Monte-Carlo Simulations for AGATA@Ganil using the AGATA geant4 code

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June 25, 2014

What was I thinking submitting this abstract?

- A lot of work being done
- Can profit other collaborations
- Might not be published but should(?) be known

What will I talk about?

- Simulations to prepare proposals
- Simulations to create “toy” data sets
- Efficiency simulations

Can I perform experiment X with AGATA@GANIL?

Proposals beyond "$I * N * \sigma * \epsilon * t$"

1. Find a representative experiment already performed
2. Simulate it in a realistic fashion
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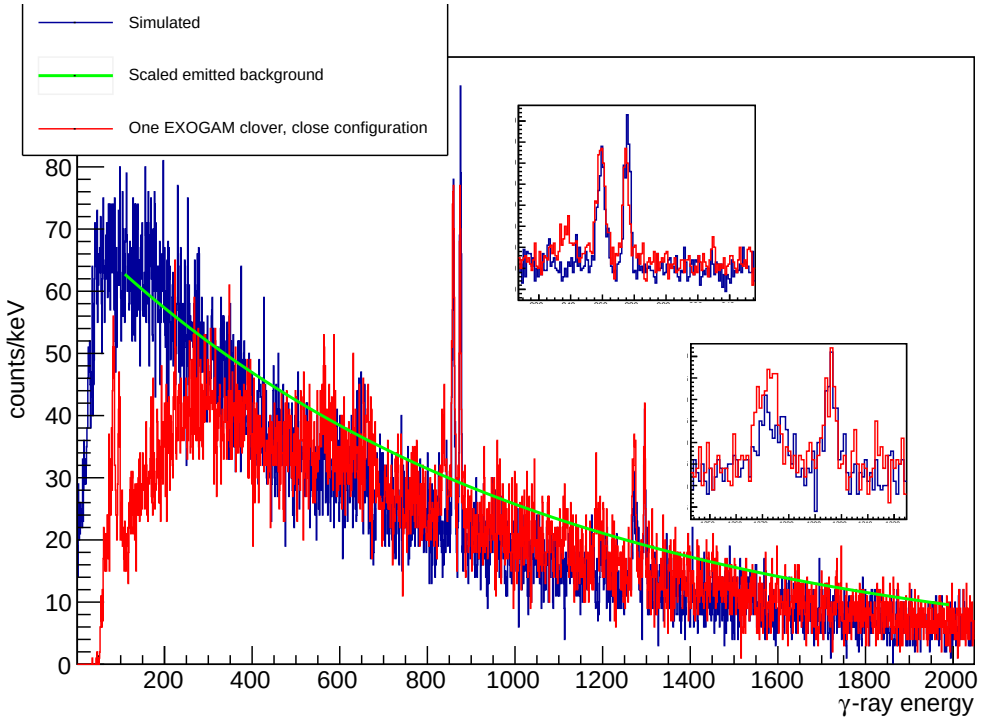

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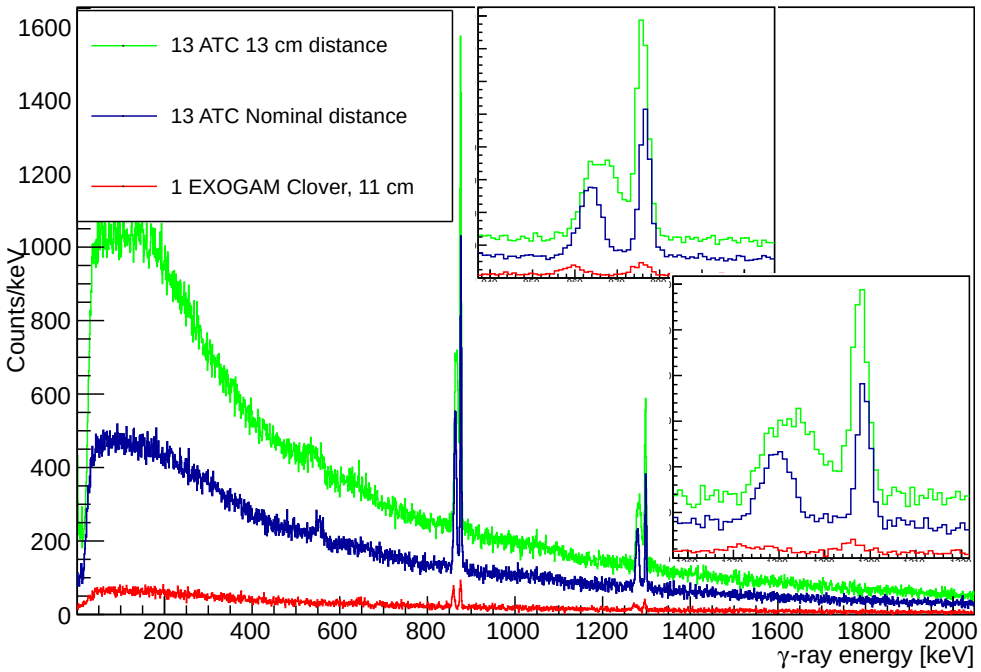

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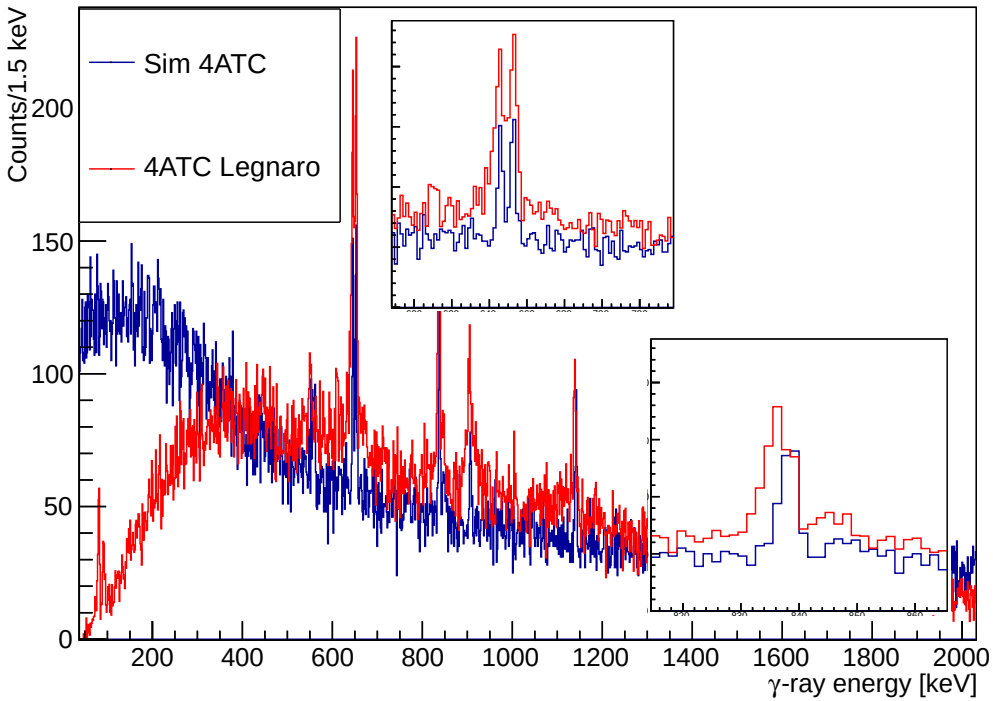

