Brief Report on Silicon Detector

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In Sep. 6th Silicon meeting, timing and charge loss were discussed. I tried to check raw data by myself. The analysis program is provided by Y. Kato. In the program, CT_TrackingModule SiPatternRecModule and SiHitAnalyser were main tools. The programs are stored in FCDF-SGI2:/cdf/cdf/scratch/ryuichi/my3.18.3. Only 200 events of following data file were used just for test. The corresponding run numer is 125052.

```
include file /cdf/data08/look/aphysr/ar01e86c.0001phys
```

The program generates root ntuple file. The script as follows can make plots shown here. Cluster charge distribution and charge vs eta for layer 1 and layer 5 are shown in Fig.1 and Fig.2. Layer 1 is a first layer of SVX barrel. Charge collection looks normal for all of them. For layer 1 z-side, cluster charge in high eta region is not so high as expected from rphi plot.

Cluster threshold seems to be very low. So we should be aware of the dead time caused by SVX readout.

The residual distribution seems to be showing that COT and primary vertex position infomation are only used for track fitting at this moment.

```
TFile f("hitdata.root");
f->cd("SiHitAnalyzer;1");
TTree *treehit = (TTree*) gDirectory->Get("hitdata;1");
TCanvas c1("taka","residual");
c1.Divide(2,2)
TH1F *h10 = new TH1F("h10","residual",100,-0.02,0.02);
TH1F *h20 = new TH1F("h20","residual",100,-0.02,0.02);
TH1F *h30 = new TH1F("h30","residual",100,-0.02,0.02);
TH1F *h40 = new TH1F("h40","residual",100,-0.02,0.02);
c1.cd(1);
Tcut l10res = " _1.layer==1 && _1.side==0";
treehit->Draw("_1.resid>> h10",Tcutl10res);
Tcut l20res = " _1.layer==2 && _1.side==0";
c1.cd(2);
```

```
treehit->Draw("_1.resid>> h20",Tcutl20res);
c1.cd(3);
Tcut l30res = " _1.layer==3 && _1.side==0";
treehit->Draw("_1.resid>> h30",Tcutl30res);
c1.cd(4);
Tcut l40res = " _1.layer==4 && _1.side==0";
treehit->Draw("_1.resid>> h10",Tcutl40res);
```

