

*Luminosity Monitor:
Recent Results*

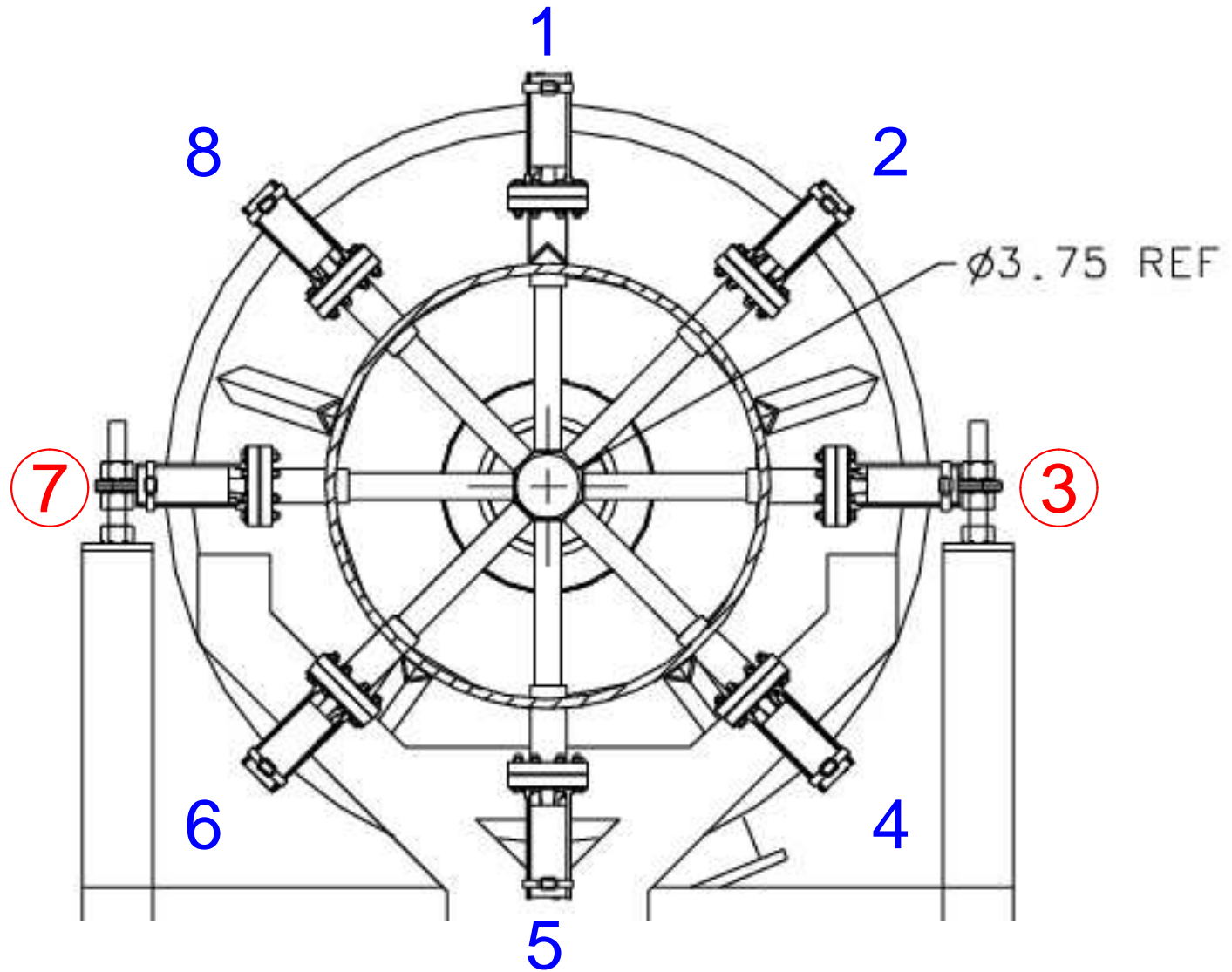
- ★ *Analysis Setup* ★
- ★ *Final Results* ★