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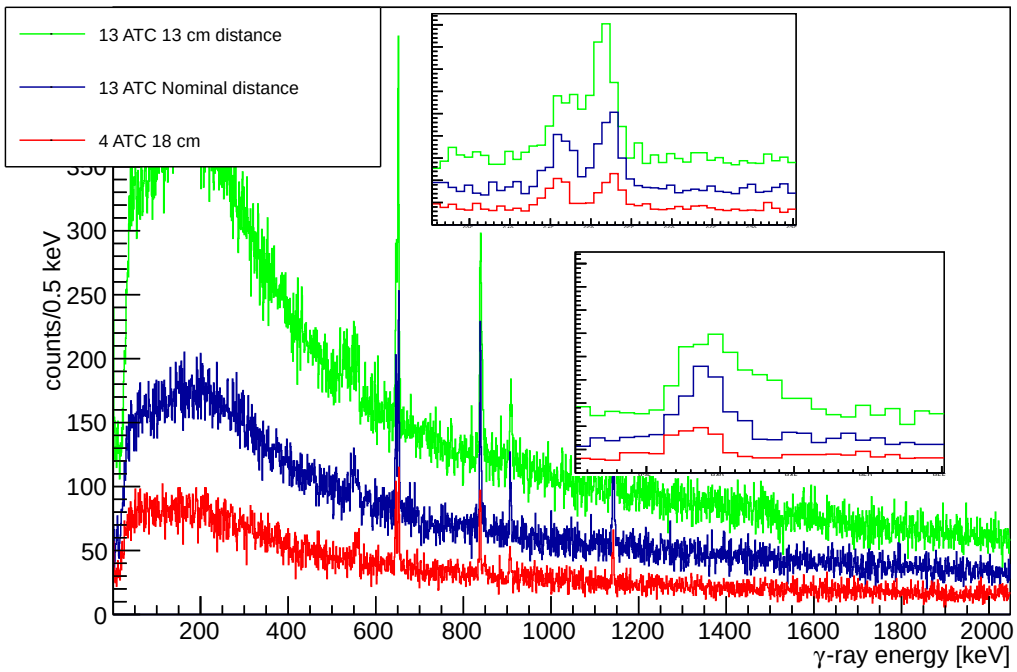

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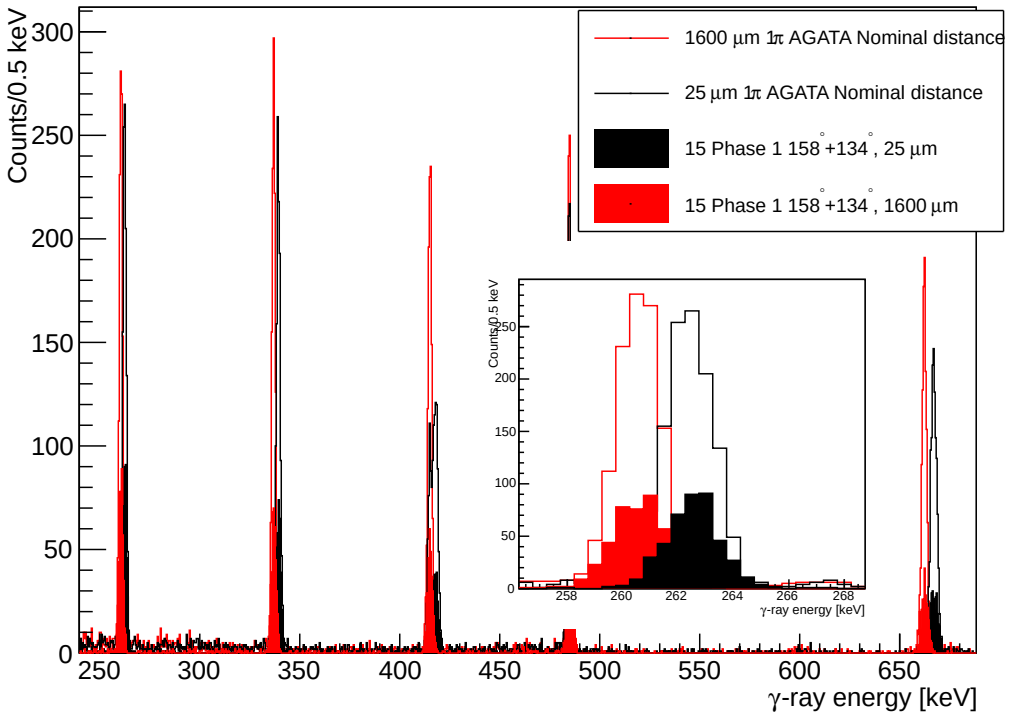
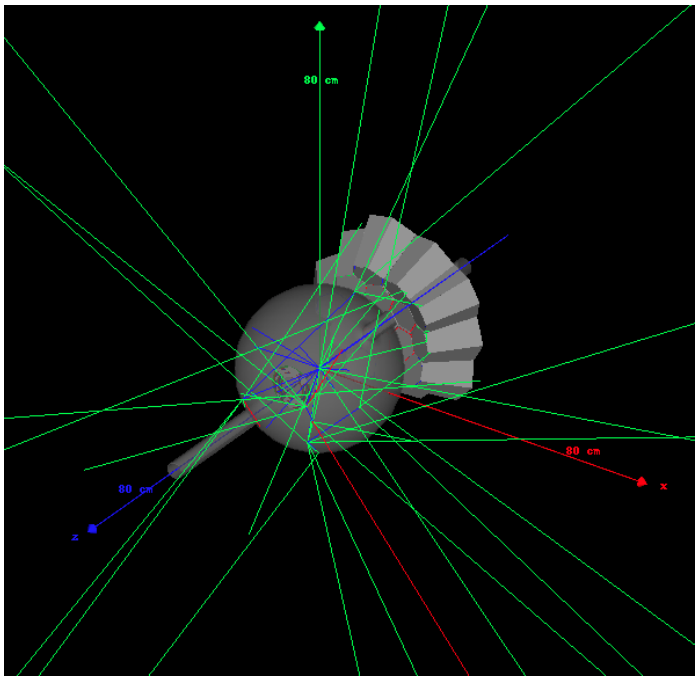


"Toy" data sets to prepare oneself



- Coulex ^{74}Kr, 10^4 pps, Pb target
- 2^+ and 4^+ populated (1-5 b)
- Kr and Pb detected in DSSD

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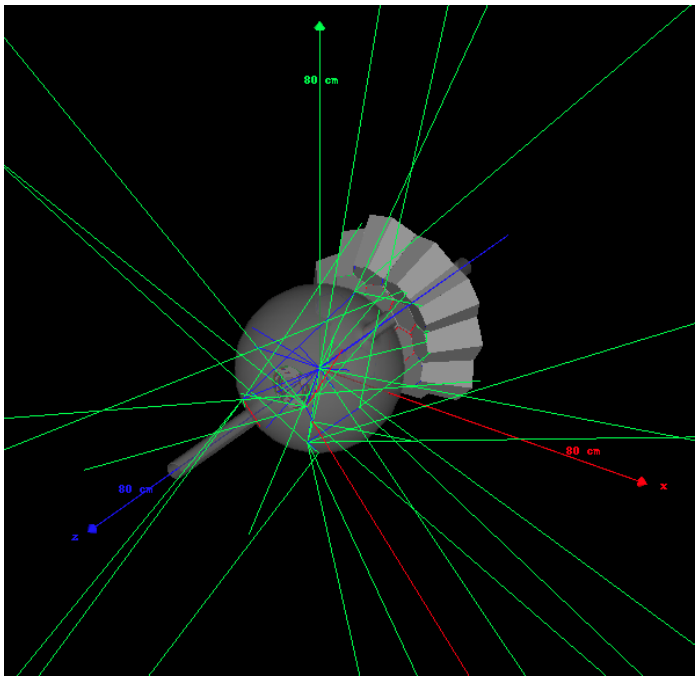


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     bool transformtocrystal=true,bool
    addres=true,
     Double_t timegate = 10,
     /*micros, summing in a det, if Dt
    larger, considered as new
       event*/
     std::string particleid = "-1"
     /* particle to look for when
    checking event time*/)

{
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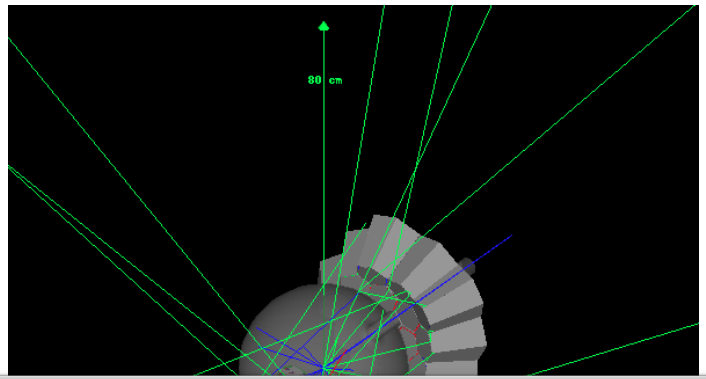


