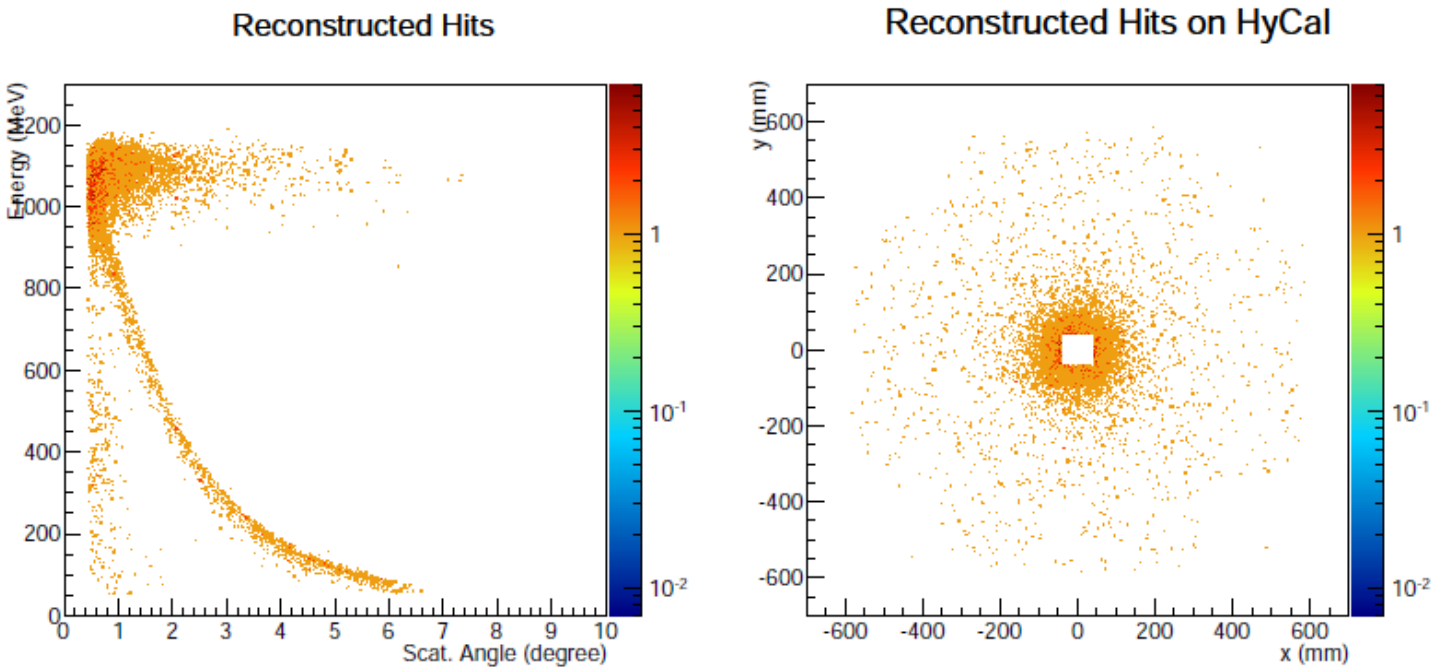
Solid target simulation

- If we are aiming at the 1 kHz event rates. The target thickness should be about 0.78×10^{18} C atoms/cm^2 (10 nA beam current)

- Turn off some central modules can lower the rates significantly, thus the target thickness can be increased

