UNIVERSITY OF LIVERPOOL

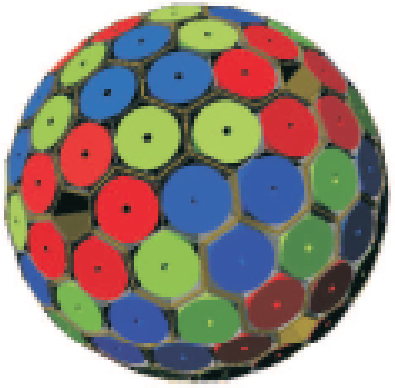
Science & Technology Facilities Council

Overview of Measurements at University of Liverpool

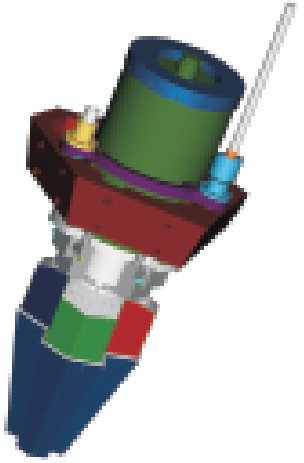
Carl Unsworth

AGATA week

Lyon, October 2010



AGATA
ADVANCED GAMMA TRACKING ARRAY



Overview and Aims

Work at Liverpool is focused on producing characterisation information to feed back to the collaboration to help develop PSA. Measurements include:

· Singles scanning with collimated beam of ^{137}Cs or ^{241}Am gamma rays.

· Coincidence scanning using side collimators and BGO scintillators to identify single site interactions to validate signal basis.

· Singles scanning at low bias to study depletion behaviour and impurity concentration.

· Flood measurements for crosstalk measurements and testing of PSA.

C001: Measurement timescale

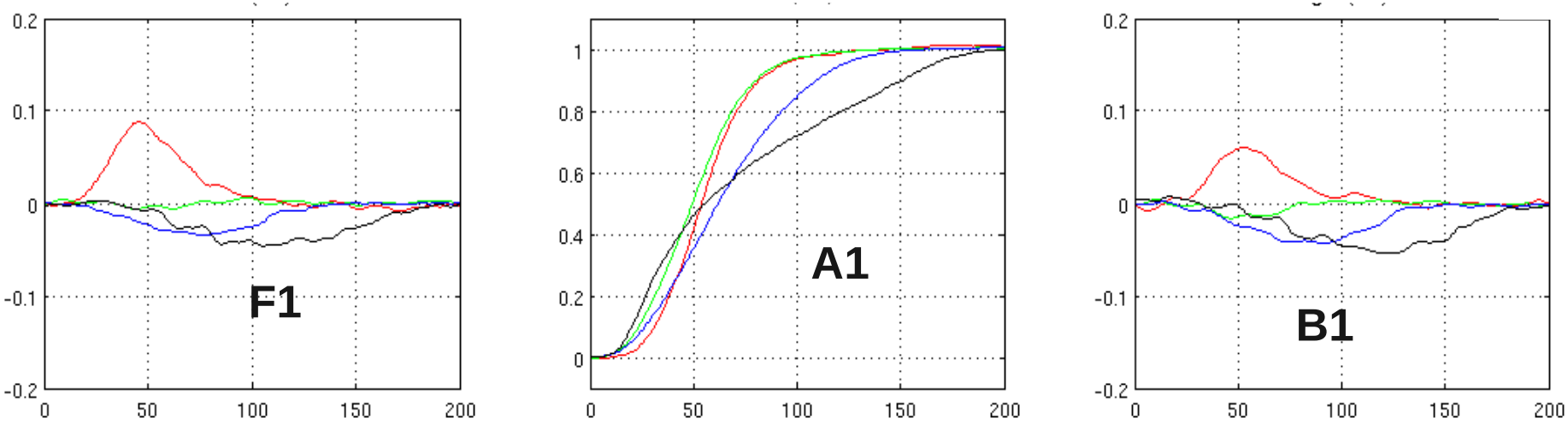
Measurement	Started	Finished
Gain Matching for Core with ORTEC supply	12/9/09	12/9/09
Coincidence Scan with ORTEC HV Supply	13/9/09	3/11/09
Alignment Tests	3/11/09	5/11/09
Plane Illuminated Data	6/11/09	9/11/09
^{137}Cs Side Singles Scan	11/11/09	19/11/09
^{241}Am Side Singles Scan	20/11/09	21/11/09
^{60}Co Flood Measurement for Prop & Diff Xtalk	21/11/09	23/11/09
^{60}Co and ^{241}Am Prop Xtalk Measurement (traces)	23/11/09	25/11/09
^{60}Co and ^{241}Am Prop Xtalk Measurement (no traces)	25/11/09	30/11/09
^{241}Am Front Face Singles Scan	30/11/09	1/12/09