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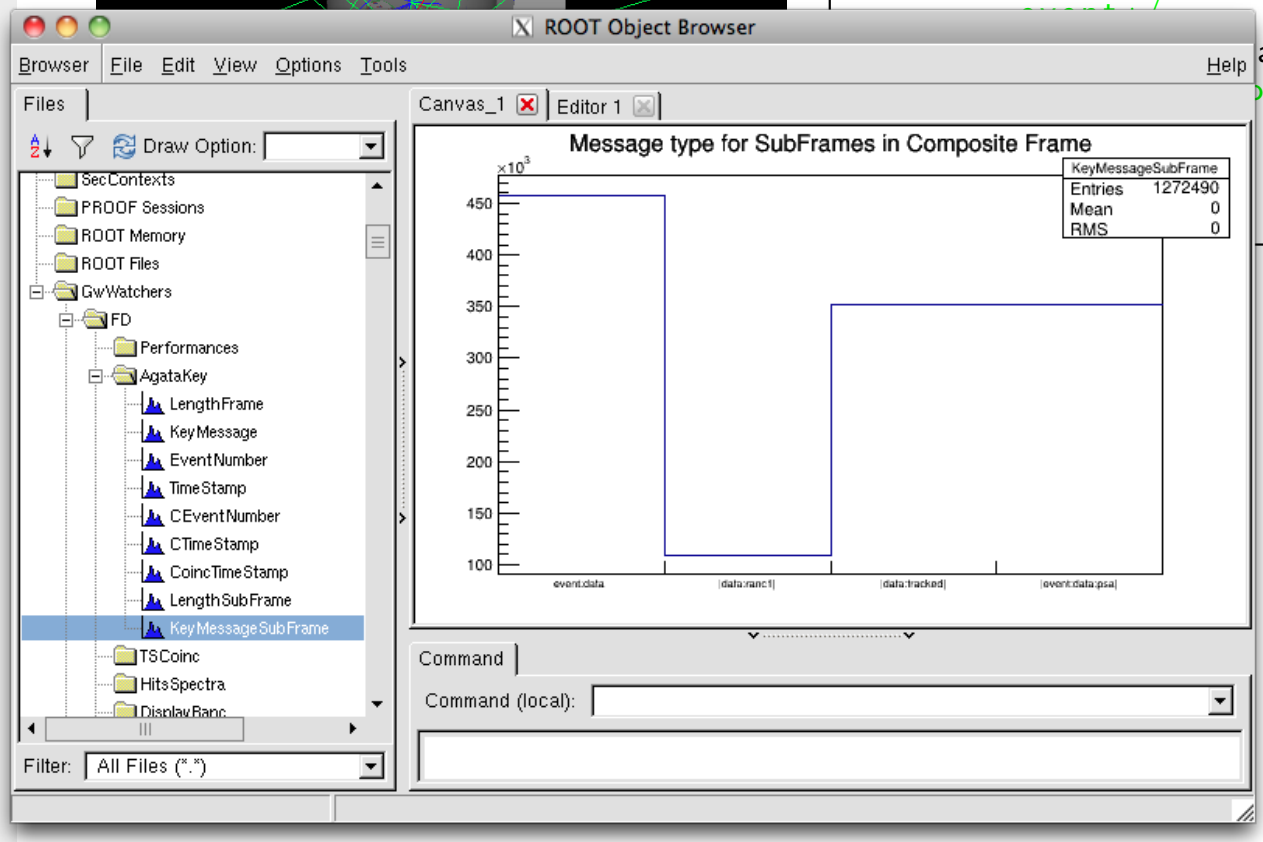

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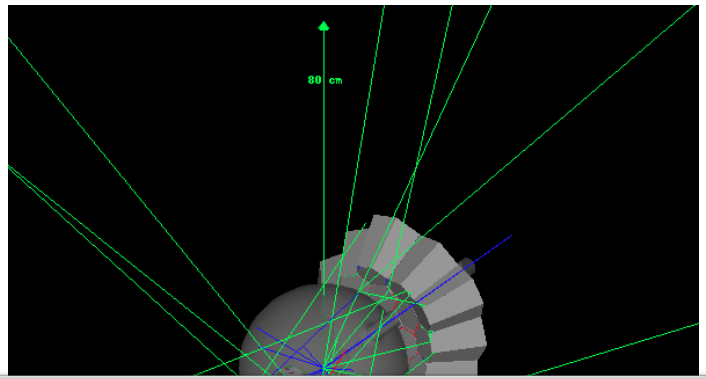


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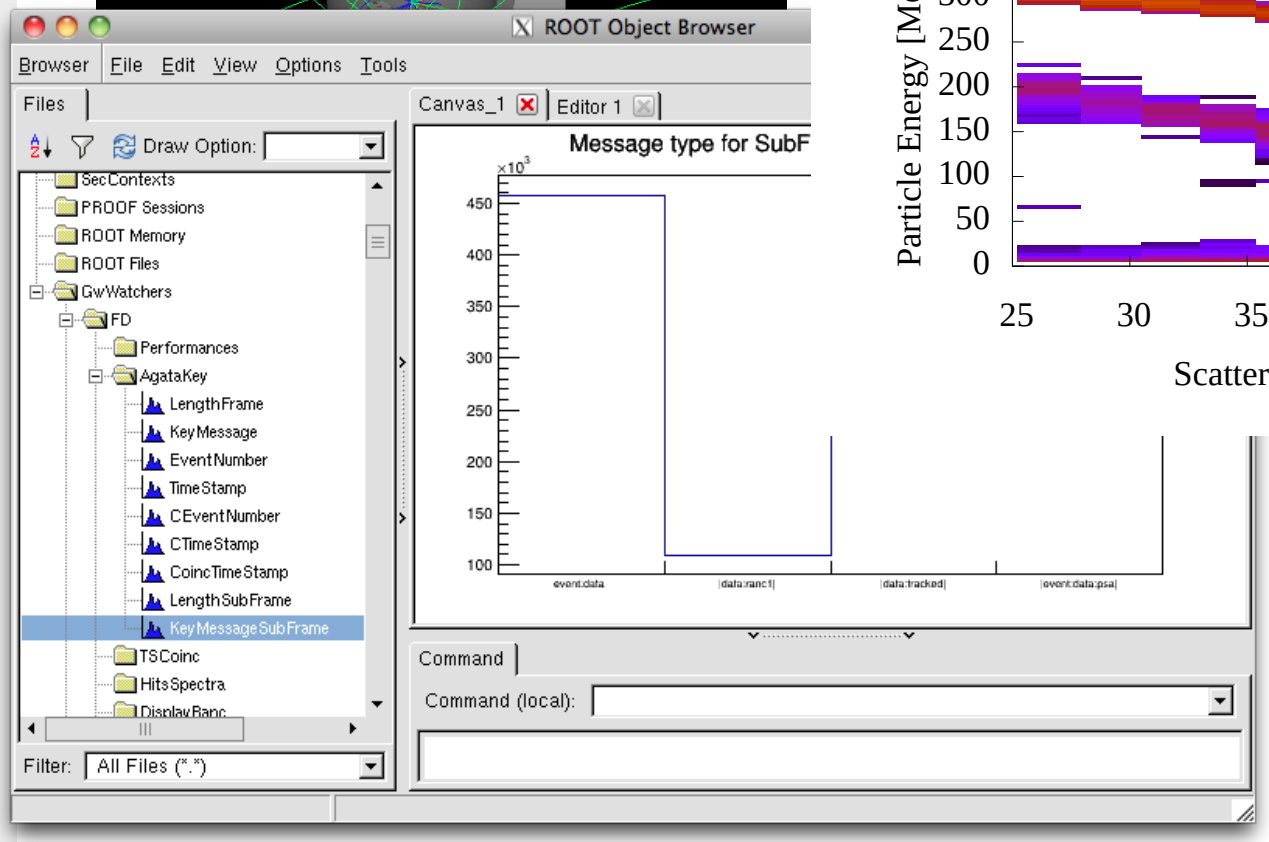

