

Saclay Day 4 data. These data were taken at IRAMIS on July 21, 2015. We had 2 different chambers :

- 1) Microbulk as in previous tests
- 2) Bulk which is distinguished by large amplification gap (128 rather than 50 micron), lower detector capacitance and potentially more flexibility in choice of drift field.

Amp was Cividec, BW was full scope BW, sampling 10 GSa/a.

```

SetDirectory["~bastian/Desktop/day4/bulk/425-620x5/c2"];
Namelist = FileNames[];
Namelist // Length;
nfiles = %
1582

tt = Table[scopedata[[i, 1]], {i, 6, 1005}] * 10^9;

vv = ConstantArray[0, {1000, 1000}];

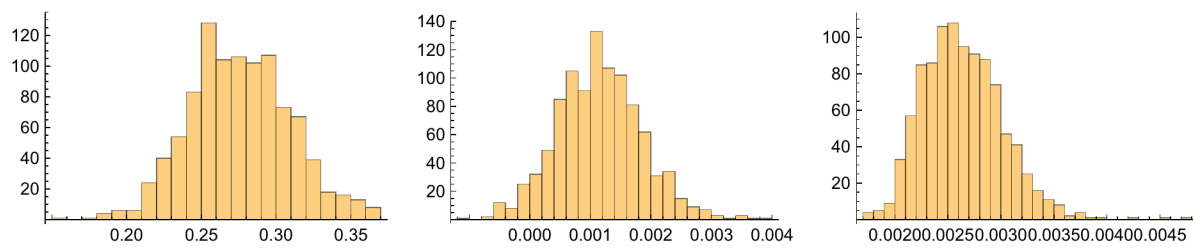
Timing[Do[
  filename = Namelist[[i]];
  scopedata = Import[filename, "tsv"];
  vv[[i]] = Table[scopedata[[i, 2]], {i, 6, 1005}];
  , {i, 1000}];]
{15.4953, Null}

inbase2 = Table[Mean[Take[vv[[i]], 100]], {i, 1000}];
innoise2 = Table[RootMeanSquare[Take[vv[[i]], 100] - inbase2[[i]]], {i, 1000}];

v = Table[(vv[[i]] - inbase2[[i]]), {i, 1000}];
peak = Table[Max[v[[i]]], {i, 1000}];

GraphicsRow[
  {Histogram[peak], Histogram[inbase2], Histogram[innoise2]}, ImageSize -> Full]

```



```

mp = Mean[peak]
rmisp = RootMeanSquare[peak - mp]
rmisp / mp
0.275898

0.0337429

0.122302

v0 = Table[v[[i]] / peak[[i]], {i, 1000}];
ttt = Take[tt, {181, 189}];

```

```
v01 = Table[Take[v0[[i]], {181, 189}], {i, 1000}];
```

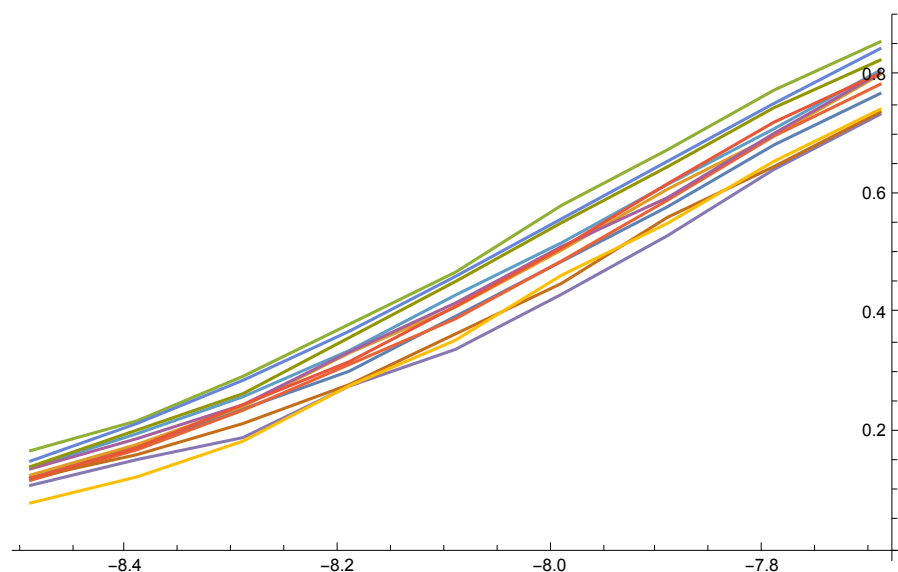
```
Dimensions[ttt]
```

```
Dimensions[v01[[1]]]
```

