Space Charge and Grid Leak on pp500 collision

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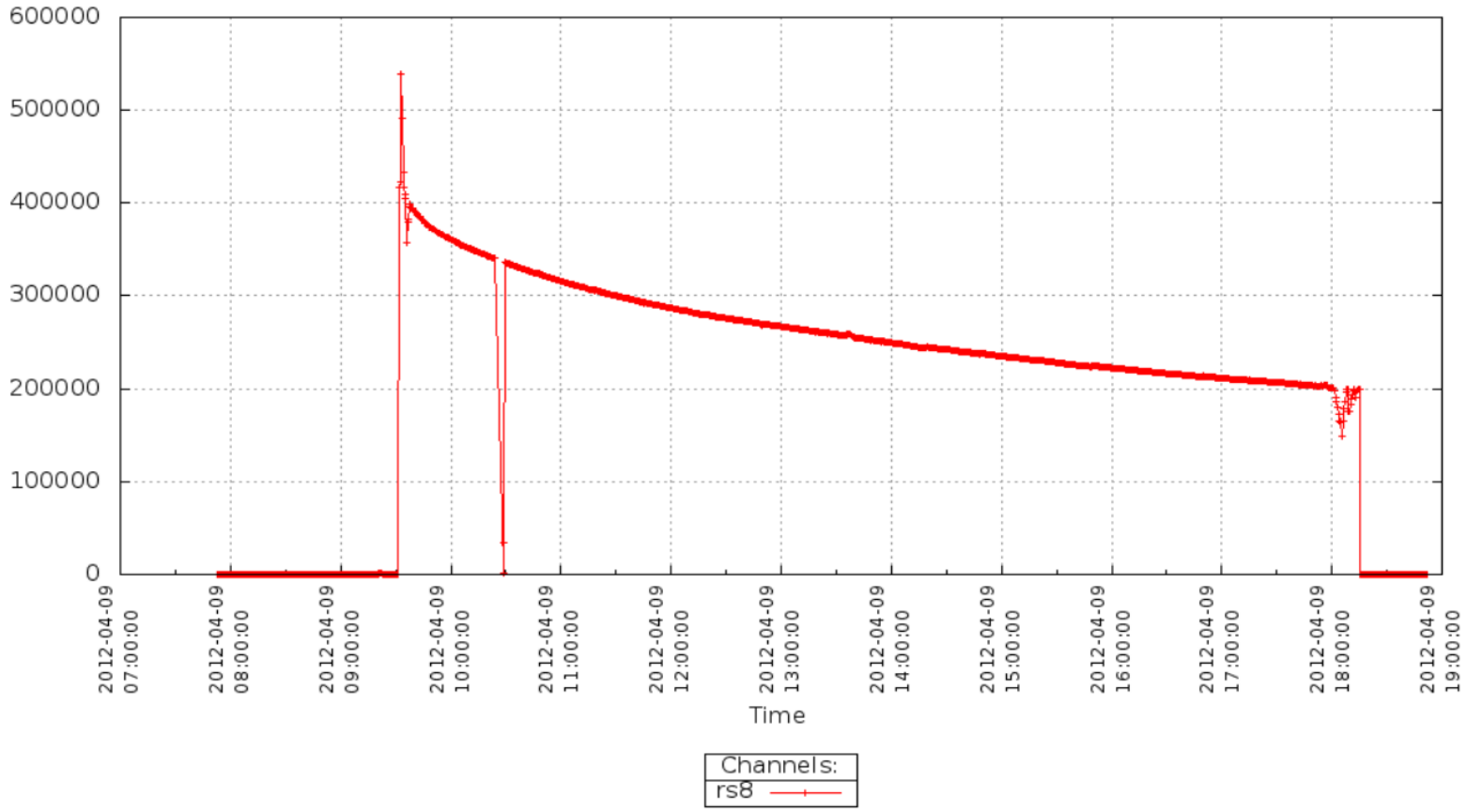
SC and GL on pp collision

- **The introduce of the implementation for the calibration on RCF.**
- **The preliminary result and some problem.**

The introduce of the implementation for the calibration on RCF.