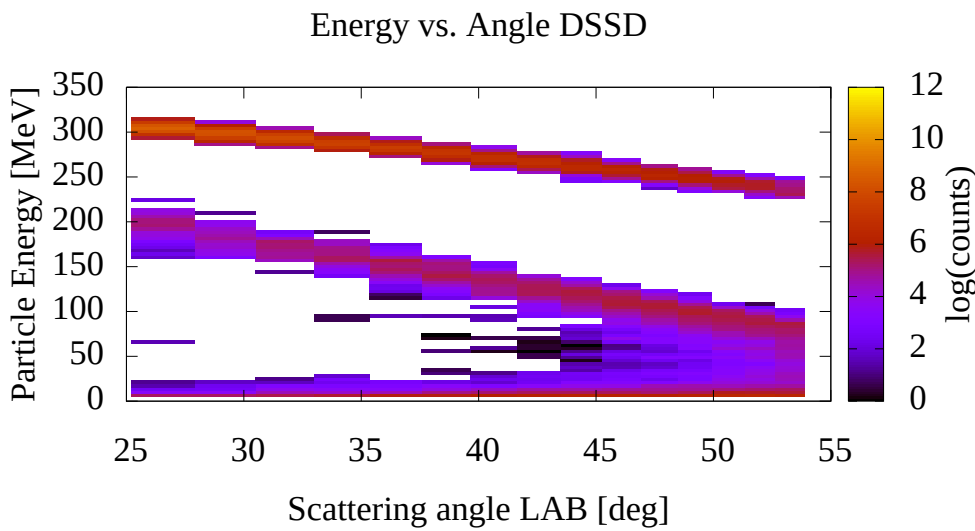

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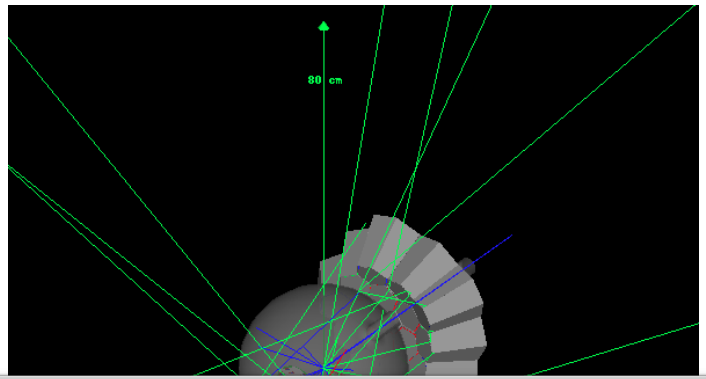


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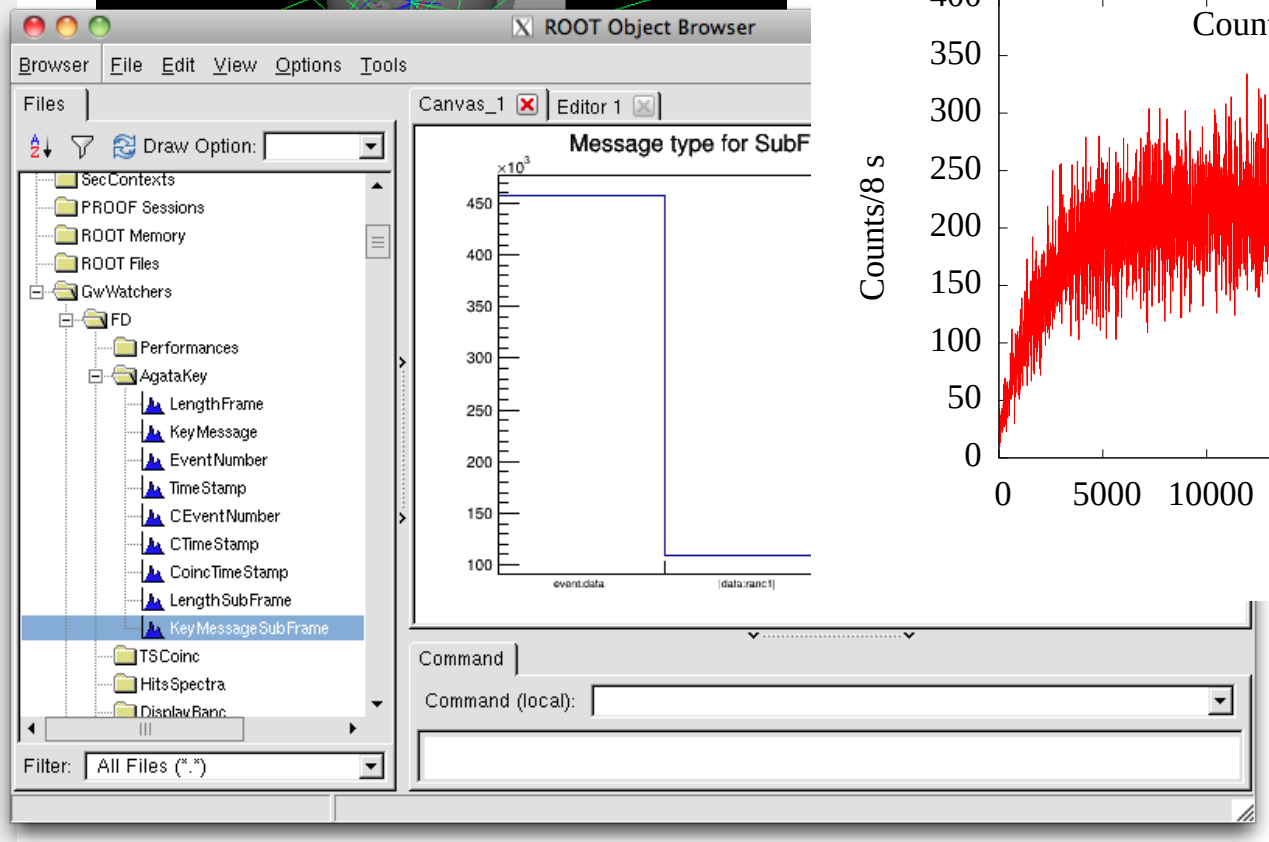