Completed Measurements

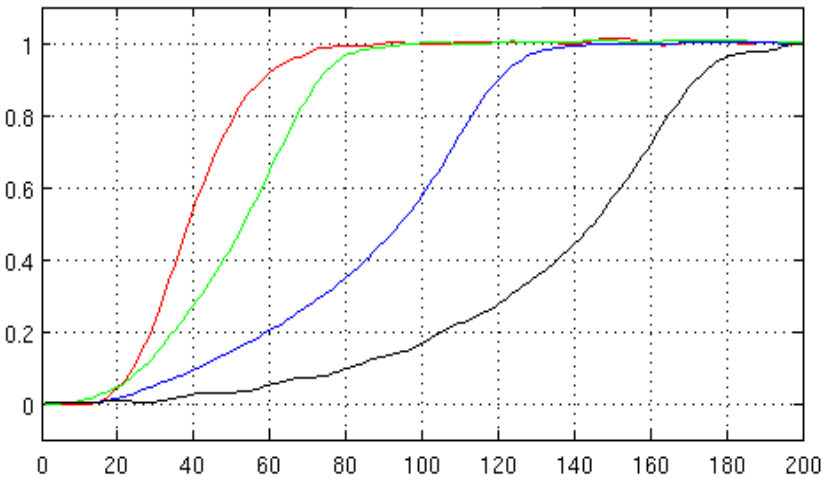
Detector	137Cs Singles Scan	Bias Scan	Coincidence Scan	60Co Flood Measurement
S001	-	NO	-	-
S002	YES	NO	YES	-
S003	YES	NO	YES	-
C001	YES	YES	YES	YES
A004	YES	YES	NO	YES
A006	YES	YES	YES	YES