1.We choose the daq files meet the requirement.



The introduce of the implementation for the calibration on RCF.

2.Getting the chain option.

P13ib	rawData	SL13b	ry2012a	DbV20130502 pp2012b AgML mtdDat btof fmsDat VFPPVnoCTB beamline BEmcChkStat Corr4 OSpaceZ2 OGridLeak3D -hitfilt	pp 500GeV run 2012 production with complete calibrations

3.Getting the Initial input file of the calibration of SC and GL.

SpaceCharge:

2.87e-07	0	0	0	0	10000000000.0000000000	1.00000000	2.00000000	9043.00

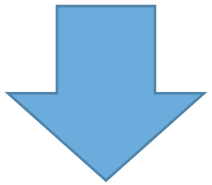
GridLeak:

121.8000000000	0.0000000000	0.0000000000	3.0000000000	0.0000000000	0.0000000000	8.7600000

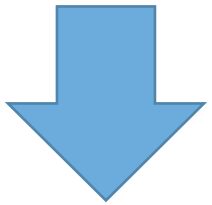
The introduce of the implementation for the calibration on RCF.

4. Running the macro of bfc.C

root4star -l -b -q bfc.C\(&startno;,&endno;,\"pp2012b\ AgML\ DbV20130502\ mtdDat\ btof\ fmsDat\ VFPPVnoCTB\ beamline\ BEmcChkStat\ Corr4\ OSpaceZ2\ OGridLeak3D\ -hitfilt\",\"$INPUTFILE0\",\"&startno;_&endno;_$name\"\)