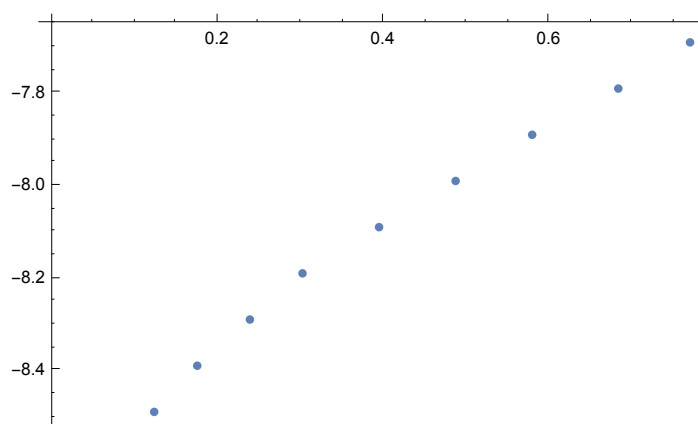
```
{9}
```

```
{9}
```

```
ListPlot[Transpose[{t, v01[[1]]}],
  Transpose[{t, v01[[2]]}], Transpose[{t, v01[[3]]}],
  Transpose[{t, v01[[4]]}], Transpose[{t, v01[[5]]}],
  Transpose[{t, v01[[6]]}], Transpose[{t, v01[[7]]}],
  Transpose[{t, v01[[8]]}], Transpose[{t, v01[[9]]}],
  Transpose[{t, v01[[10]]}], Transpose[{t, v01[[11]]}],
  Transpose[{t, v01[[12]]}], PlotRange -> Full, Joined -> True]
```



```
ListPlot[Transpose[{v01[[1]], t}]]
```



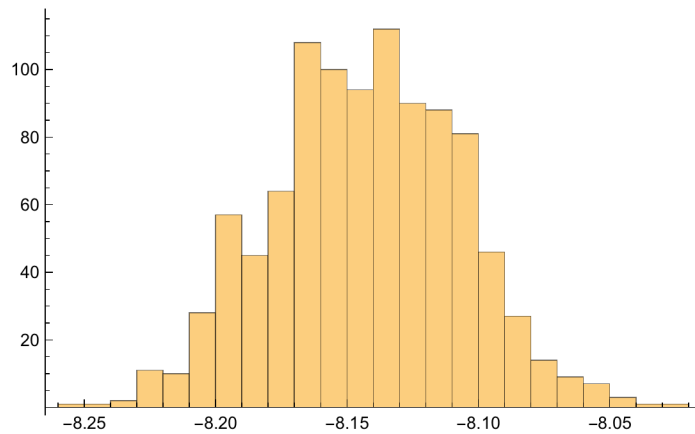
```
thresh = ConstantArray[0, 1000];
```

```
Do[
```

```
  f = Interpolation[Transpose[{(v01[[i]] * (1 + RandomReal[{- .005, .005}])}, t}]]];
  thresh[[i]] = f[0.35];
  , {i, 1000}];
```

```
Transpose[{v01[[58]], t}];
```

```
Histogram[thresh, PlotRange → Full]
```



```
mn = Mean[thresh]
rms = RootMeanSquare[thresh - mn]
-8.14278
0.0358522
```

```
SetDirectory["~bastian/Desktop/day4/bulk/425-620x5/c3"];
Namelist = FileNames[];
Namelist // Length;
nfiles = %
1584
```

Fix misalignment between Micromegas files and Trigger PD.