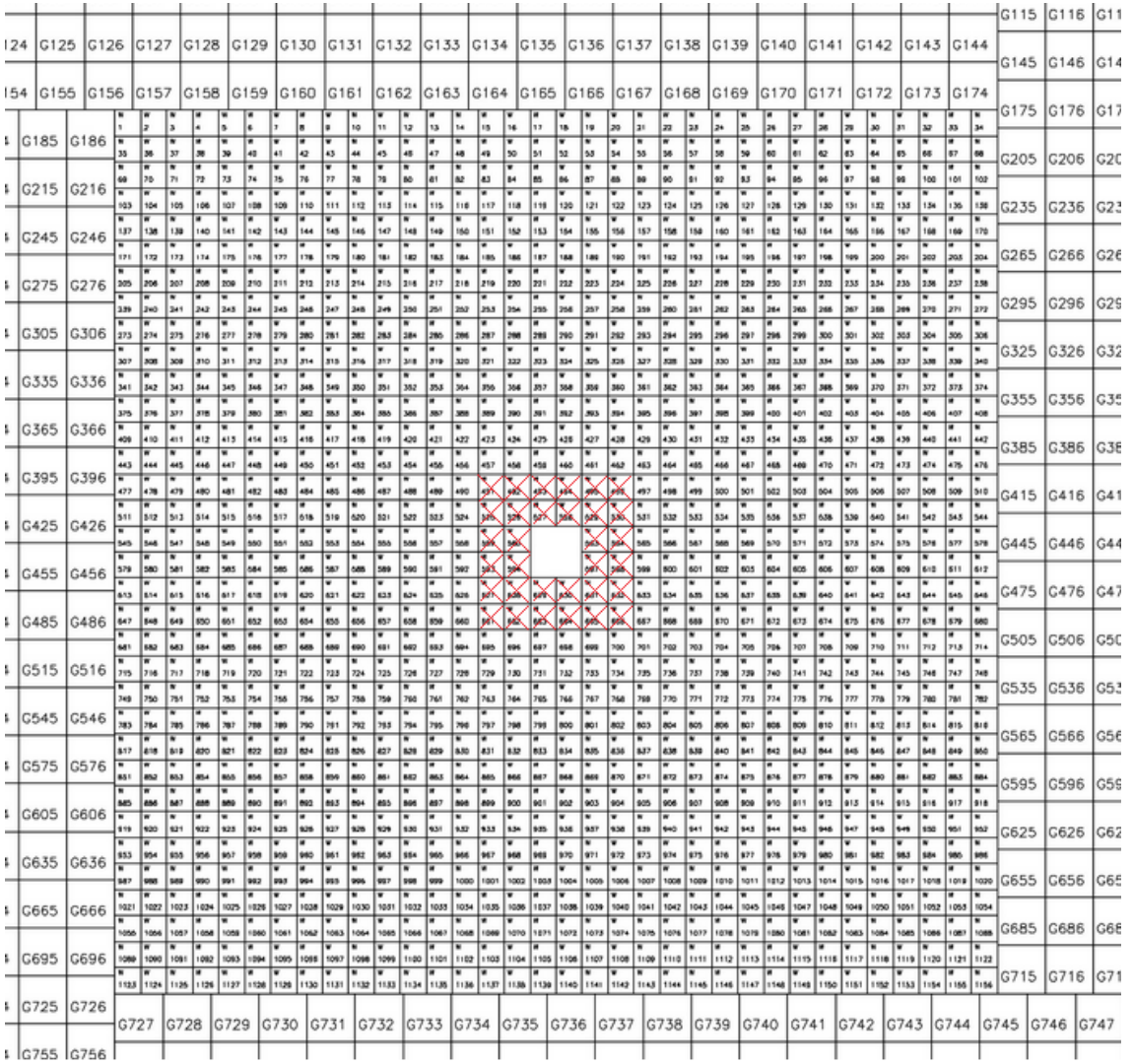
Previous simulation results

- 0.1 mm thick disk, target thickness 6.022×10^{21} atoms/cm^2
- Incident electron 10^8, equivalent to 1/625 second
- Triggered events: 12448, rate is 7.78 MHz