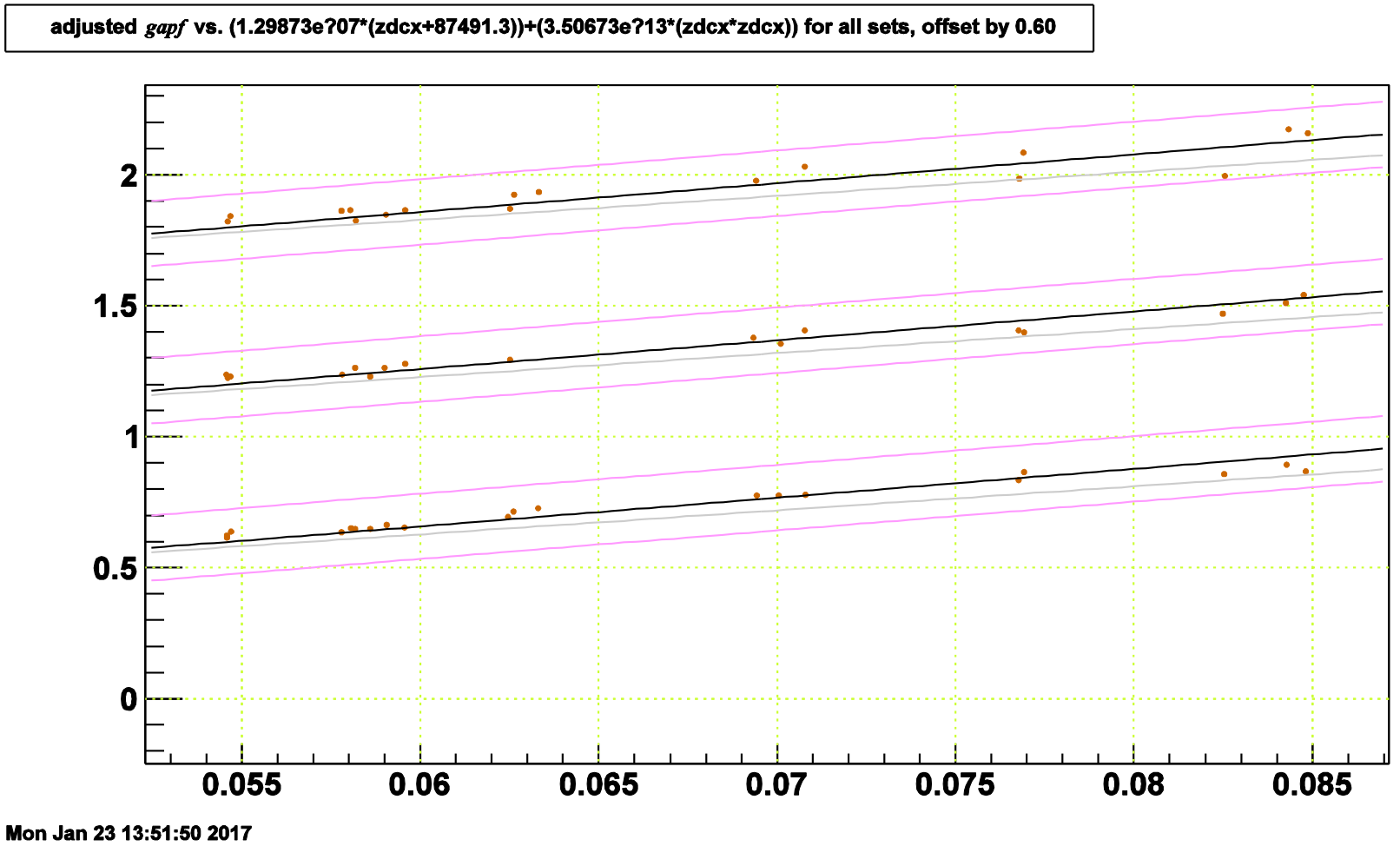


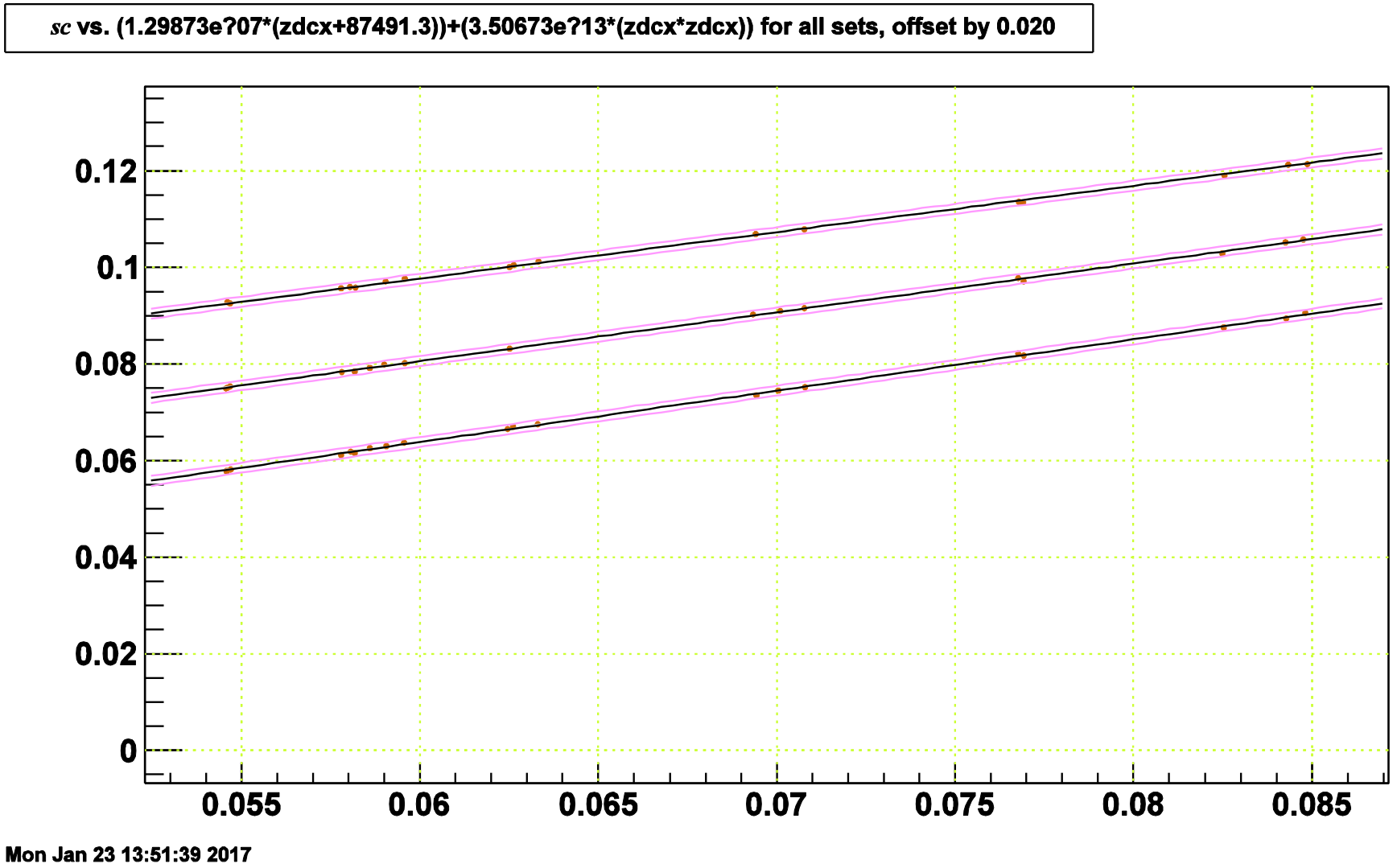
5.Doing calibration of SpaceCharge and GridLeak by SpaceChargeEbyEMaker



