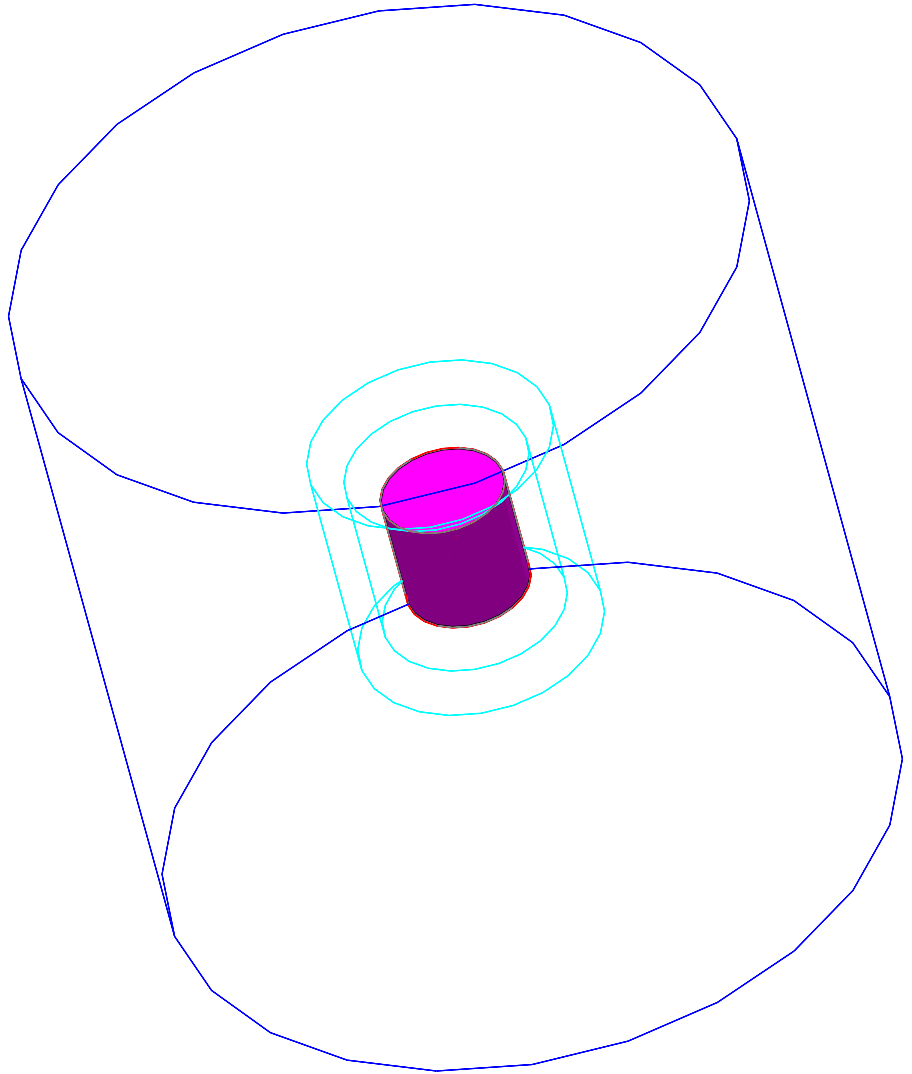


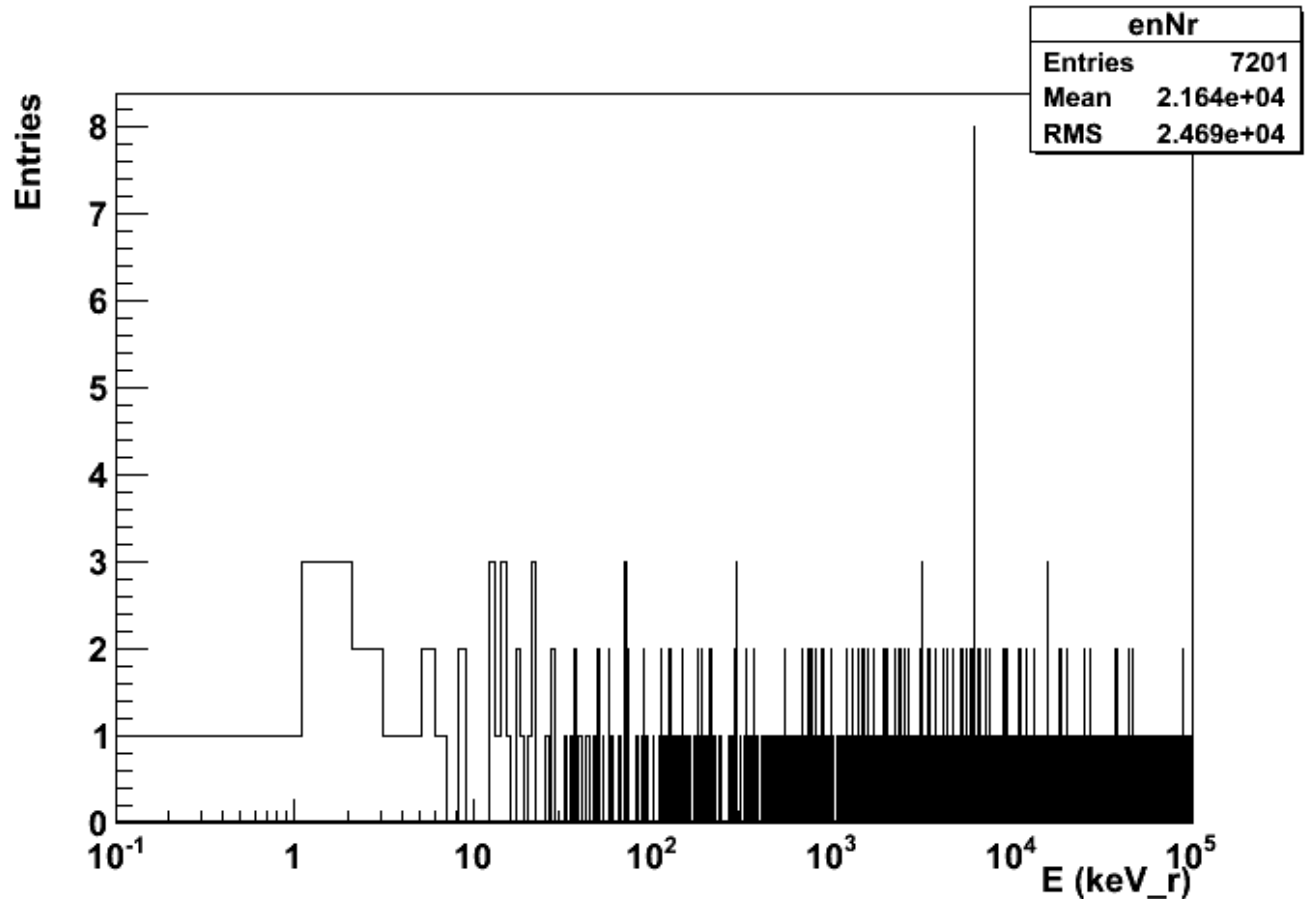
# Geometry

Dimension:

- 1 waterTank 12m\*12m
- 2 OuterVessel 4m\*4m, 2.5cm thick
- 3 Vacuum
- 4 InnerVessel 3m\*3m, 2.5cm thick
- 5 Vacuum
- 6 PMTShell 0.5cm thick attach to Acrylic
- 7 Acrylic 1cm thick attach to LiquidAr
- 8 LiquidAr 2m\*2m



# Recoils in LAr



**Input:**  
Homestake Mine  
4850ft cosmic muon  
and the  
secondaries.

**Statistics:**  
6.41 years data

- At least one nuclear recoil happened in LAr volume
- Energy deposition collection for all particles in LAr volume only for the event
- Rate:  $1.18\text{e-}5/\text{s}$  for  $\text{NR\_dep} > 5\text{keV\_r}$ ;  $1.16\text{E-}5$  for  $\text{NR\_dep} > 50\text{keVr}$
- Additional ROI [50-100] keV\_r gives rate:  $1.10\text{e-}7/\text{s}$  (total 22 events in ROI)

