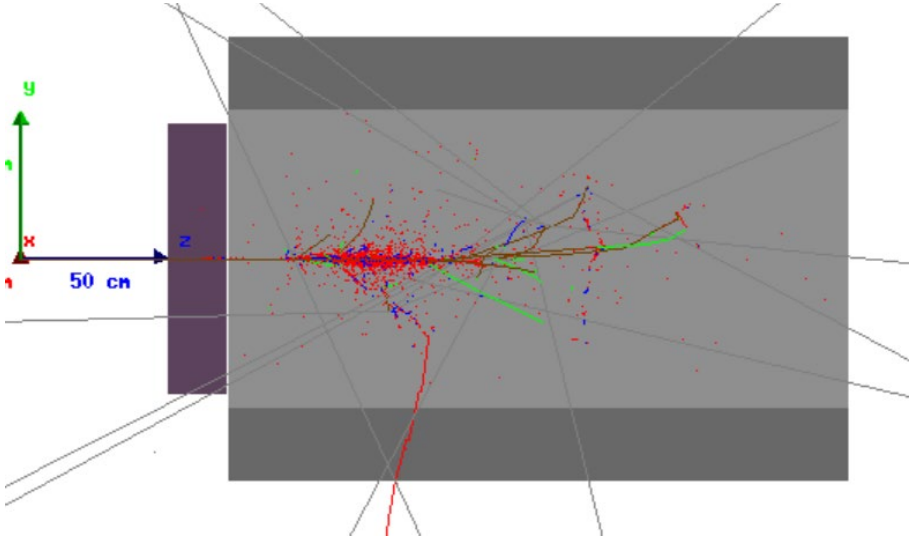
ECAL

- PbWO4
- 2 segments
- Photodetectors on entrance to first segment, exit of second



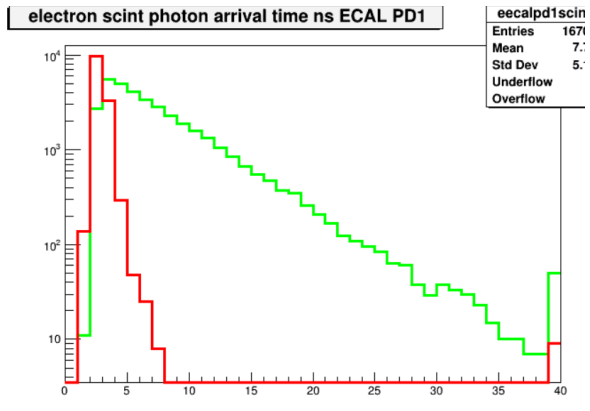
HCAL

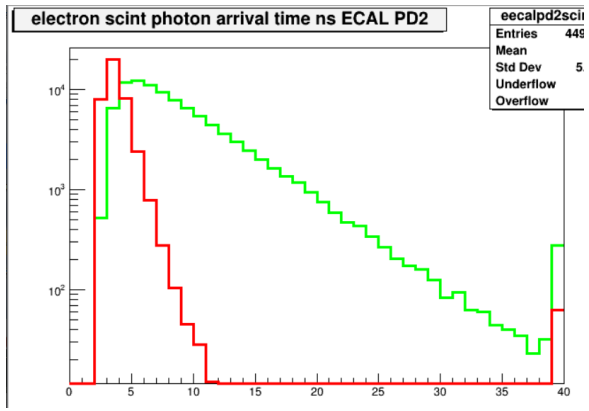
- Plastic scintillating fibers
- Quartz non-scintillating fibers
- Photodetector only on exit

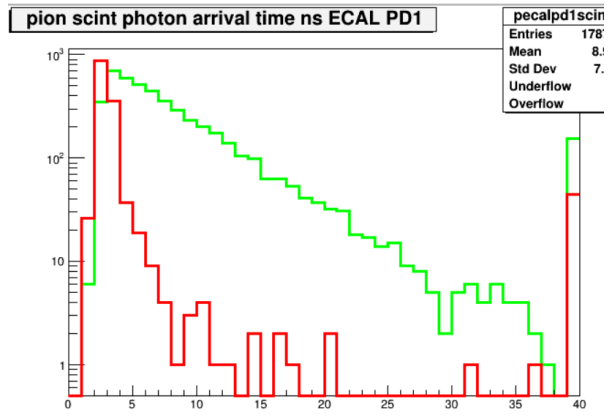
https://github.com/saraheno/DualTestBeam

