Polarization capabilities

^{133}Ba source data analysis:

- analysis of 160.6 keV γ–ray $(5/2^+ \rightarrow 7/2^+)$ by gating on 276 keV $(1/2^+ \rightarrow 5/2^+)$;
- 302.9 keV γ–ray $(3/2^+ \rightarrow 5/2^+)$ by gating on 53 keV $(1/2^+ \rightarrow 3/2^+)$

Introduction: first test @ LNL

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Special Article – Tools for Experiment and Theory

Analyzing power of AGATA triple clusters for gamma-ray linear polarization

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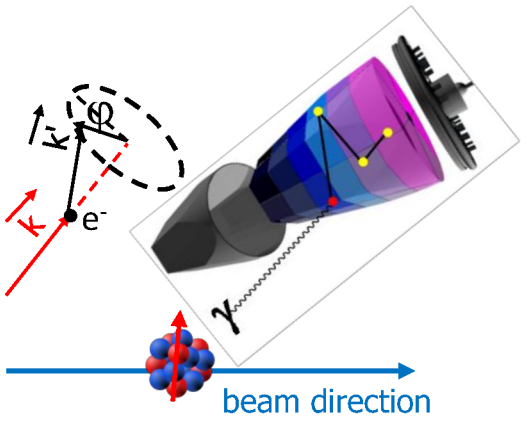
AGATA as Compton polarimeter

Compton scattering is sensitive to γ linear polarization
→parity of nuclear excited states.
Use second interaction point.



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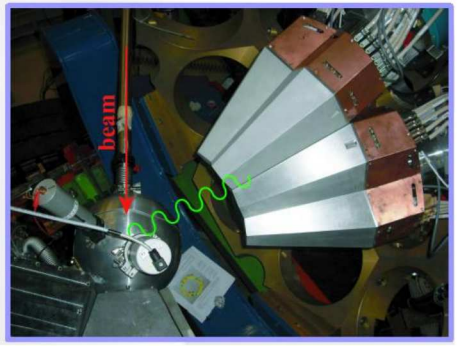
Test: 2 AGATA triple clusters (Demonstrator at LNL)
Partially polarized γ rays from the CoulEx of ^{104}Pd (555.8 keV) and ^{108}Pd (443.9 keV)



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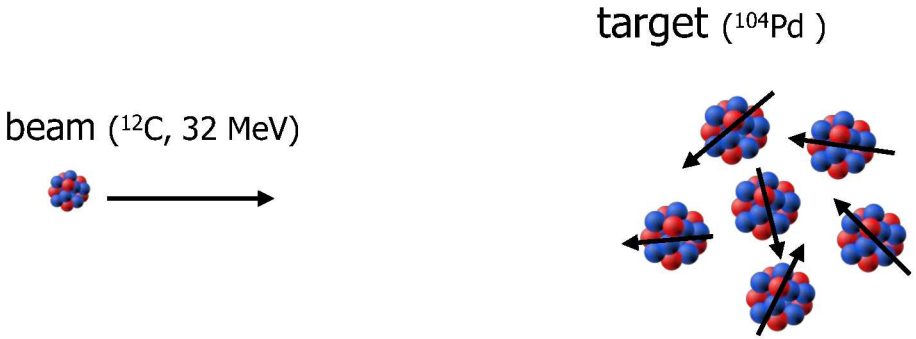