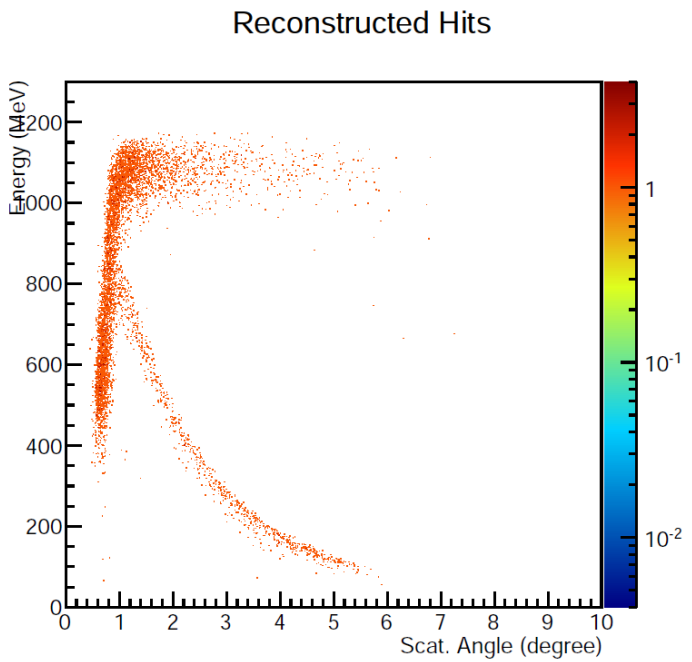
Simulation with turned off modules

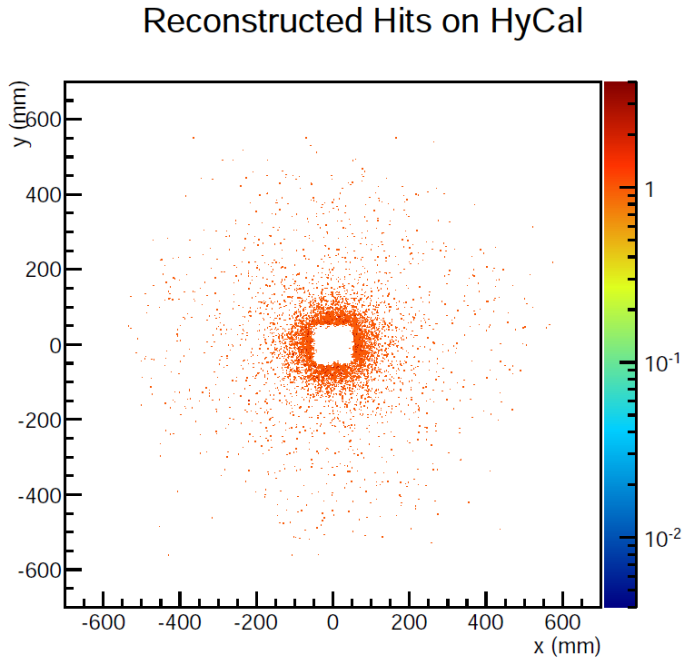
- 2 rounds of central modules are turned off in the simulation (no readout)
- The turned off modules are marked as red



Simulation with turned off modules

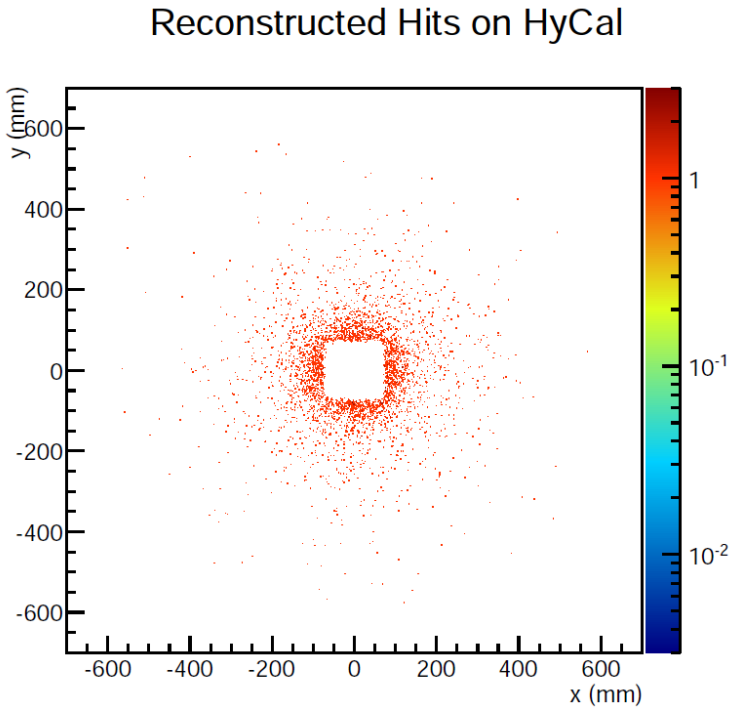
- 0.1 mm thick disk, target thickness 6.022×10^{21} atoms/cm^2
- Incident electron 10^8, equivalent to 1/625 second
- Triggered events: 6018, rate is 3.76 MHz