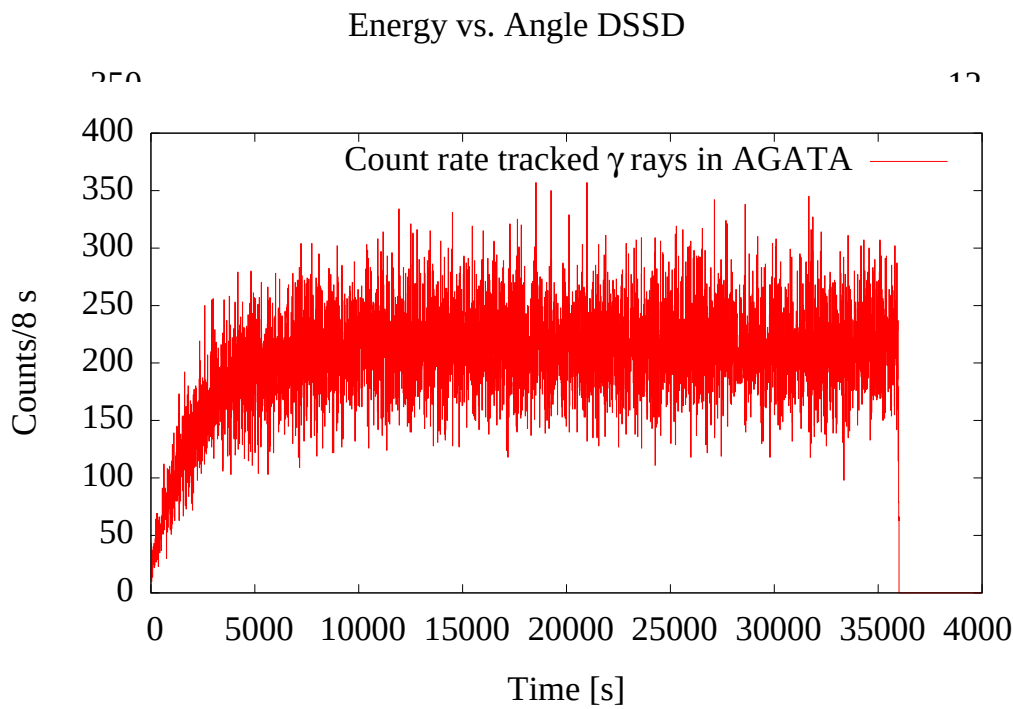

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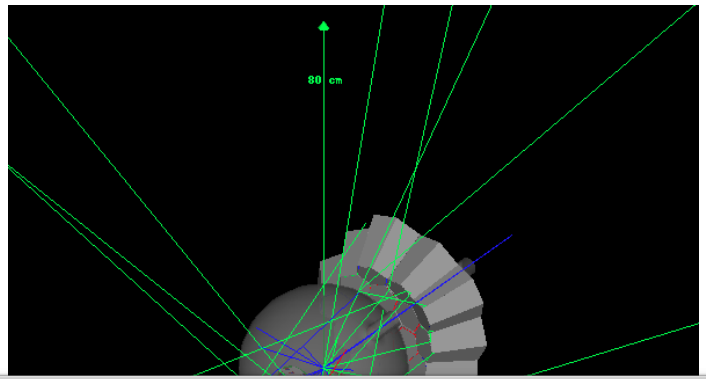


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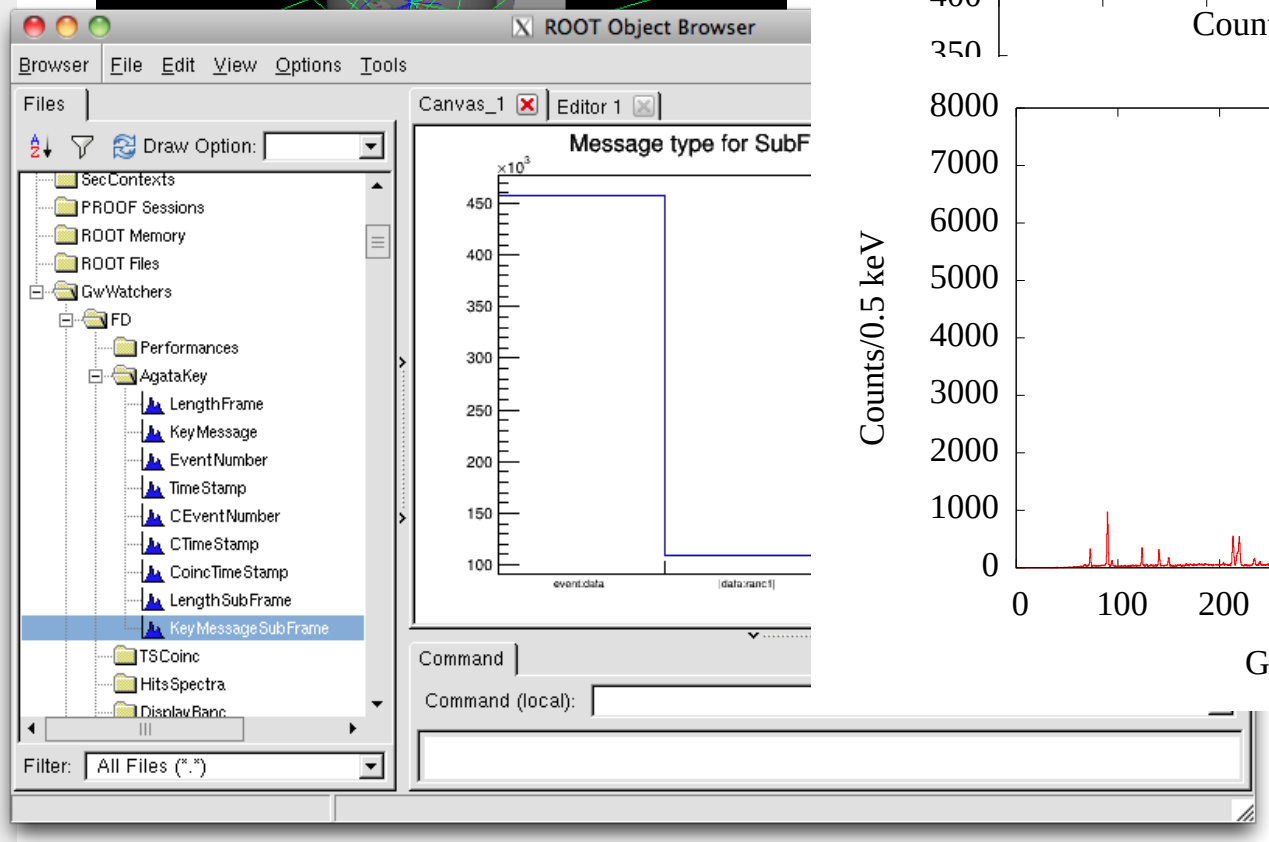

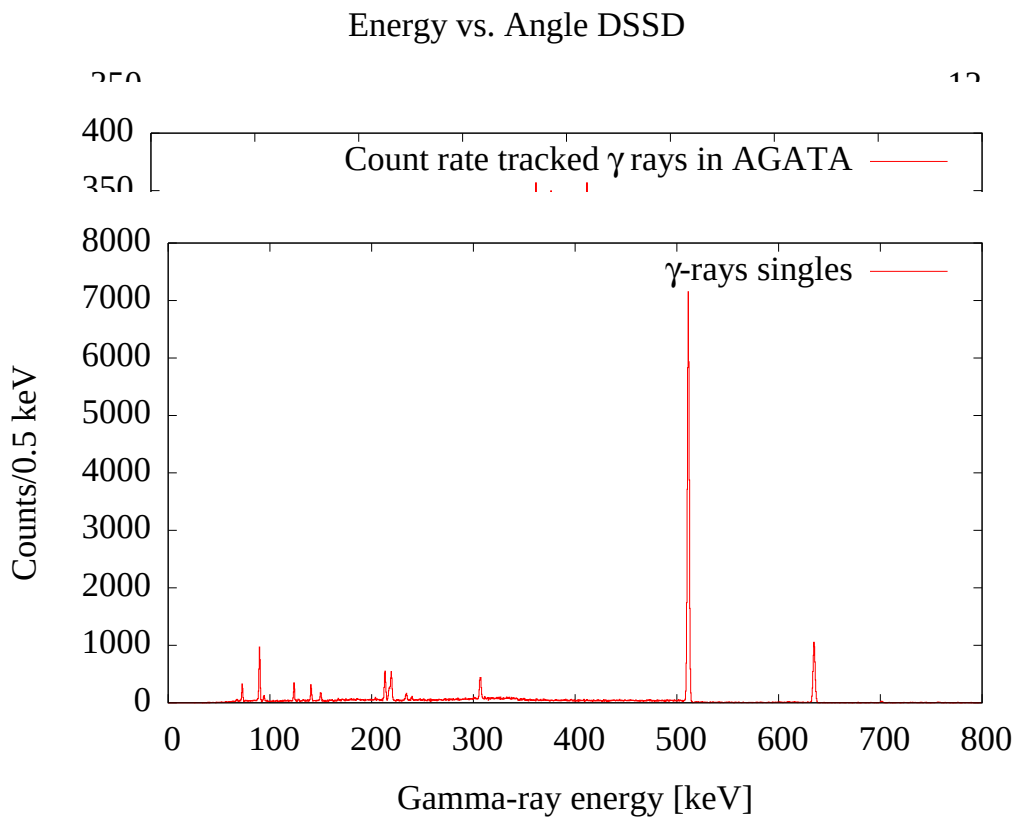

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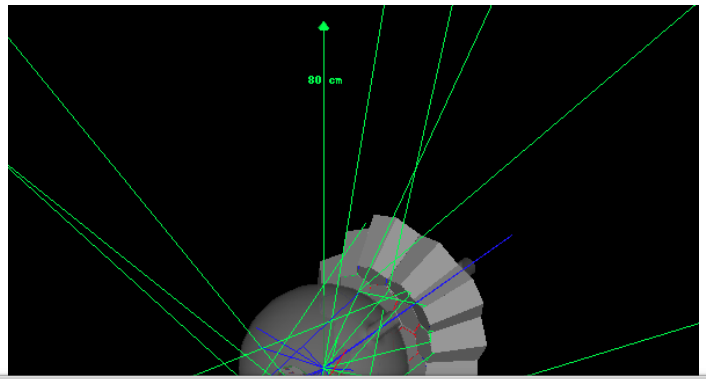