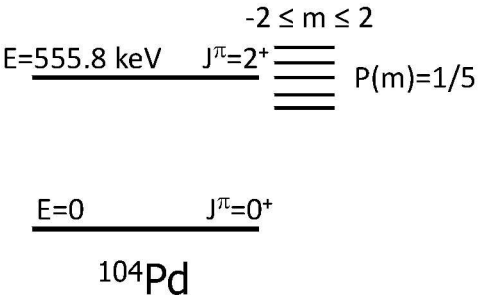

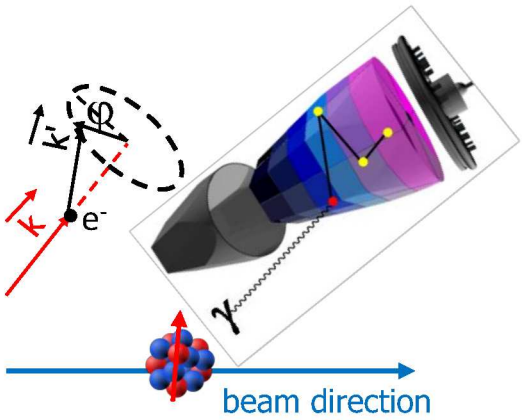

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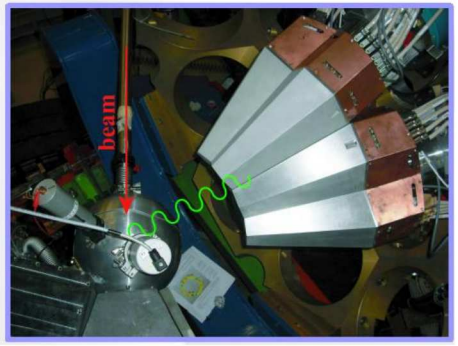

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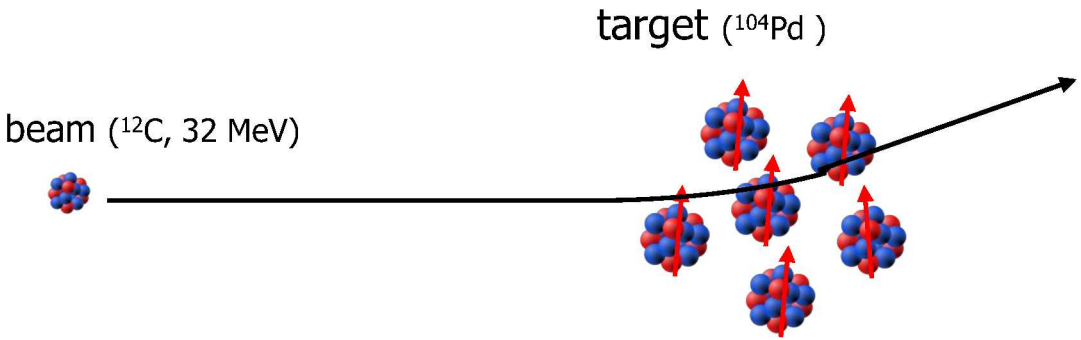

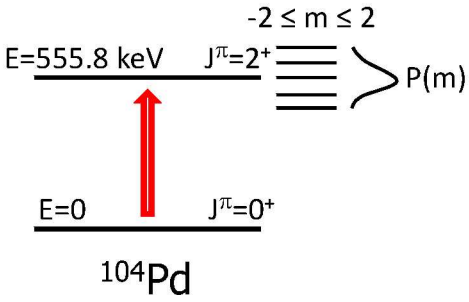

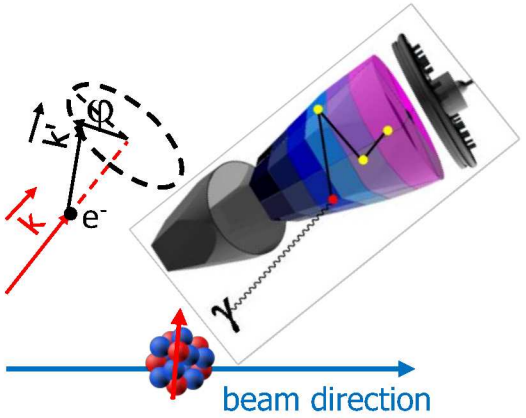

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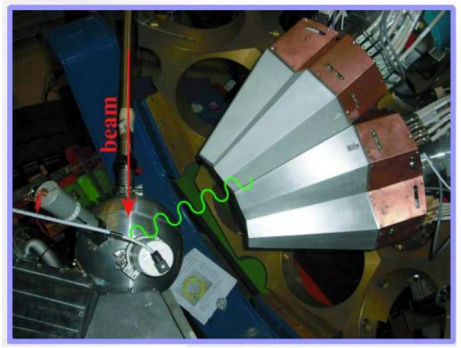