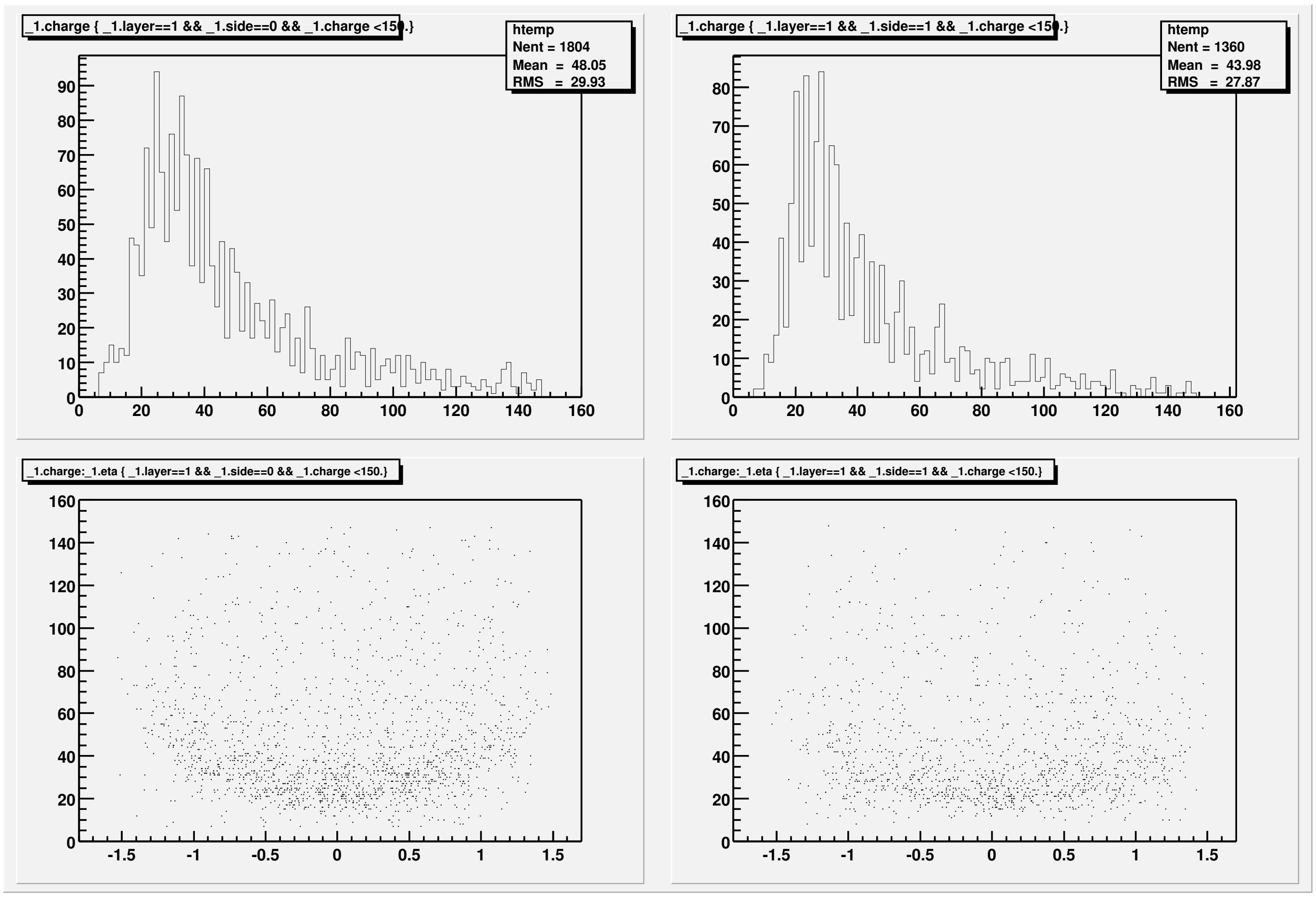

Figure 1: Cluster charge distribution plots.(a)Layer1 rphi side charge distribution.(b)Layer1 z side charge distribution. (c)Layer1 rphi side ADC count vs eta(d)Layer1 z side ADC count vs eta