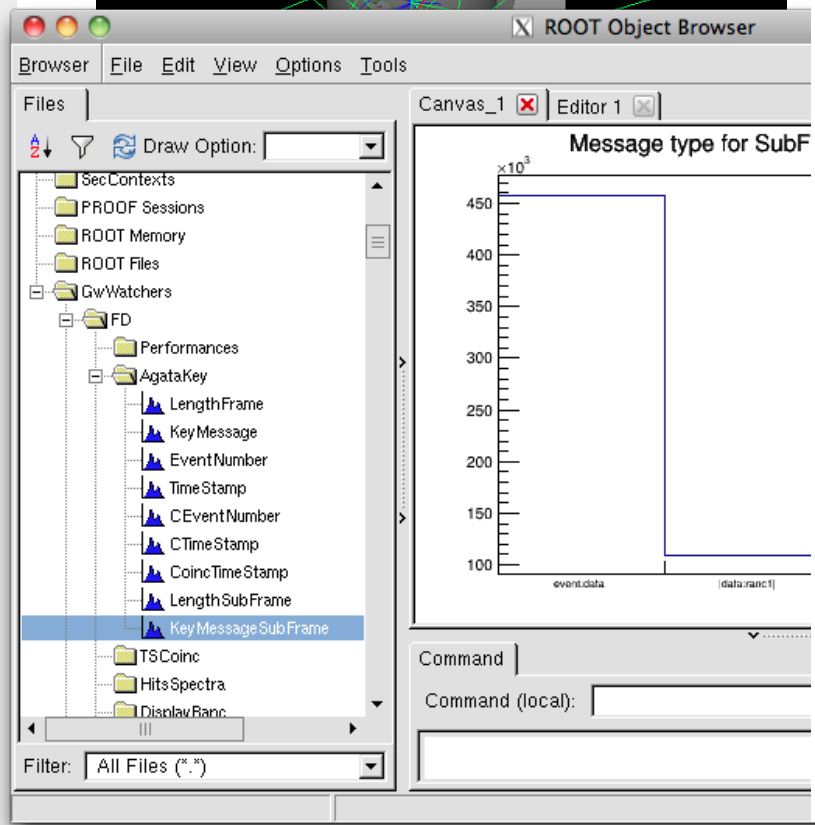


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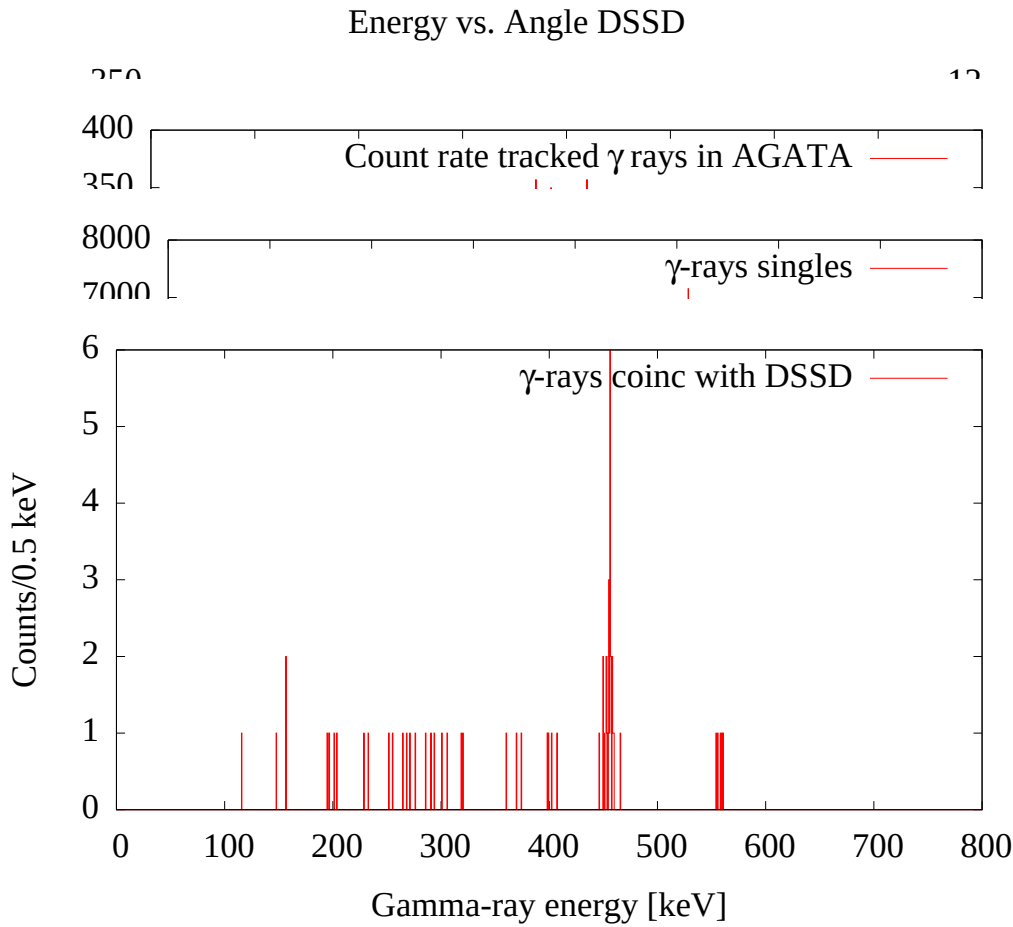

Simulation of absolute efficiency measurements using ^{60}Co sources

- Test adding effects of pileup in simulations
- Controlled environment to test effects of PSA and tracking
- Help understand experimental data

Simulation of absolute efficiency measurements using ^{60}Co sources

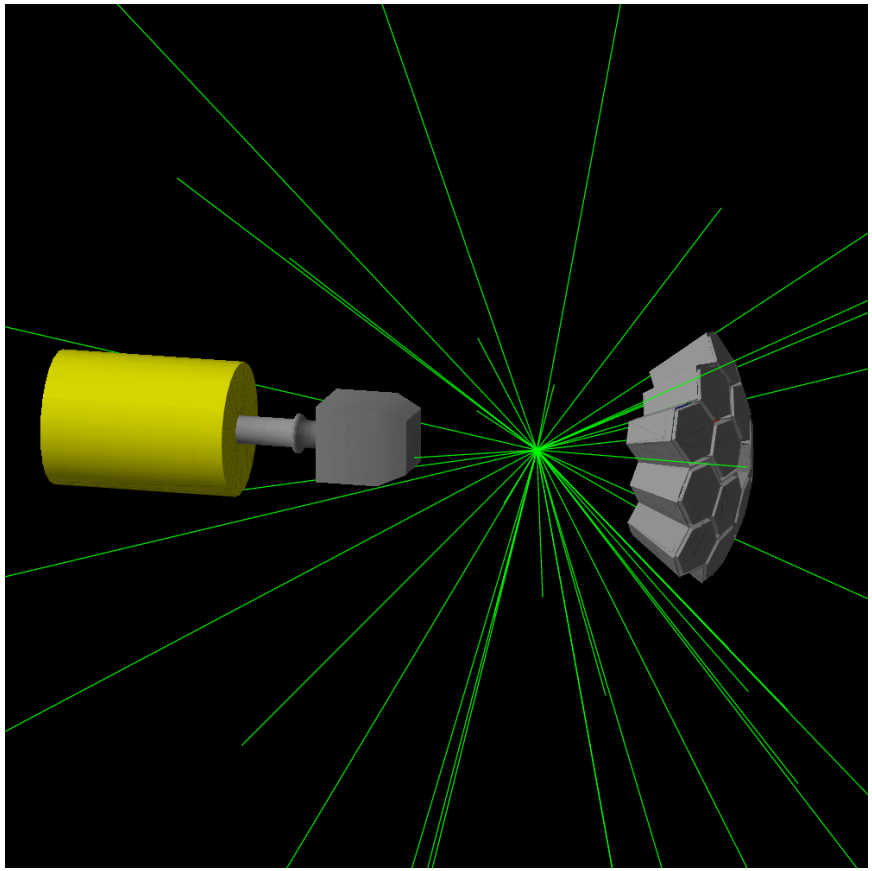

Figure: Simulation geometry

Simulation of absolute efficiency measurements using ^{60}Co sources

- Run geant4 simulations with "1kBq, 100 kBq and 10MBq sources"
- Create Agata Data format (adf) files as if after psa
- Do tracking using the normal "AGATA" data analysis tools

