

Update on Gamma-ray imaging work

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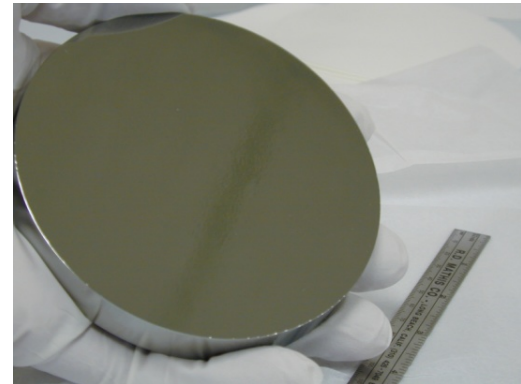
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Overview of presentation

HPGe & CZT for Nuclear Structure Physics & Gamma-ray imaging applications:

- Nuclear Physics: AGATA
- Medical Imaging: SmartPET/ProSPECTus
- Environmental/Decommissioning: PorGamRayS
- Explosives/Drugs: Distinguish (Ge/CsI)
- Hostile environment: GammaKEV

- Energies 60 keV \rightarrow 10 MeV



- Coincidence analysis of the SmartPET detector has been completed and analysis is in progress.
- A theoretical basis comparison and the further comparison with the KTH planar work is in progress.
- Optimising of Compton imaging algorithms with Geant (inc Doppler) and experimental results in progress.

ProSPECTus

Next generation Single Photon Emission
Computed Tomography

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University NHS Trust, CCO NHS Foundation Trust



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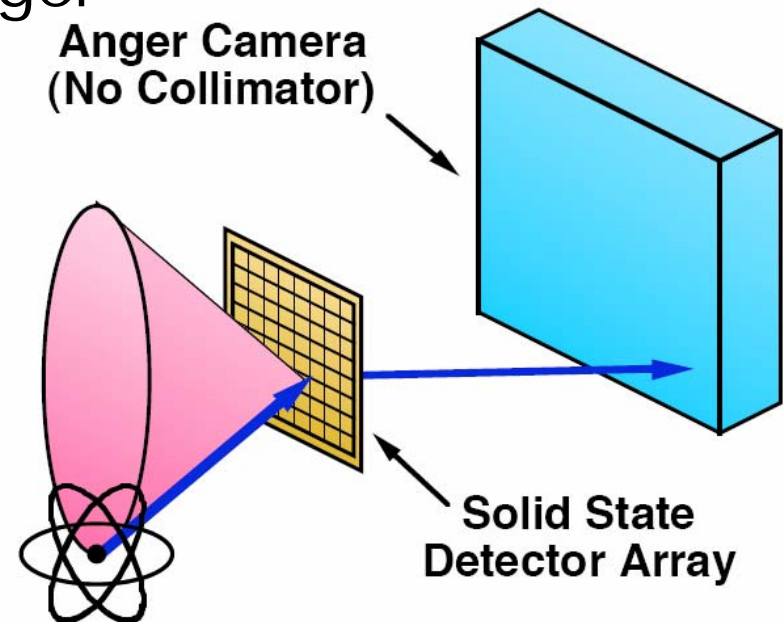


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ProSPECTus: What is new?

ProSPECTus is a Compton Imager

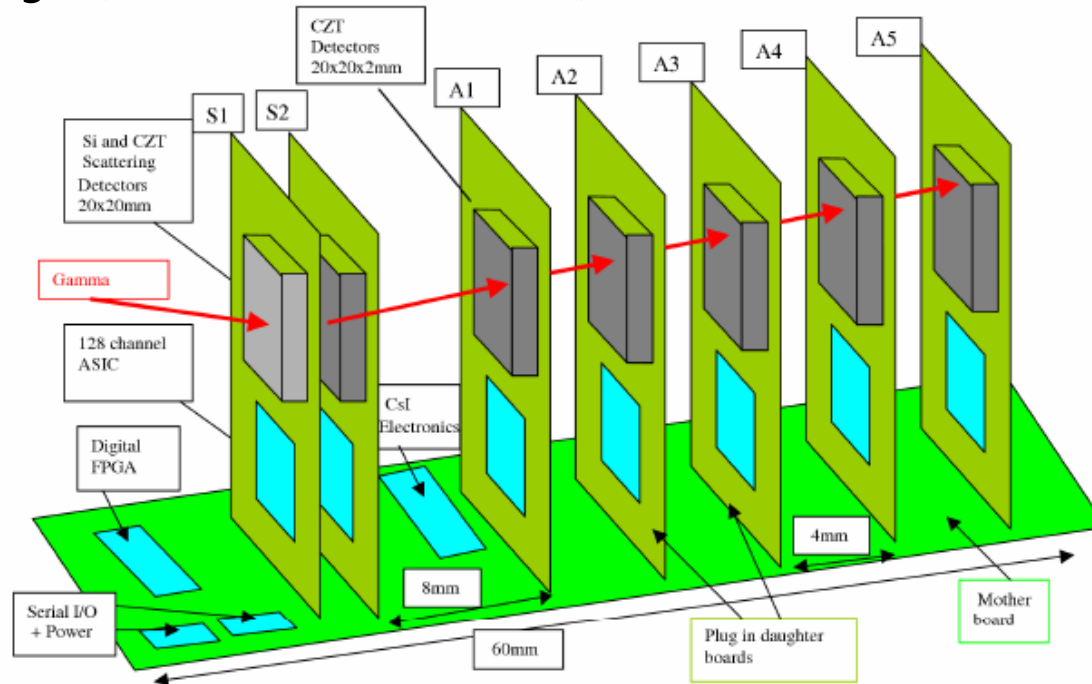
- Radical change → No mechanical collimator
- Utilising Si + CZT semiconductor sensors
- Pixellated technology and existing ASIC
- Position resolution 7-10mm → 2-3mm
- Sensitivity factor ~100 larger
- Simultaneous SPECT/MRI