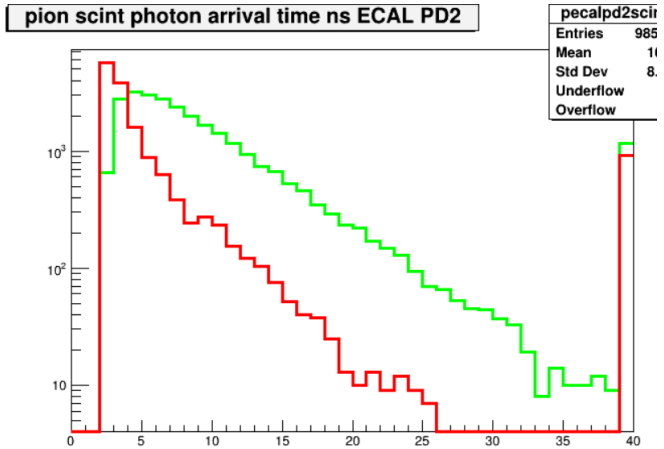
```
<!-- photodetector thicknesses -->
     <constant name="killthick" value="0.001*cm"/> <!-- should be 0.1 mm-->

<!-- constants for dual readout crystal calorimeter -->
    <constant name="DRcrystalwidth" value="1.0*cm"/>  <!-- should be 1 -->
    <constant name="DRcrystallength1" value="5.0*cm"/>
    <constant name="DRcrystallength2" value="15.0*cm"/>
    <constant name="DRcrystalgapl" value="0.001*cm"/>
    <constant name="DRcrystalgapmat" value="DRcrystalgapl/2"/>
    <constant name="DRcrystalgapt" value="0.001*cm"/>
    <constant name="DRcrystalhont" value="0.999*DRcrystalgapt"/>

    <constant name="DRcrystallength" value="20.0*cm"/>  <!-- should be 20 normally, 400 fo



    <constant name="DRcrystalNsize" value="45"/>    <!-- should be 45 -->

<!-- gap between ecal and hcal  -->
    <constant name="EcalHcalgap" value="0.1*mm"/> <!-- should be small 0.1 mm -->


<!-- constants for dual readout spagetti fiber hcal calorimeter in SCEPCAL -->
<!-- these are radii (or half widths) -->
    <constant name="DRFiberAbswidthSCE" value="1.0*mm"/>  <!-- should be 1.0 mm -->
    <constant name="DRFiberFibwidthSCE" value=".5025*mm"/>  <!-- should be 0.5025 mm -->
    <constant name="holeoverSCE" value="0.025*mm"/>
    <constant name="gapSCE" value="0.0001*mm"/>
    <constant name="DRFiberlengthSCE" value="210*cm"/>   <!-- should be 210 cm -->
    <constant name="DRFiberNsizeSCE" value="250"/>       <!-- should be 250 -->
```

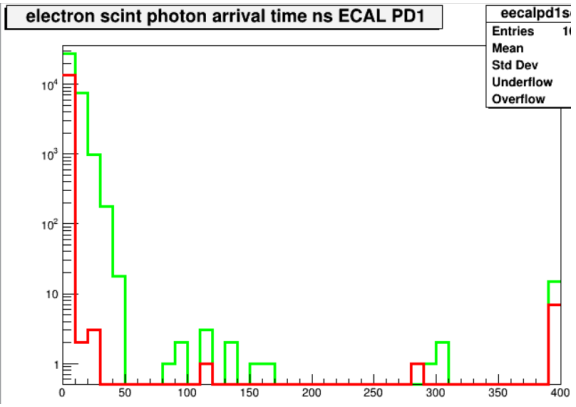
ECAL: upper plots short time scale, bottom longer, unit is ns
Signal averaged over all similar channels