Simulation of absolute efficiency measurements using ^{60}Co sources

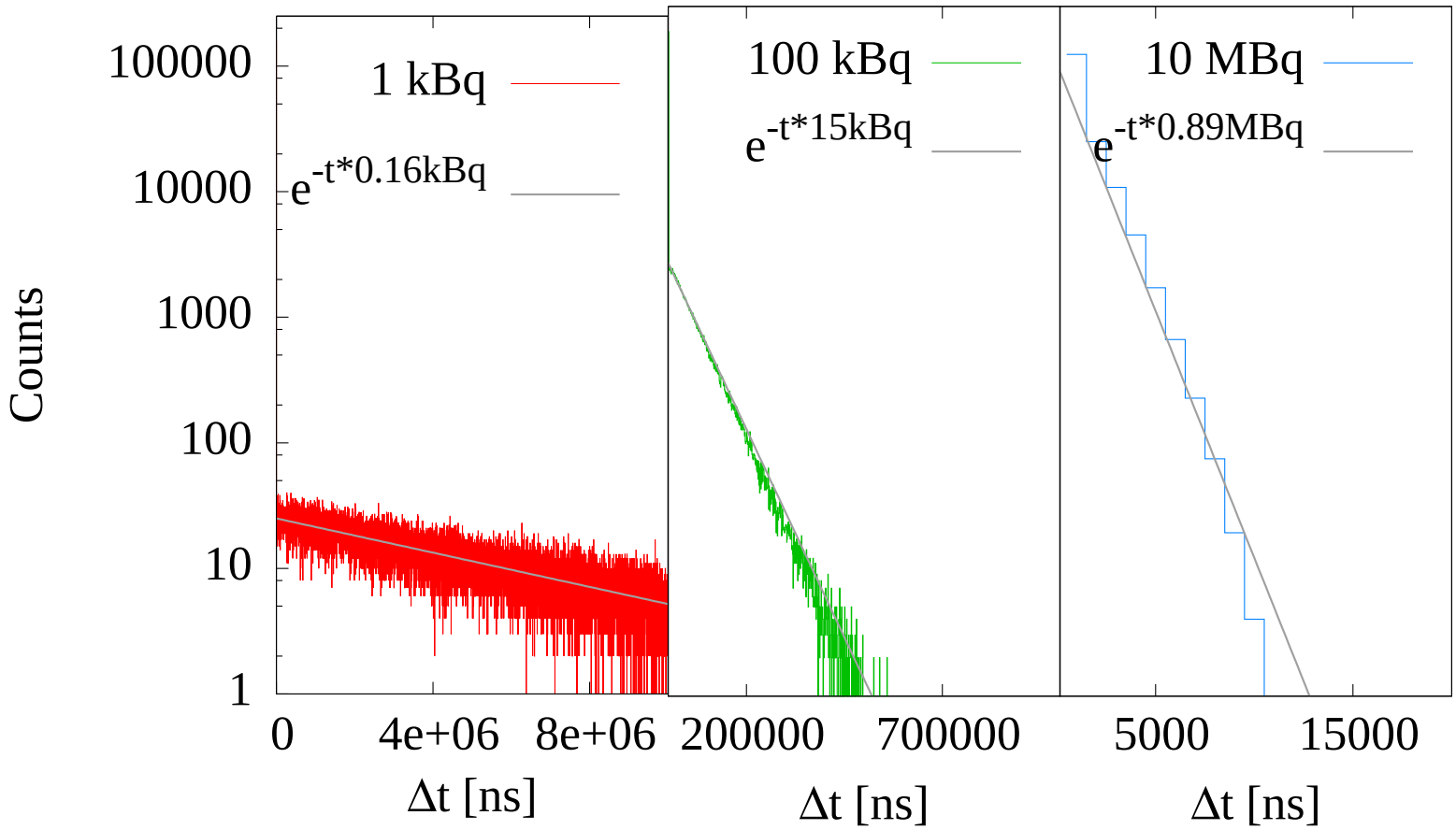

Figure: Results from simulations

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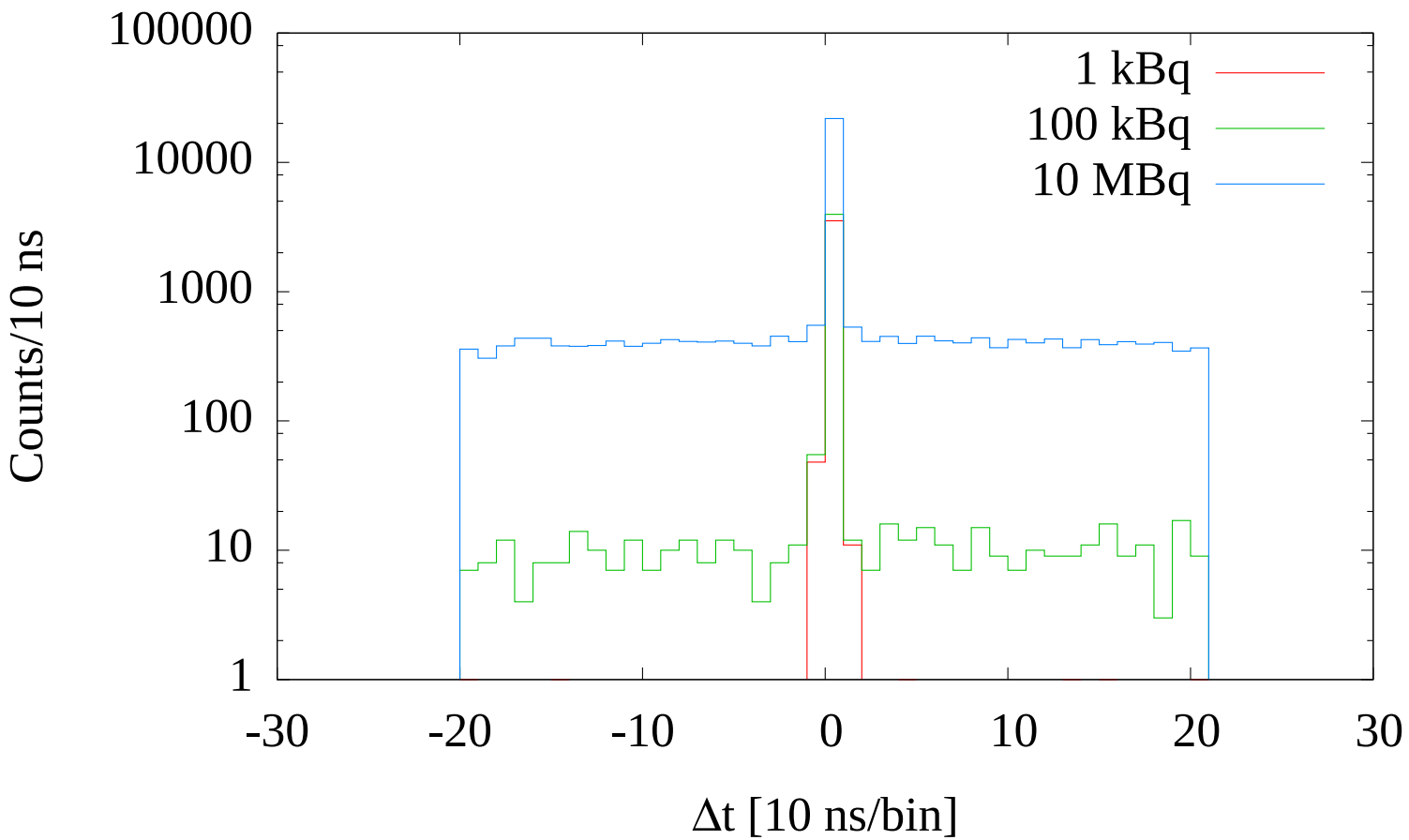

