



GArSoft Update

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GArSoft Documentation



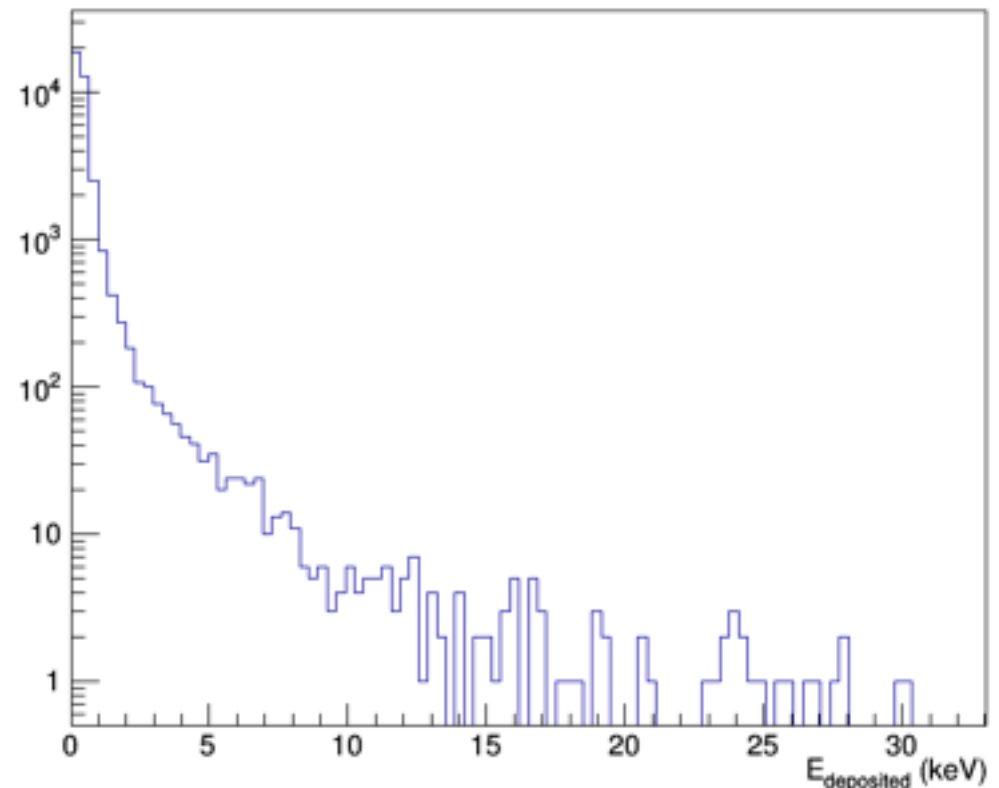
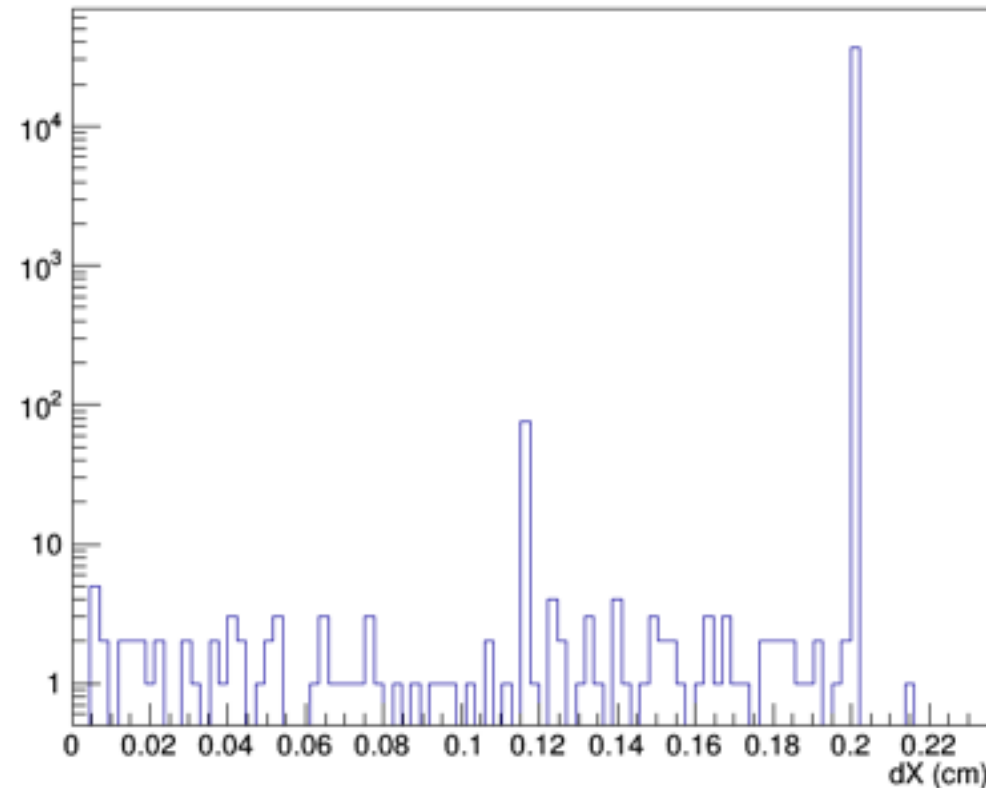
- All documentation for the effort is available on the Redmine page,
- https://cdcvs.fnal.gov/redmine/projects/garsoft/wiki/ART-based_Software_Information