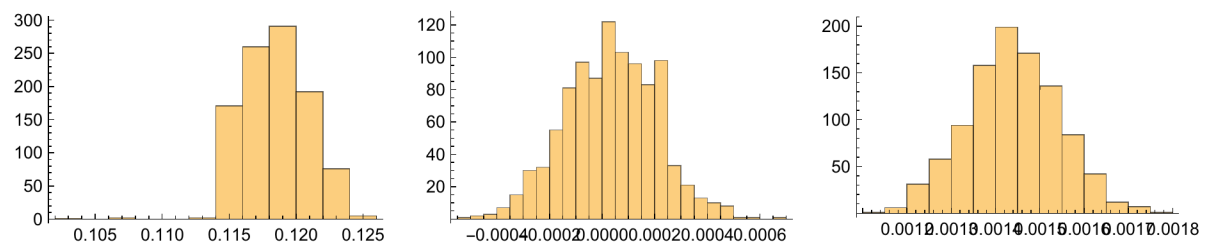
```
vt = ConstantArray[0, {1000, 1000}];
Timing[Do[
  filename = Namelist[[i + 1]];
  scopedata = Import[filename, "tsv"];
  vt[[i]] = Table[scopedata[[i, 2]], {i, 6, 1005}];
  , {i, 1000}];]
{17.7706, Null}
```

```
inbase2 = Table[Mean[Take[vt[[i]], 100]], {i, 1000}];
innoise2 = Table[RootMeanSquare[Take[vt[[i]], 100] - inbase2[[i]]], {i, 1000}];
```

```
vvt = Table[(vt[[i]] - inbase2[[i]]), {i, 1000}];
```

```
peak = Table[Max[vvt[[i]]], {i, 1000}];
```

```
GraphicsRow[
  {Histogram[peak], Histogram[inbase2], Histogram[innoise2]}, ImageSize → Full]
```

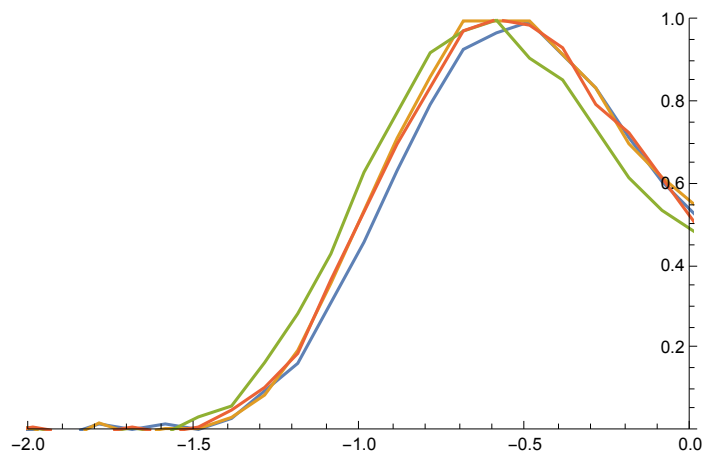


```
v0t = Table[vvt[[i]] / peak[[i]], {i, 1000}];
```

```

ListPlot[{Transpose[{tt, v0t[[1]]}], Transpose[{tt, v0t[[2]]}],
  Transpose[{tt, v0t[[3]]}], Transpose[{tt, v0t[[4]]}] (*,
  Transpose[{ttt, v01[[5]]}], Transpose[{ttt, v01[[6]]}],
  Transpose[{ttt, v01[[7]]}], Transpose[{ttt, v01[[8]]}],
  Transpose[{ttt, v01[[9]]}], Transpose[{ttt, v01[[10]]}],
  Transpose[{ttt, v01[[11]]}], Transpose[{ttt, v01[[12]]}] *)},
PlotRange → {{-2, 0}, {0, 1}}, Joined → True]

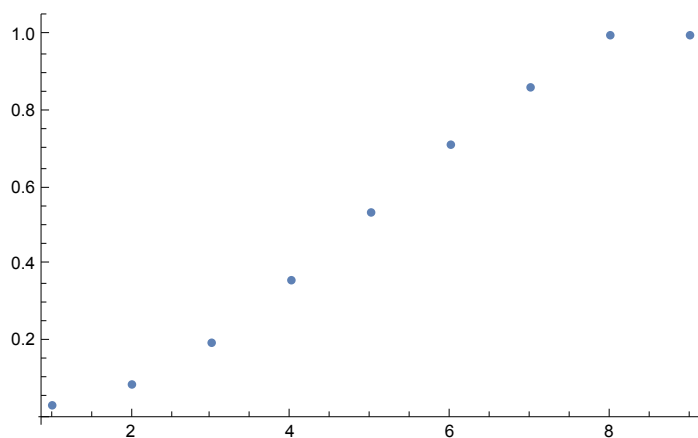
```



```

ListPlot[Take[v0t[[2]], {252, 260}], PlotRange → Full]

