiers A.Pullia	Pre-processing I.Lazarus	Run Control & GUI G.Maron	Infrastructure P.Jones	Devices for key Experiments N.Redon	Physics & exp. simulation E.Farnea
Detector Characterisation A.Boston	Global clock and Trigger M.Bellato		R & D on gamma Detectors D.Curien	Impact on performance M.Palacz	Detector data base K.Hauschild
	PSA R.Gernhaeuser/ P.Desesquelles			Mechanical Integration J. Valiente Dobon	Data analysis O.Stezowski

UK Contribution: Digitizers

- Digitizer electronics (effort, capital)
- Purchase and production of existing digitizers for GSI phase
- 3 contract placed INFN-STFC
- 4 to be funded £91k (10/11)
- 4 to be funded £91k (11/12)
- Tender completed, PJN talk
- Commissioning
- Ongoing maintenance
- Digitizer upgrade ? (£70k)



UK Contribution: Mechanics



- Mechanical Design (effort, capital)
- Specification and design
- Schemes produced
- Design of GSI phase (complete by Jan 2011)
- Procurement of GSI mechanics (£50k)
- Assembly at GSI summer 2011
- Design of GANIL phase
- Procurement of GANIL mechanics (£45k)

UK Contribution: Characterisation

- Detector characterisation
- Scanning and understanding (basis sets)
- Only system to characterise so far



AGATA: Economic Impact

- Radiation detectors
- Digital electronics computing
- Expertise, range of skills, training
- Science inspires
- Applications:
 - Medical imaging
 - Homeland Security
 - Environmental monitoring
 - Societal benefits

SmartPET

ProSPECTus

PorGamRays



UK Contribution Managed Withdrawal!

- What does this mean?
- Management
- Digitizers
- Mechanics
- Characterisation
- Capital
- Effort
- Running costs



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THANKS

Planning

Plan for AGATA																							
		2009		2010				2011				2012				2013				2014			
		Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Legnaro																							
	Setup	■																					
	Physics			■				■															
	No. detectors			18-21																			
GSI																							
	Move/Setup								■														
	Physics								■														
	No. detectors								30-36														
GANIL																							
	Move/Setup														■								
	Physics															■				■			
	No. detectors															48-60							