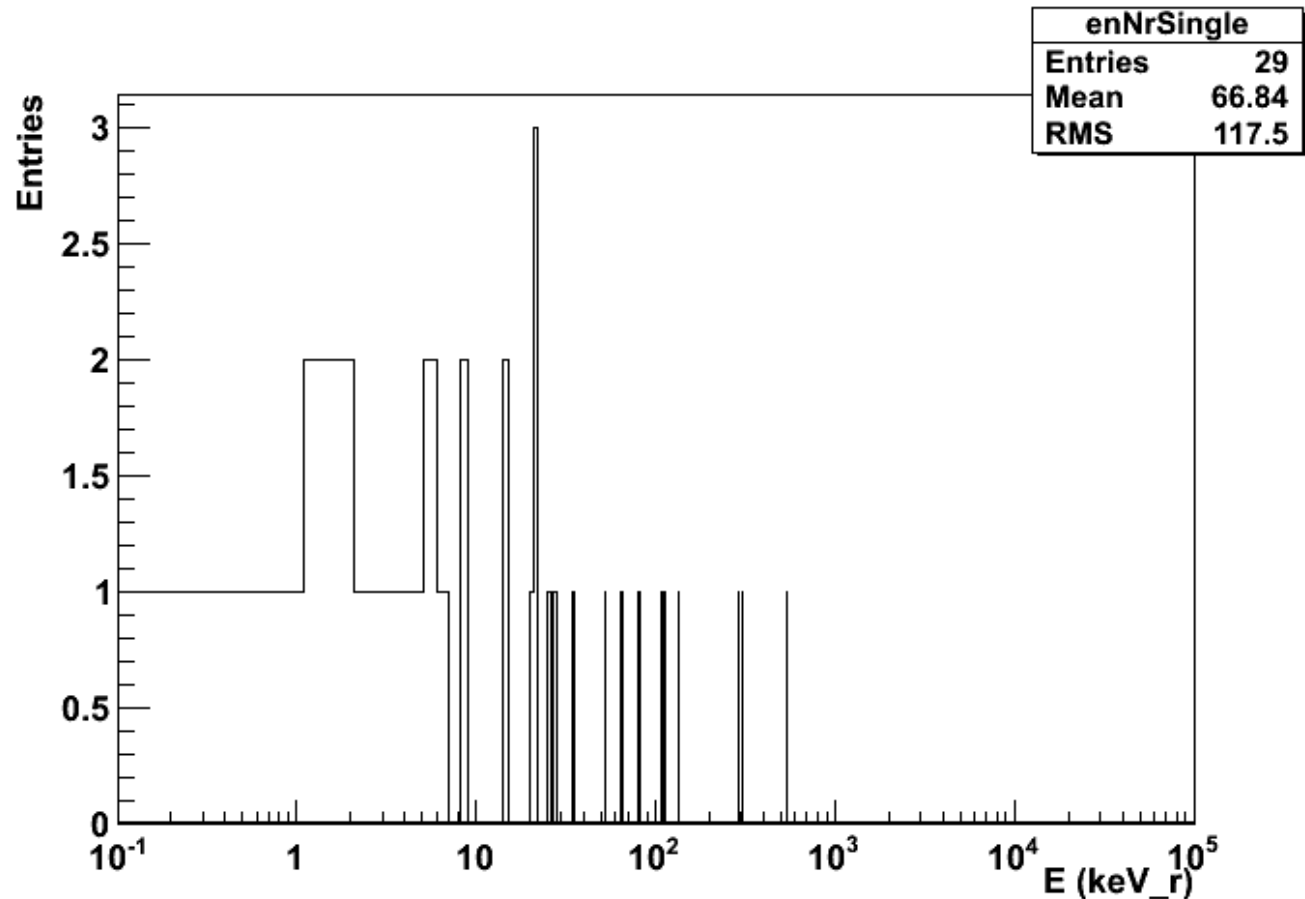
# Single Nuclear Recoils in LAr

## Input:

Homestake Mine  
4850ft cosmic muon  
and the  
secondaries.

## Statistics:

6.41 years data



- Only one nuclear recoil happened in LAr volume
- Additional ROI [50-100] keV\_r gives rate:  $1.48\text{e-}8/\text{s}$  (total 3 events in ROI)
- Additional fiducial cut on 55cm from the wall gives null events. Set up an upper limit of  $4.95\text{e-}9/\text{s}$  for the live time of 6.41 years.