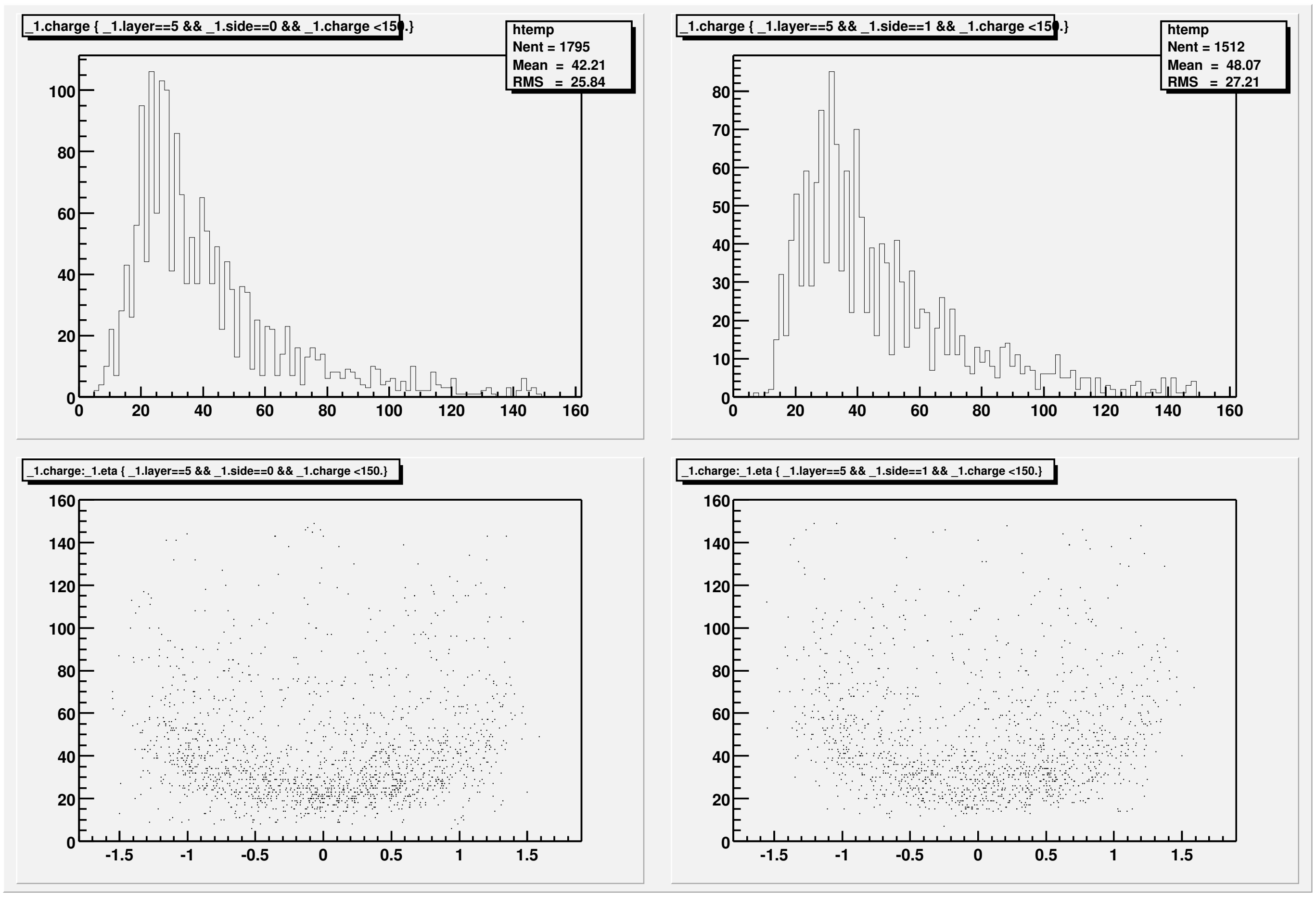

Figure 2: Cluster charge distribution plots.(a)Layer1 rphi side charge distribution.(b)Layer1 z side charge distribution. (c)Layer1 rphi side ADC count vs eta(d)Layer1 z side ADC count vs eta

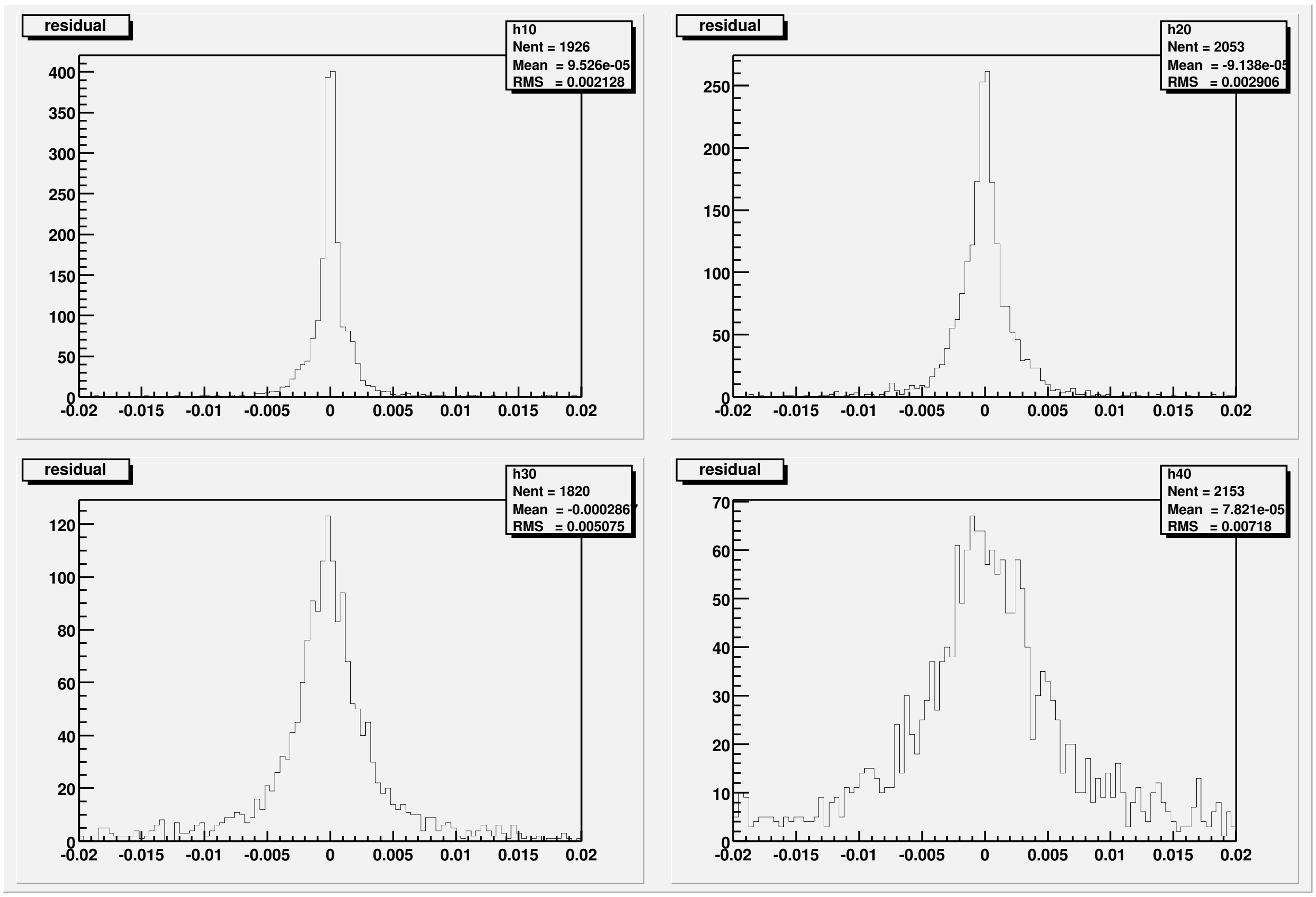

Figure 3: residual distribution.(a)Layer 1 rphi,(b)Layer 2 rphi,(c)Layer 3 rphi,(d)Layer 4 rphi