PorGamRayS

The PorGamRayS project is developing a portable gamma-ray spectrometer with Compton imaging capability (60keV – 2MeV)

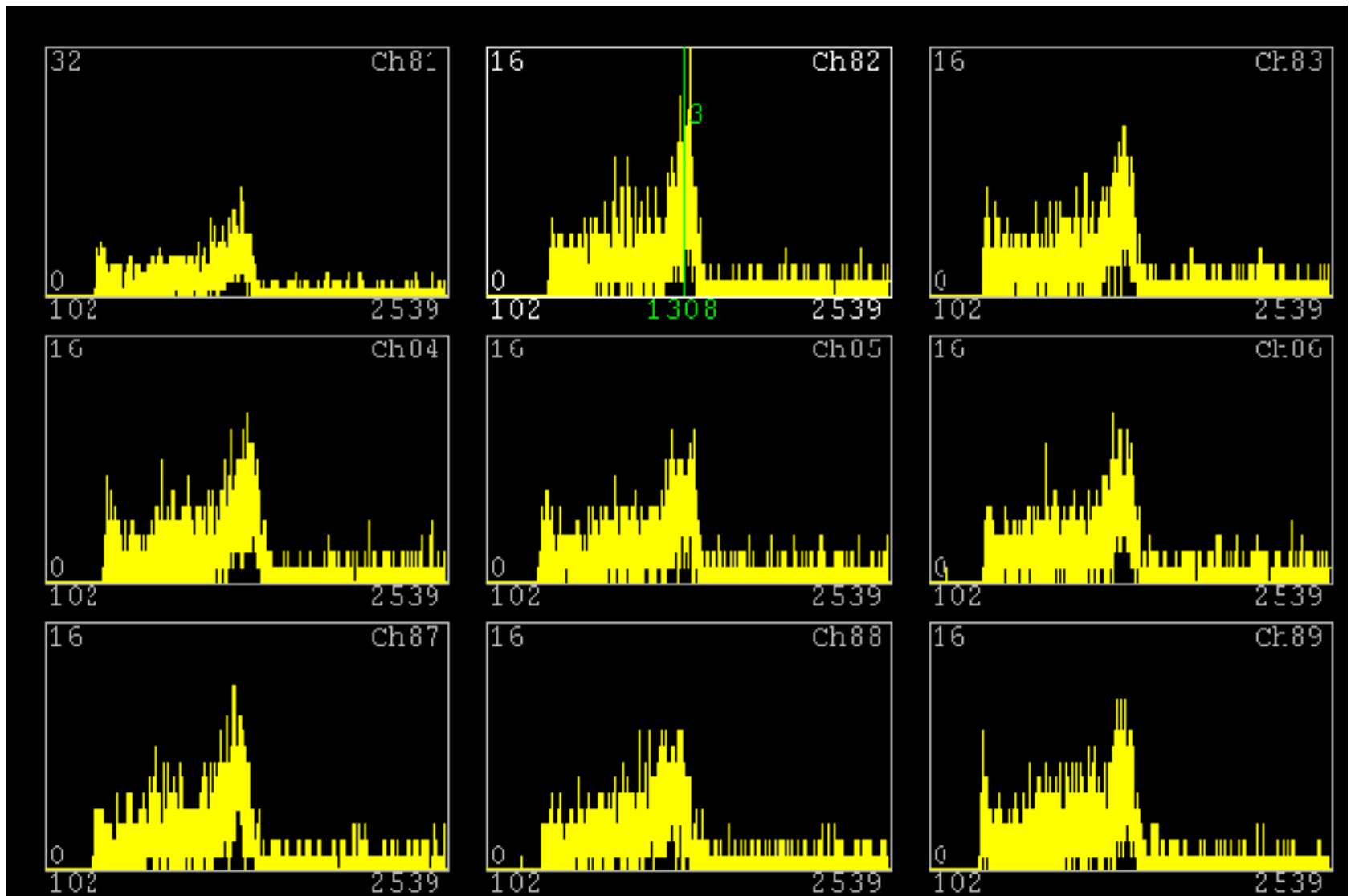


Gamma-ray spectroscopy/imaging with CZT detectors. **Pulse Shape Analysis** to refine spatial resolution and correct charge collection issues

CZT + Nucam2



CZT + Nucam2 response



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