6.Caculatiing the relationship about the sc vs Luminosity by fitting.

The preliminary result and some problem




sc vs. (1.29873e?07*(zdcx+87491.3))+(3.50673e?13*(zdcx*zdcx)) for all sets, offset by 0.020
0.12
0.1
0.08
0.06
0.04
0.02
0
0.055
0.06
0.065
0.07
0.075
0.08
0.085
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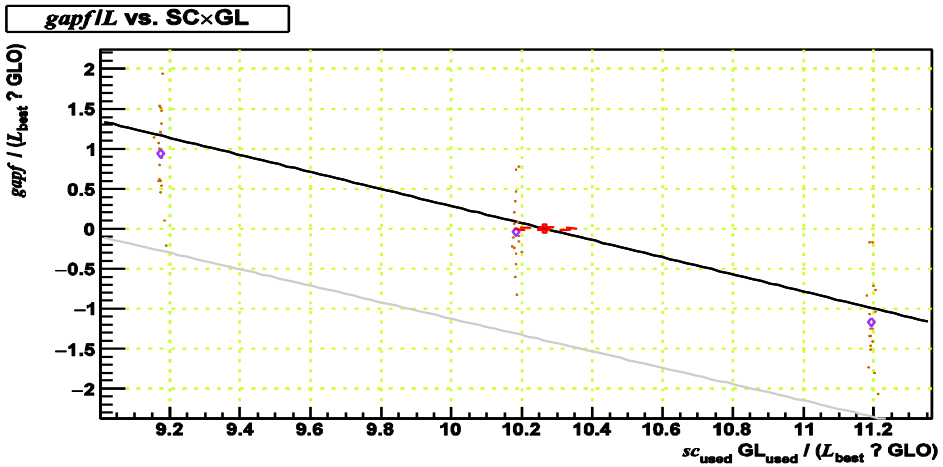