```



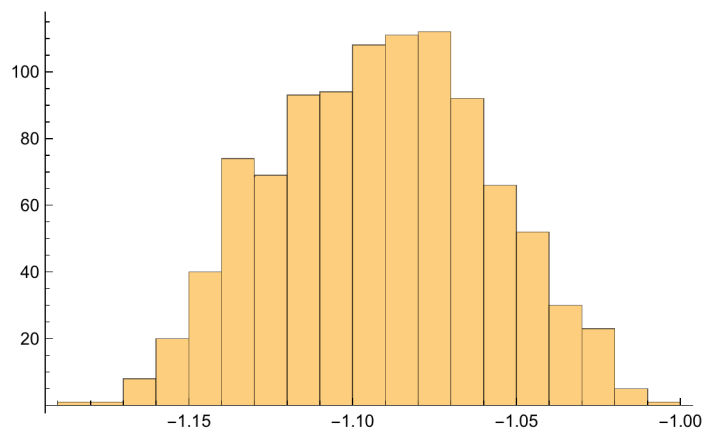
```

v0t1 = Table[Take[v0t[[i]], {253, 258}], {i, 1000}];
tttt = Take[tt, {253, 258}];

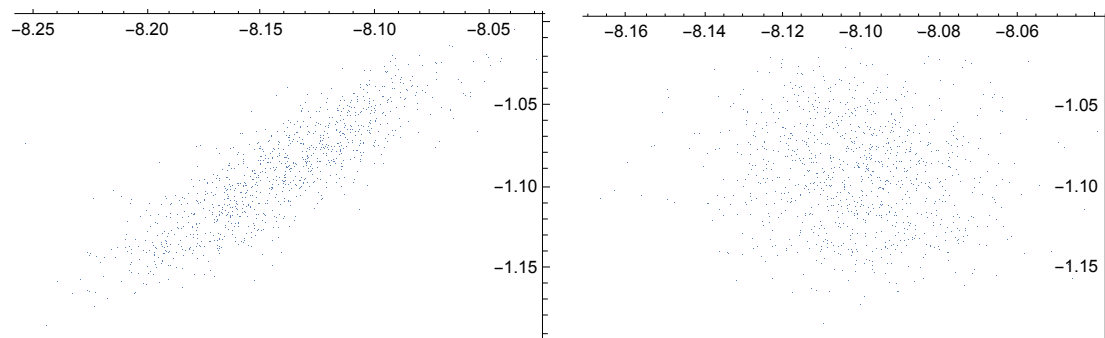
thresh1 = ConstantArray[0, 1000];
Do[
  f = Interpolation[
    Transpose[{(v0t1[[i]] * (1 + RandomReal[{- .001, .001}]}), tttt)}];
  thresh1[[i]] = f[0.35];
, {i, 1000}];

```

Histogram[thresh1]



**GraphicsRow[{ListPlot[Transpose[{thresh, thresh1}]],
ListPlot[Transpose[{thresh - (thresh1 + 1.05), thresh1}]]}, ImageSize → Large]**



mn2 = Mean[thresh - (thresh1 + 1.05)]
rms2 = RootMeanSquare[(thresh - (thresh1 + 1.05)) - mn2]

-8.10117

0.0186925