C001 Mean Response

Single Site Interactions in Segment A1 at z=4mm

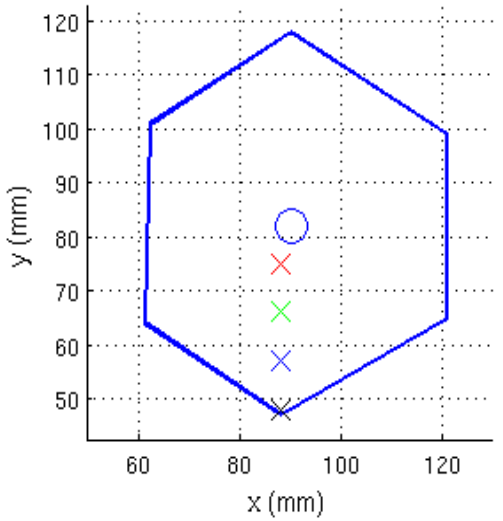


Core



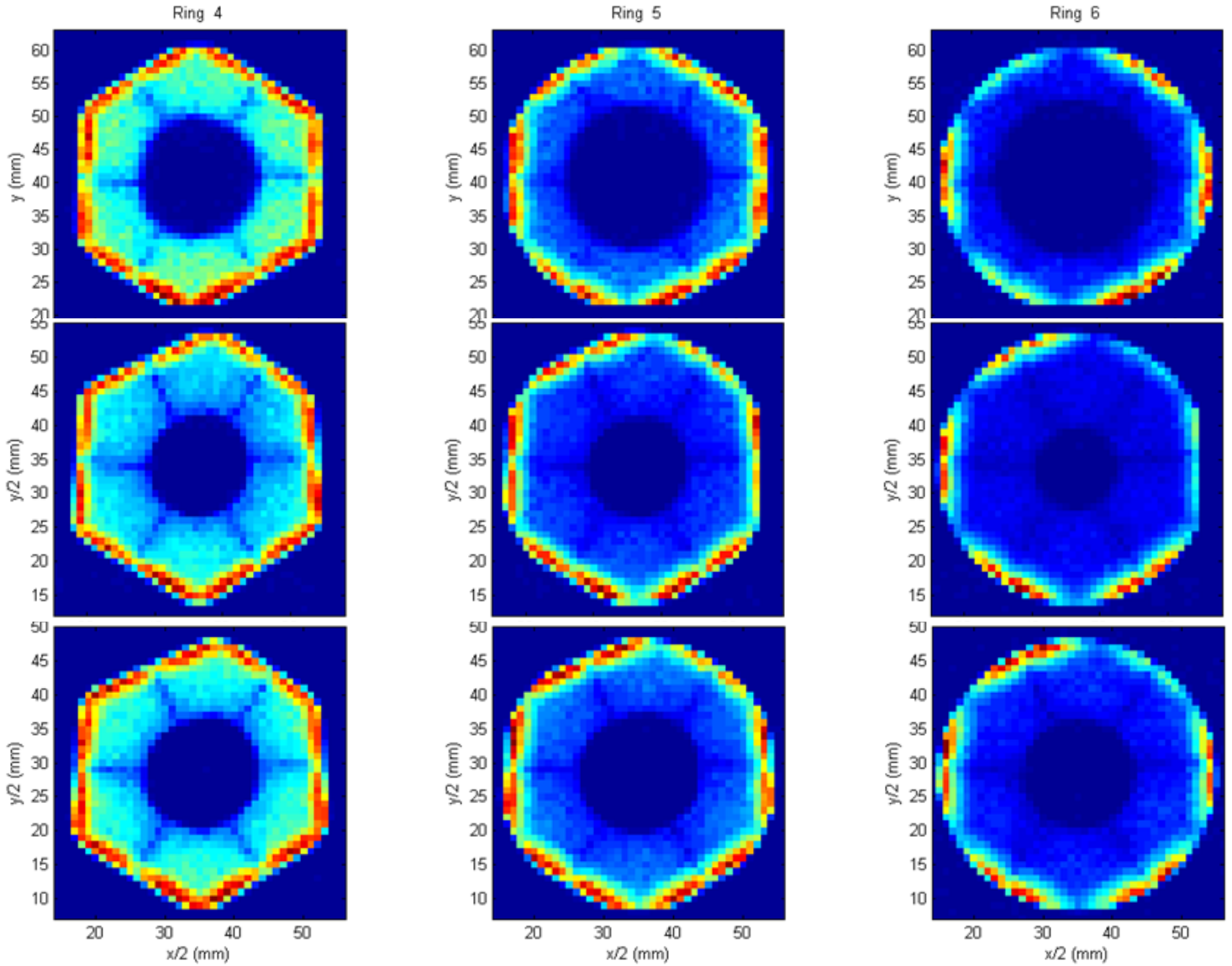
Charge (arb)

Time (2ns)