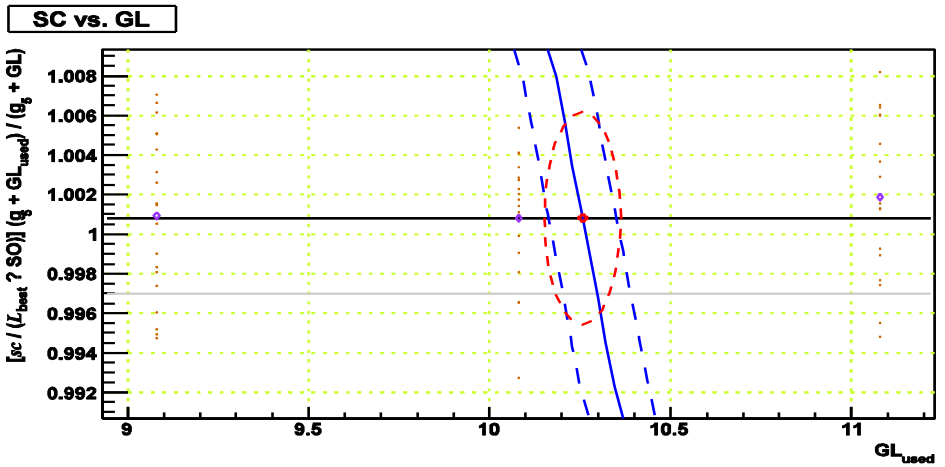

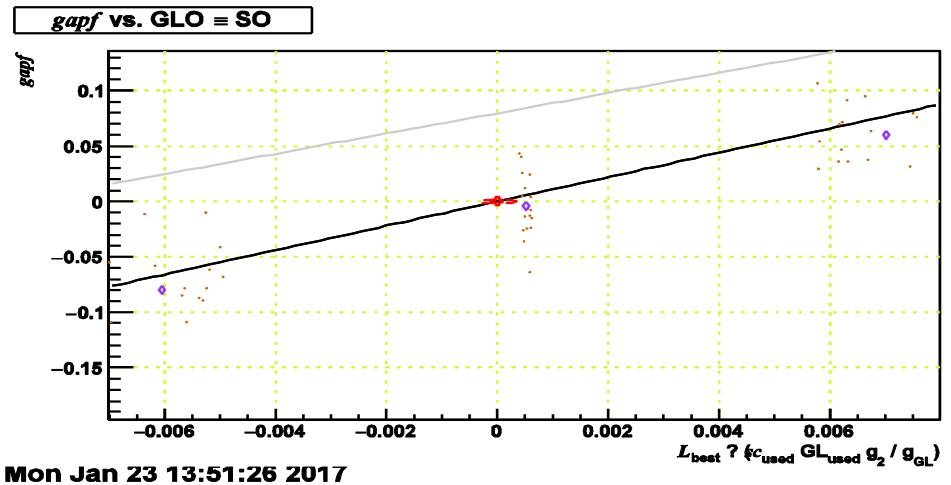

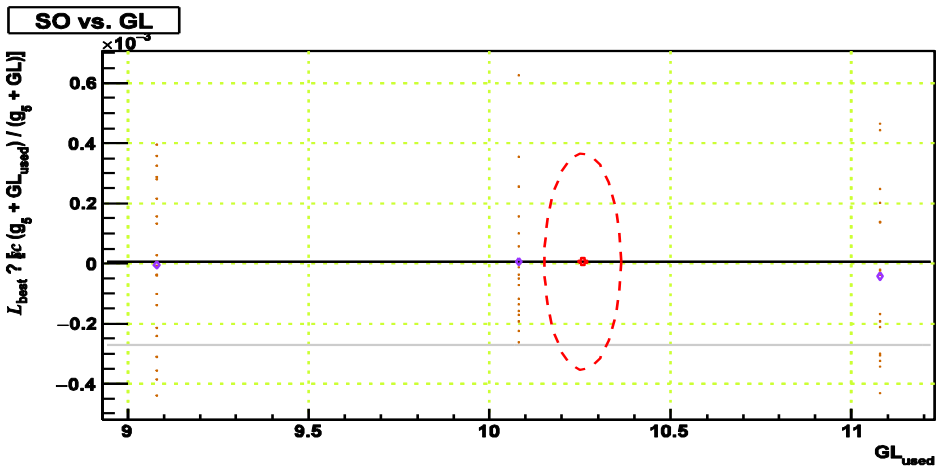

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$$gapf(L) = g_1 (L - GLO) - g_2\, sc_{used}\, GL_{used}$$

The preliminary result

sc=(1.0 +/- 0.0053)*(1.3e-07*(zdcx-(-8.745e+04 +/- 2784) + (3.51e-13*(zdcx*zdcx))))

With Ewratio = 0.972 +/- 0.008

With GL = 10.26 +/- 0.11

A problem about the process is that the final plot mix the SpaceCharge in linear item and square item. So, the plot can not show the each fit result directly.