Status of the Simulation



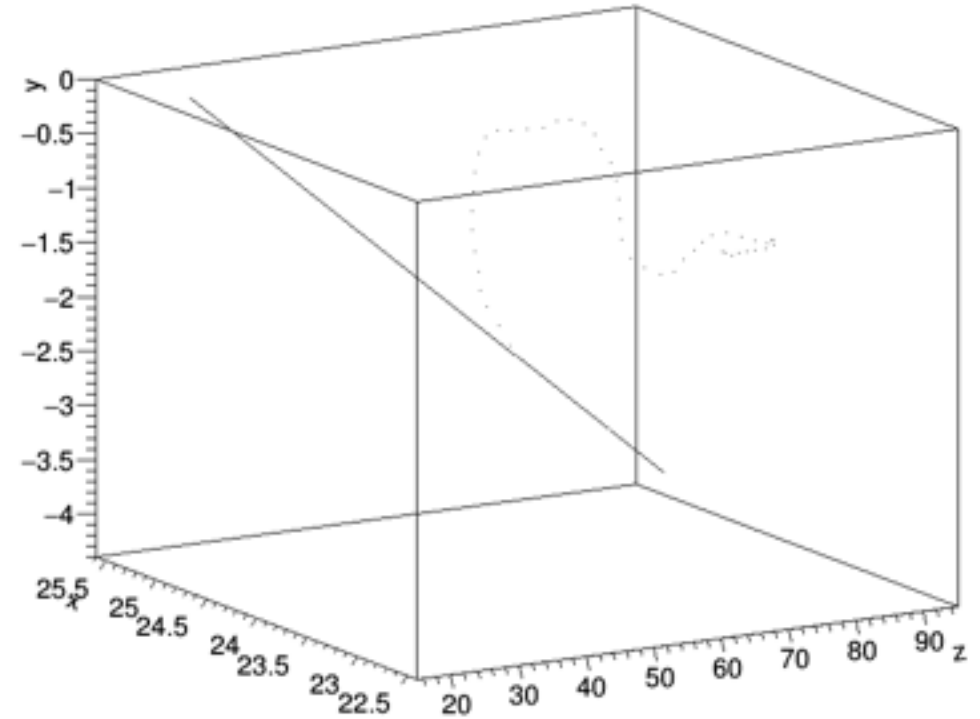
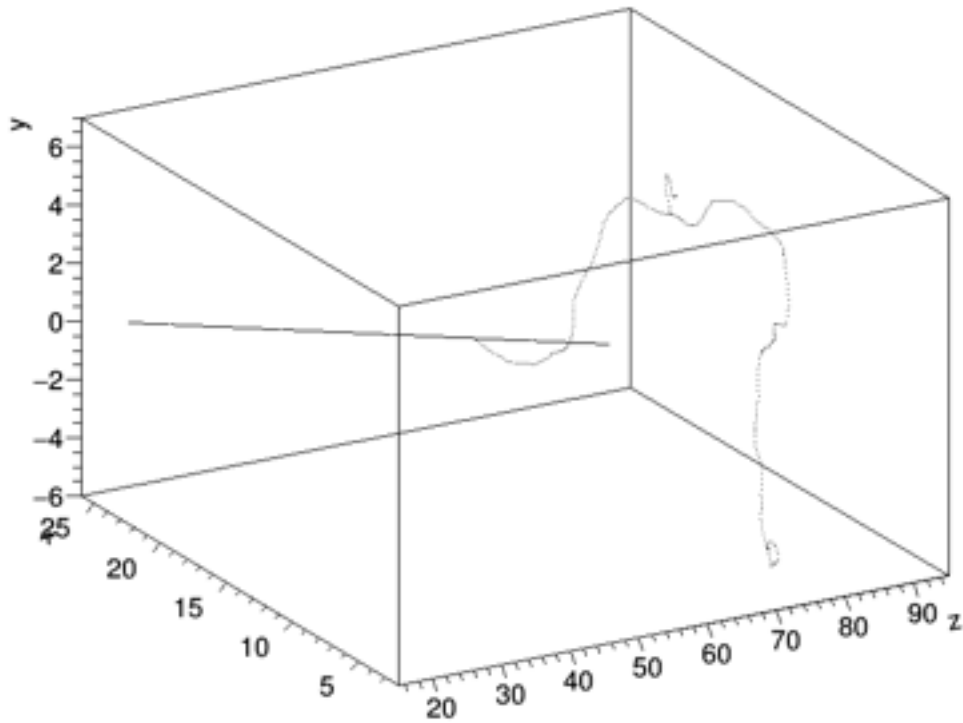
- Since last time the following improvements have been added
 - Algorithm for transporting the ionization to the readout
 - Skeleton of algorithm for converting ionization charge into ADC values
 - Module to produce ionization readout digits
 - Initial code for back tracking from raw signals to energy depositions and particles
 - Module to cheat the hit reconstruction
- Still a long way to go though
 - Need a better GDML description of the geometry
 - Need to verify the energy deposit to ionization model
 - Need a readout electronics simulation to produce raw signals
 - Need to implement other cheater modules for reconstruction

Proof of Principal



- Generated 100 single muon events, 6 GeV/c each, started in the middle of the TPC with a 3 degree downward orientation
- Left plot shows the step size for each step of the muons, the limit of 0.2 cm appears to be working now (previously was seeing steps outside the active volume)
- Right plot is the energy deposited in each step in keV

Proof of Principal



- These plots are “event displays” of some muons.
- You can see delta rays coming off of each of the muons

Outlook



- Steady progress on the simulation and facilities for cheating reconstruction
- It is at the point where another person could really help push progress in a short amount of time
- Need a better event display, perhaps something based on the ROOT Eve display