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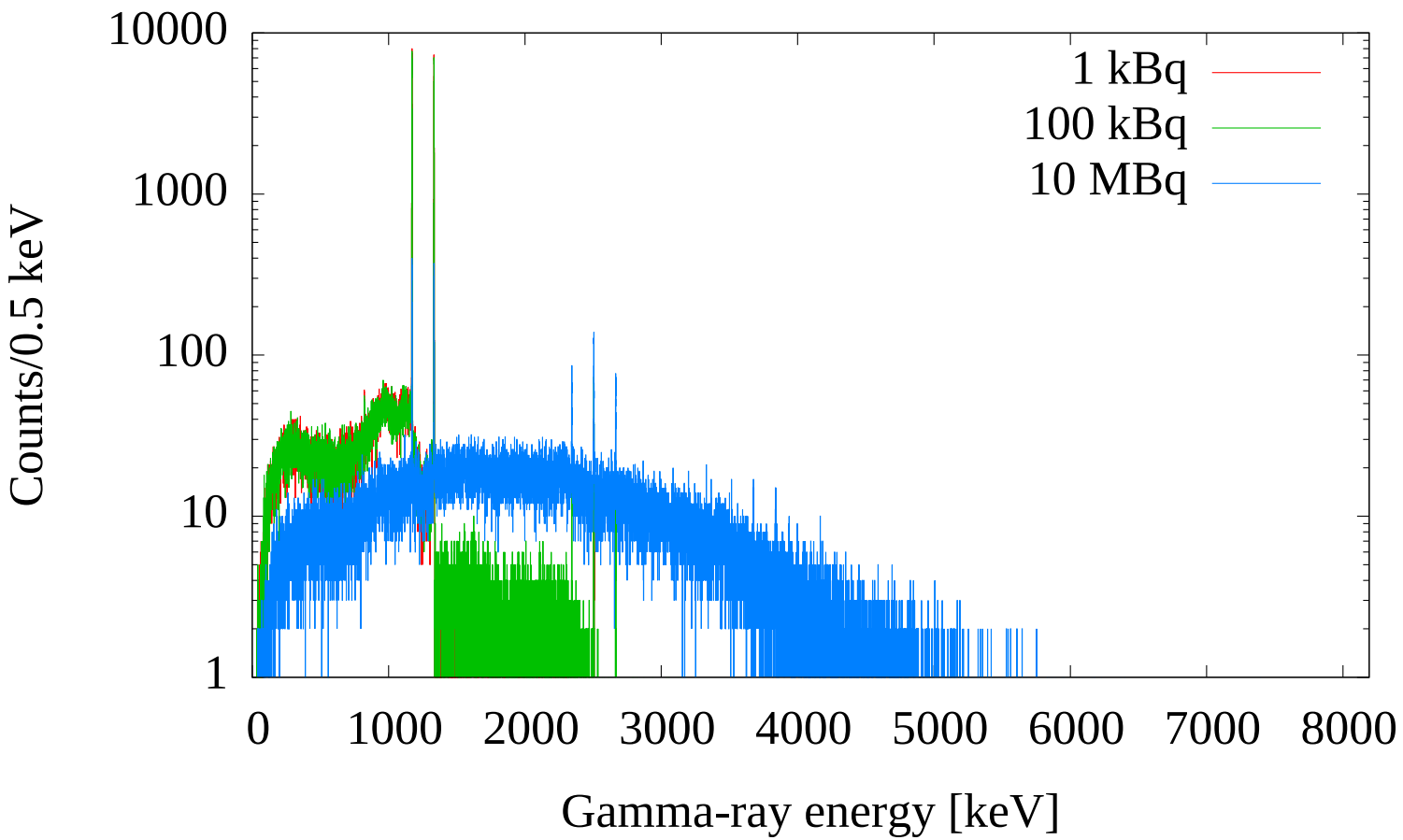

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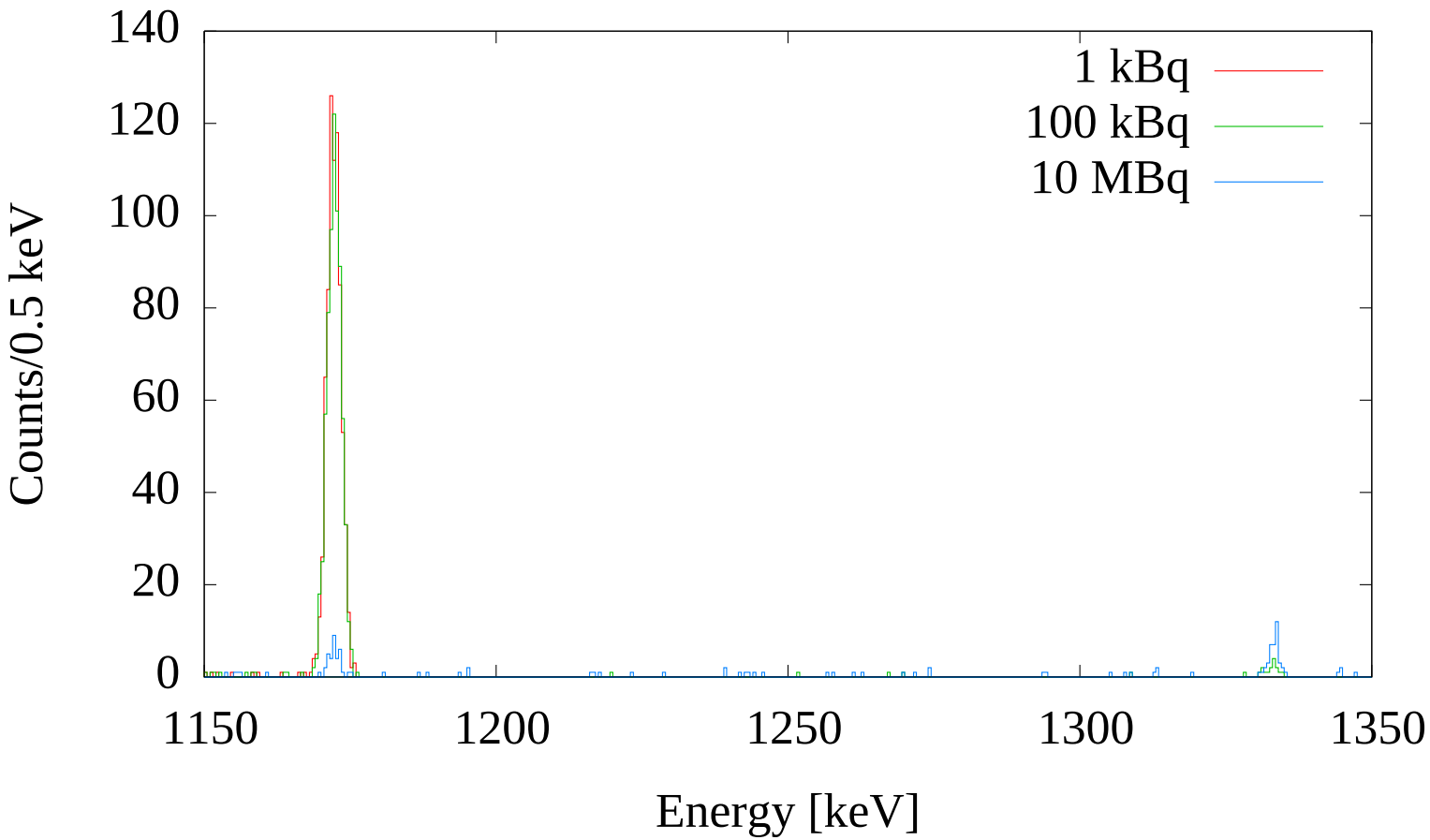

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