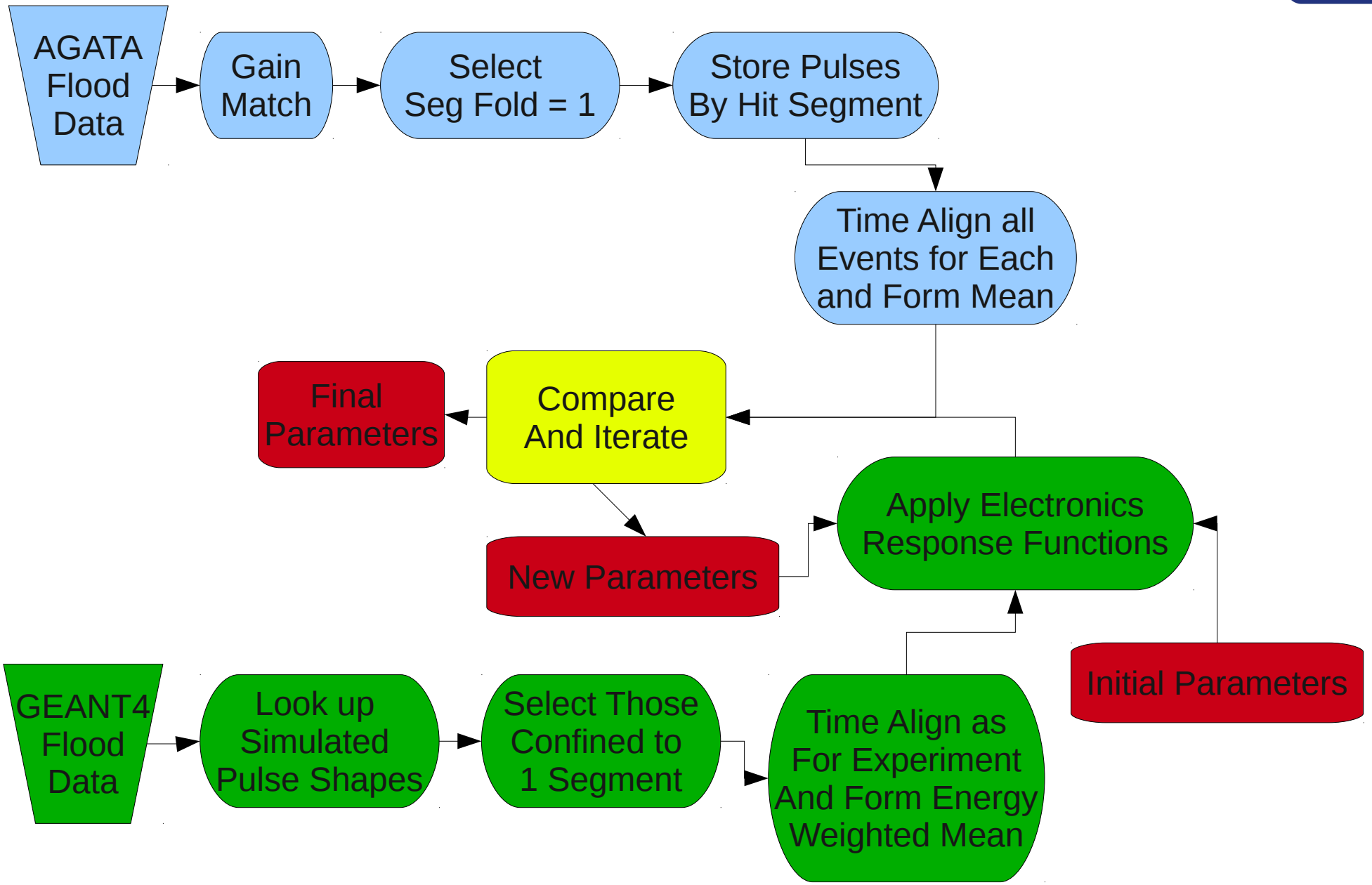


Three Asymmetric detectors at 1500V

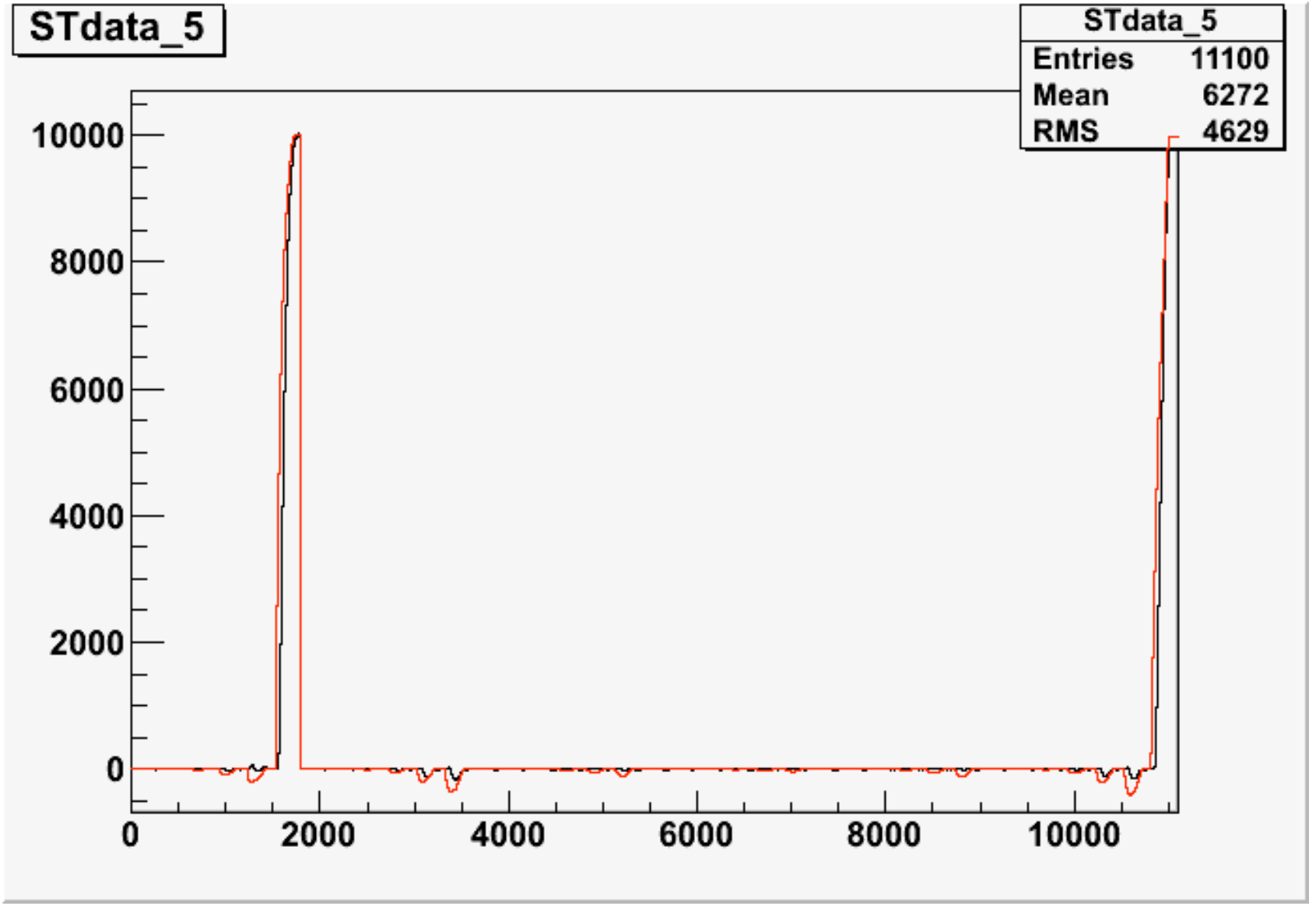
Ring	4	5	6
C001			
A004			
A006			



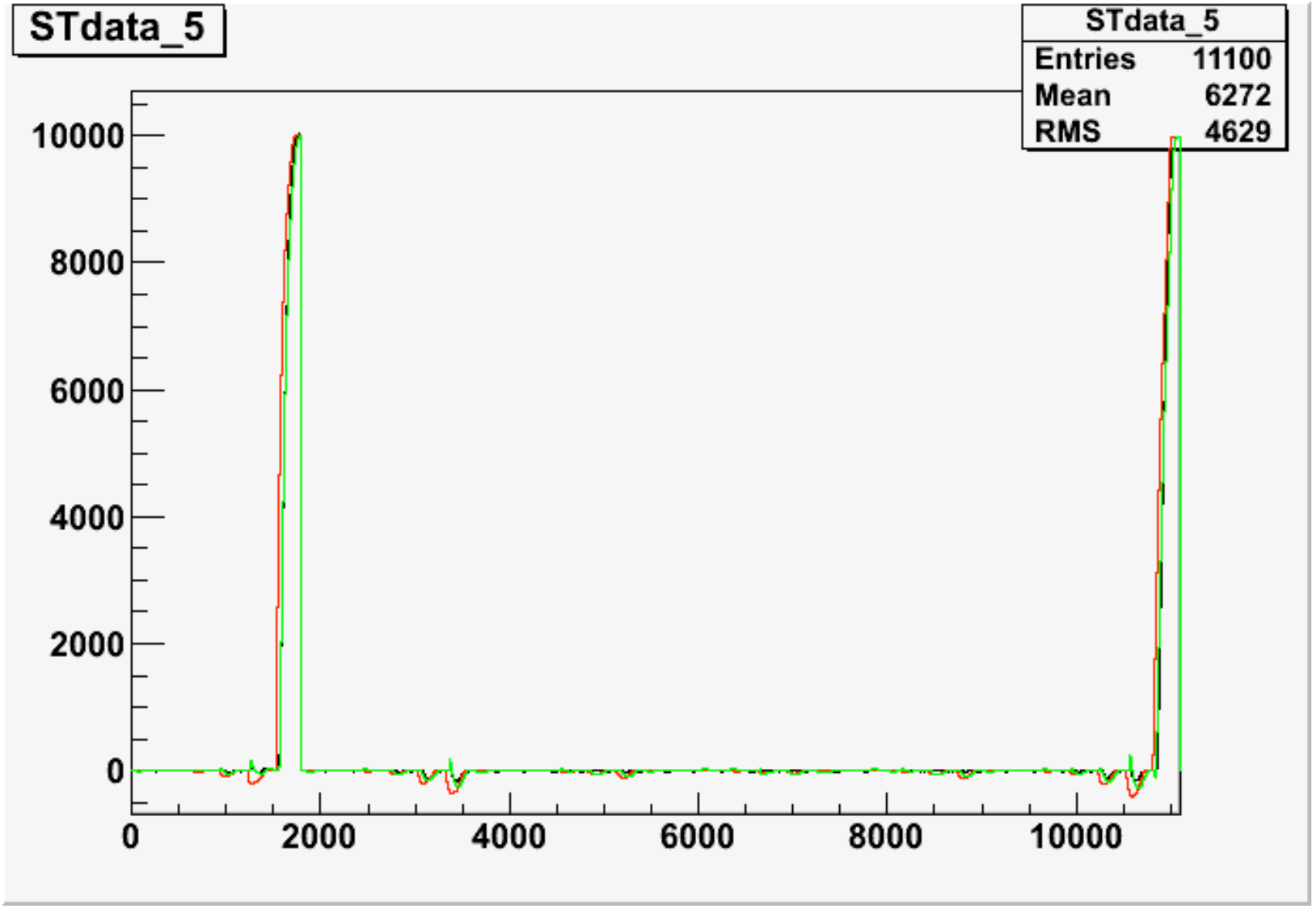
Schematic of GRETINA Crosstalk Method



Schematic of GRETINA Crosstalk Method



Schematic of GRETINA Crosstalk Method



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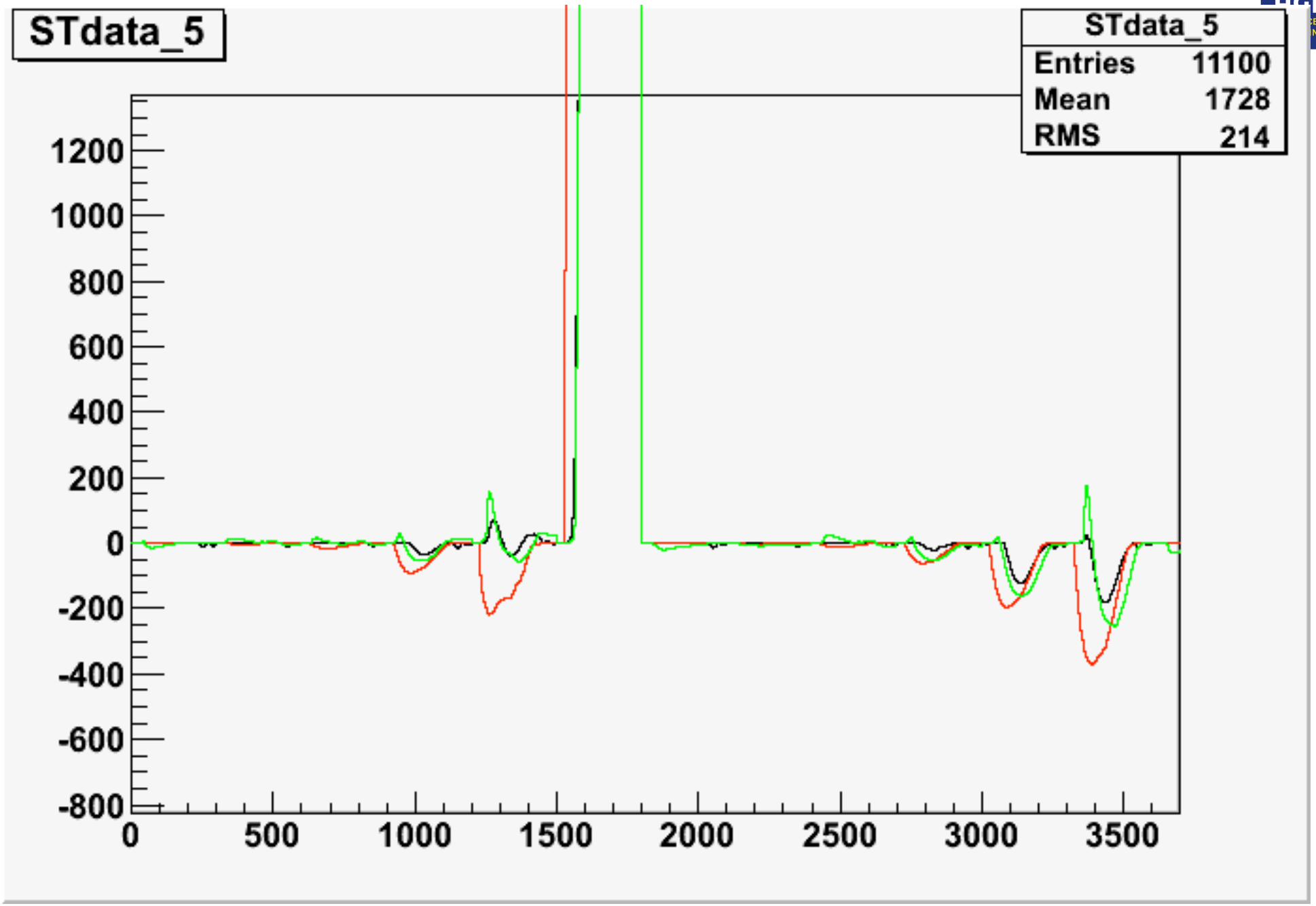