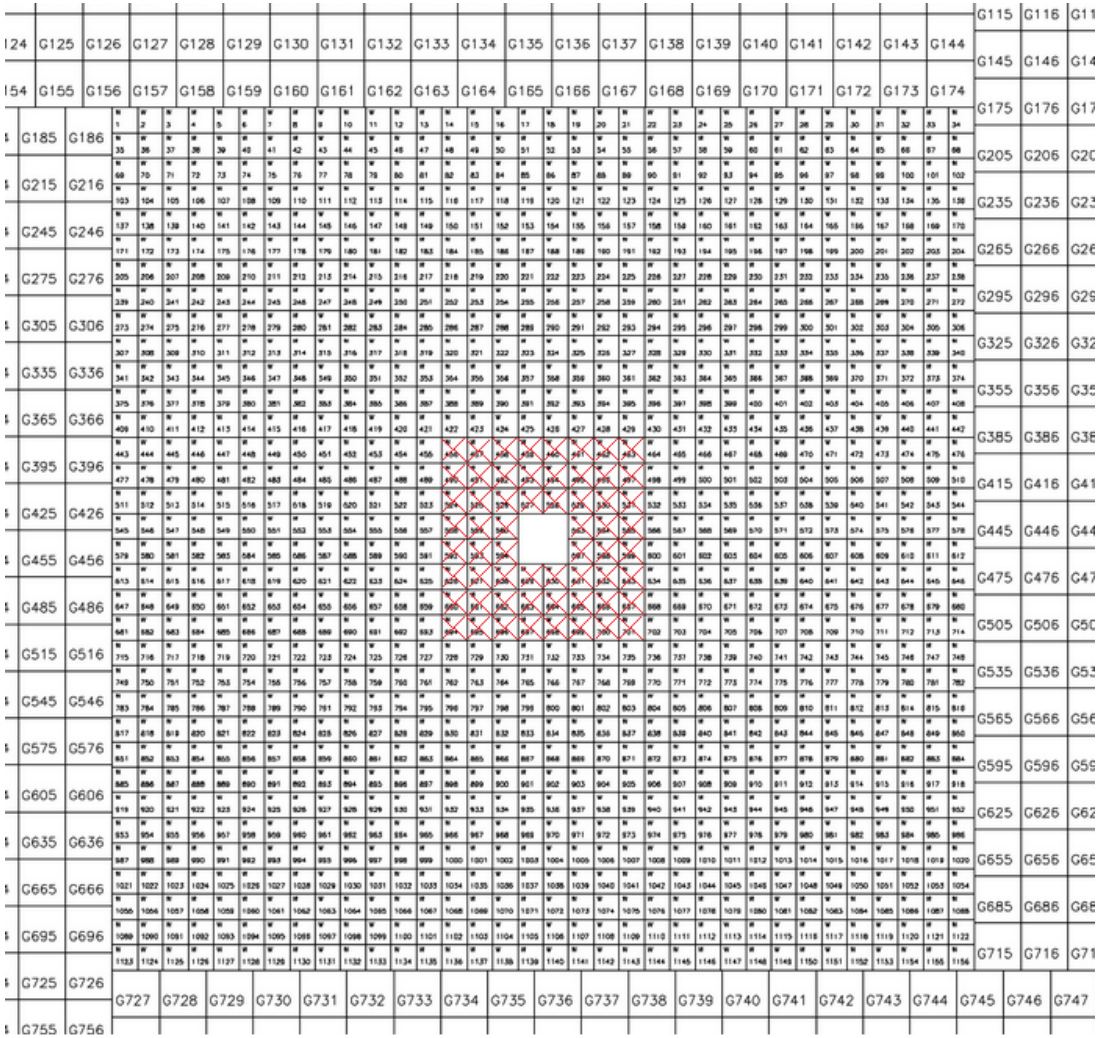




Simulation with turned off modules

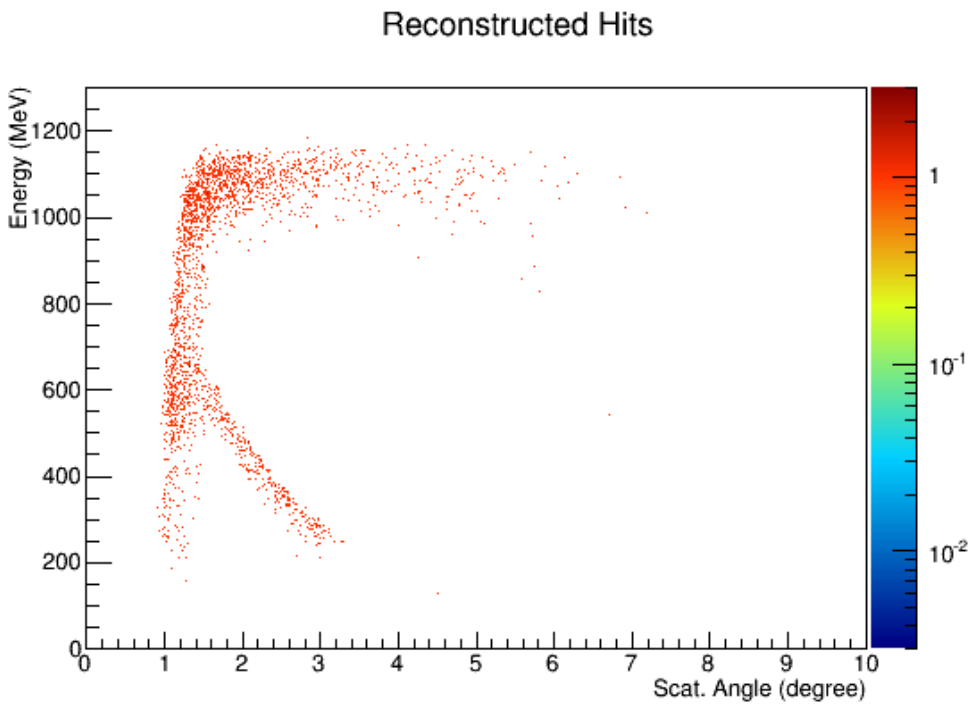
- Turn off 3 rounds
- Rate drops to 2.02 MHz

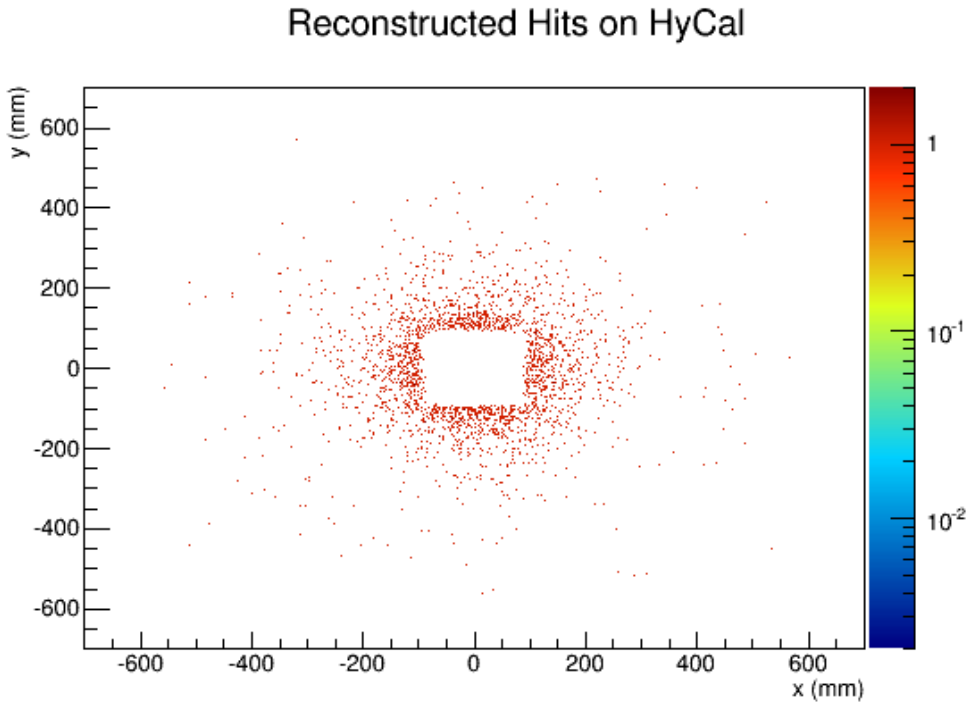




Simulation with turned off modules

- Turn off 4 rounds
- Rate drops to 1.30 MHz





Summary

- Turning off some modules in the center part can significantly lower the rates

- By turning off 4 rounds of the modules (min scat. angle 1.6 degree), we have gained a factor of 6