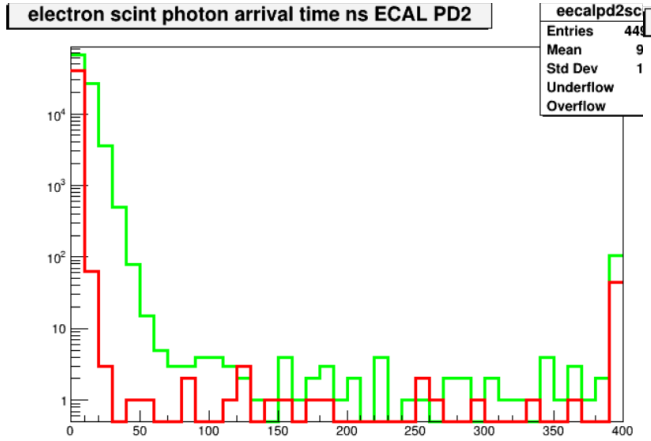


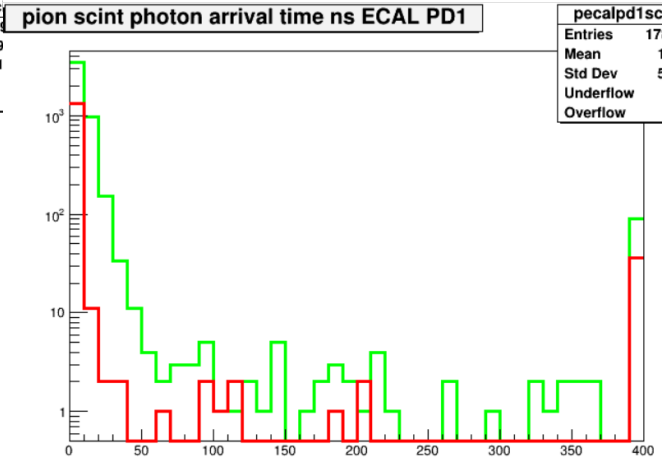


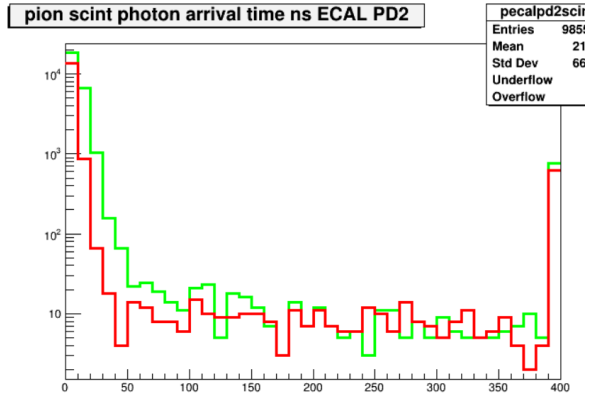












50 GeV incident particles
Red is Cerenkov, green is scintillation. Lights scaled down after creation as
Where “C” is crystal and “O” is other materials.

```
double dialCherC= 10./8000.;
double dialScintC=100./200000.
double dialCherO= 100./8000.;
double dialScintO=1./200000.;
```

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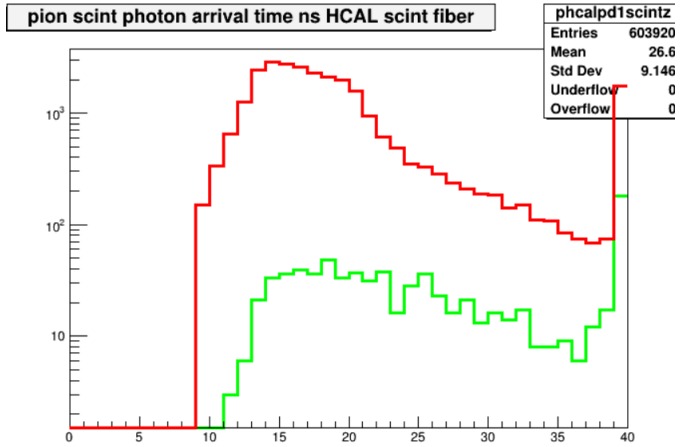
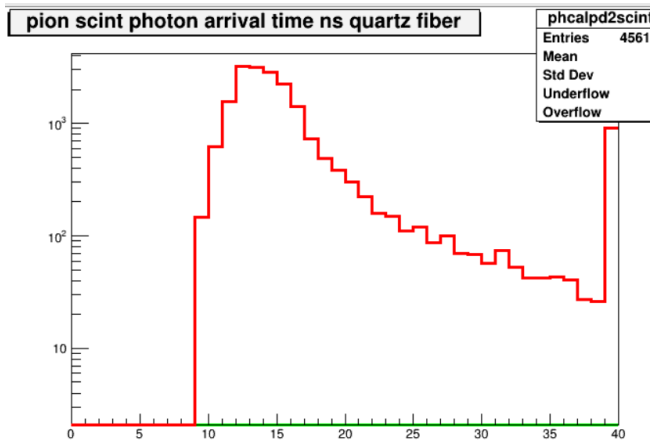
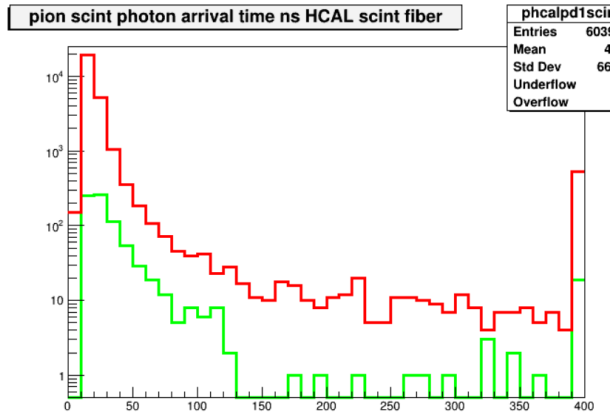
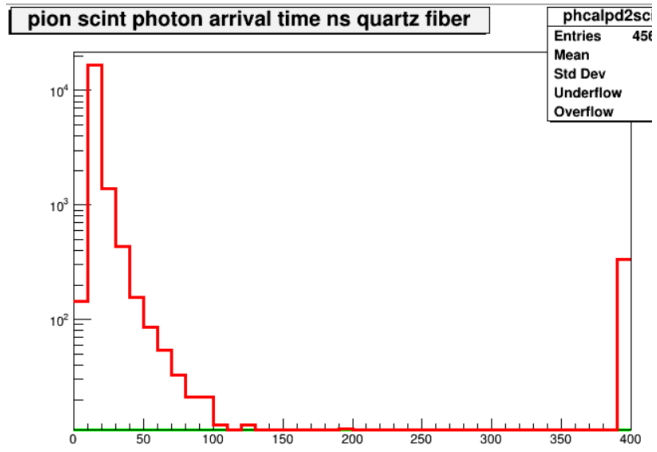
Signal averaged over all similar channels









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