Data Available to Download

Coincidence data:

S001, S002, S003 in MTSort format:

http://ns.ph.liv.ac.uk/imaging-group/projects/agata/scan_data.php

S001, S002, S003 in ROOT format:

http://www.csnsm.in2p3.fr/-Scan-Data-Test-

C001 in ROOT format:

http://npb.ph.man.ac.uk/download/1/agata/

A006 in ROOT format:

Available soon (hopefully next week)

Singles data:

Data sets are too large to host permanently, contact me or Steven Moon if you want to get access.

cu@ns.ph.liv.ac.uk

sm@ns.ph.liv.ac.uk

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http://www.

C001 in RC

http://npb.p

A006 in RC

Available s

NARVAL producer developed by Andrew Robinson to read ROOT format scan data into NARVAL for PSA testing/development.

Contact Andrew for more info:

andrew.paul.robinson@manchester.ac.uk

Singles da

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cu@ns.ph.liv.ac.uk

sm@ns.ph.liv.ac.uk

Thank You

Liverpool and Manchester Collaborators:

Diego Barrientos, Andy Boston, Helen Boston, John Cresswell, Sam Colosimo, Matt Dimmock, Fay Filmer, Steven Moon, Paul Nolan, Mark Norman, Dave Oxley, Andrew Robinson, Mike Slee, Tom Stanios, Carl Unsworth

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