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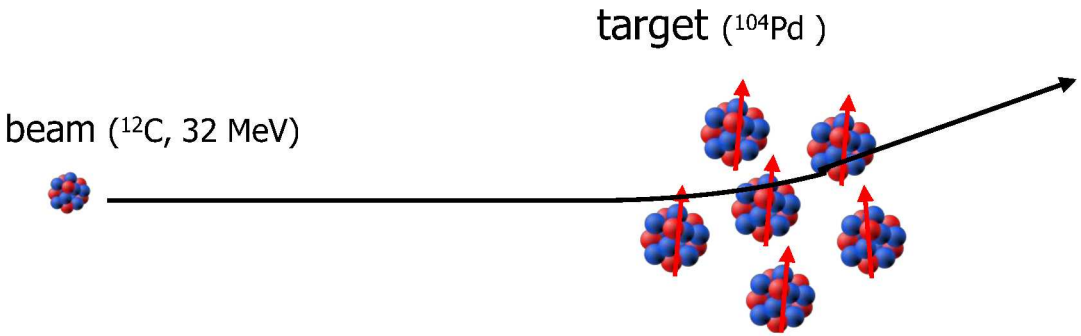
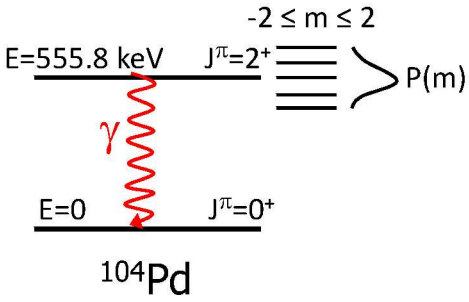
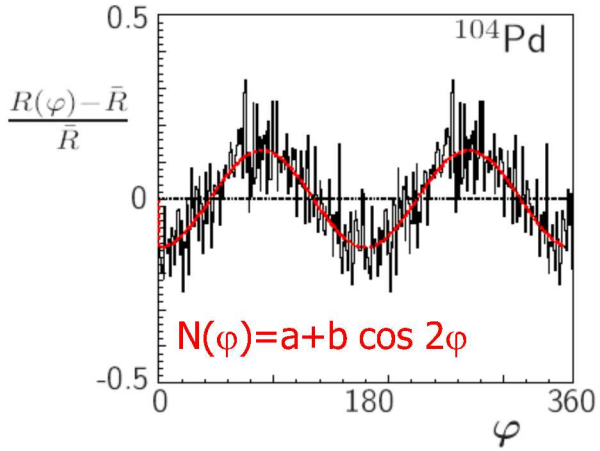
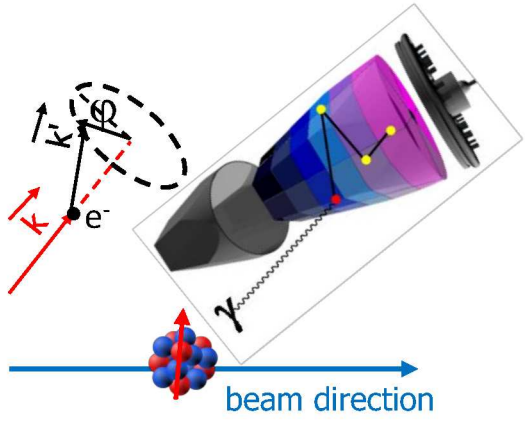




continuous distribution

analysing power two times larger
than standard arrays





^{133}Ba run @ GANIL

- AGATA in compact configuration ($90 < \theta_\gamma < 170 deg$)
- $\approx$ 1kHz per crystal for 12h
- $\approx$ 2000 161 keV-276 keV $\gamma - \gamma$ coincidences*
- $\approx$ 500 53 keV-303 keV $\gamma - \gamma$ coincidences*

* *when not applying analysis cuts, after tracking*

^{133}Ba run @ GANIL (preliminary)

53 keV-303 keV analysis, $r_{12} < 6mm$