Bryan Moffit

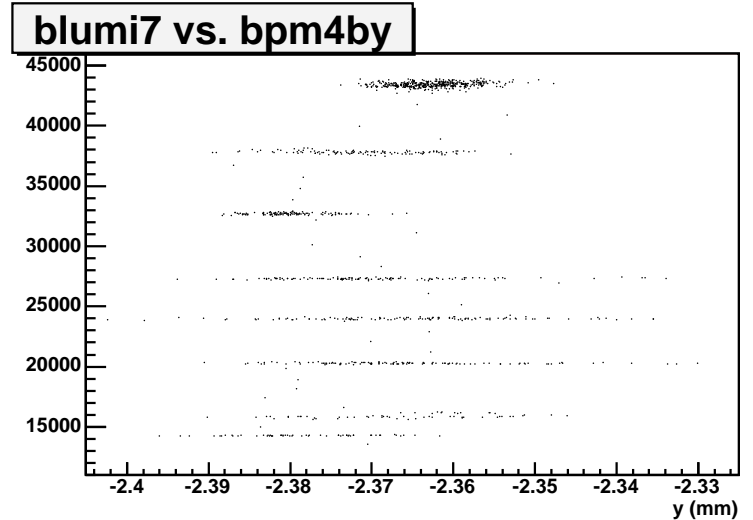
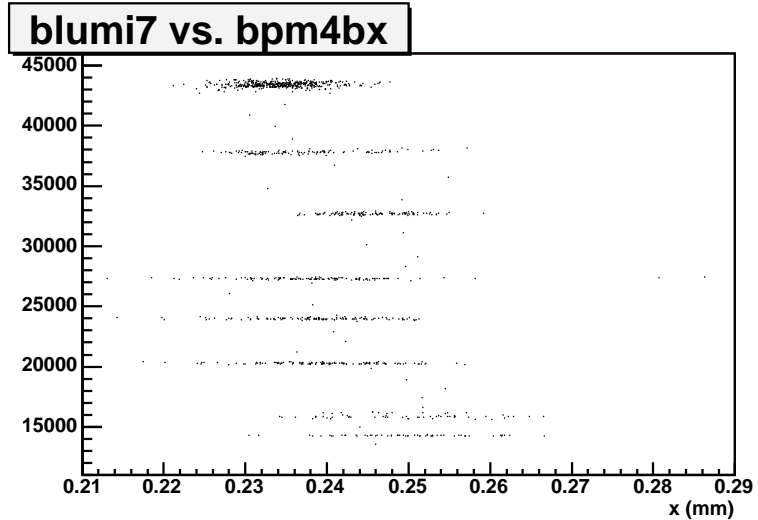
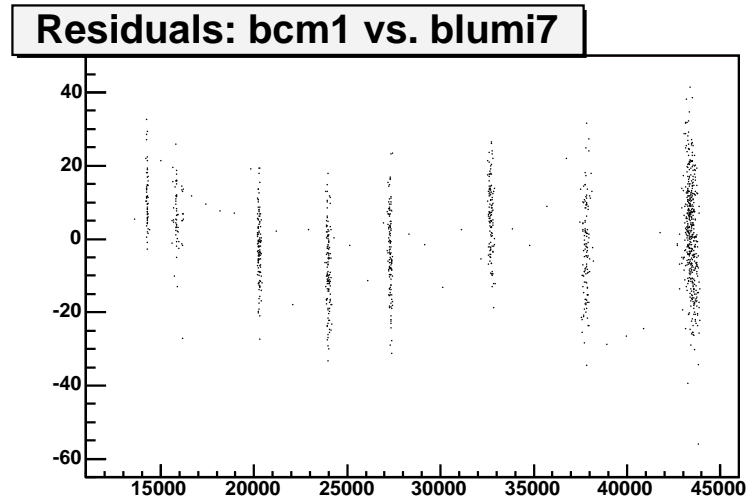
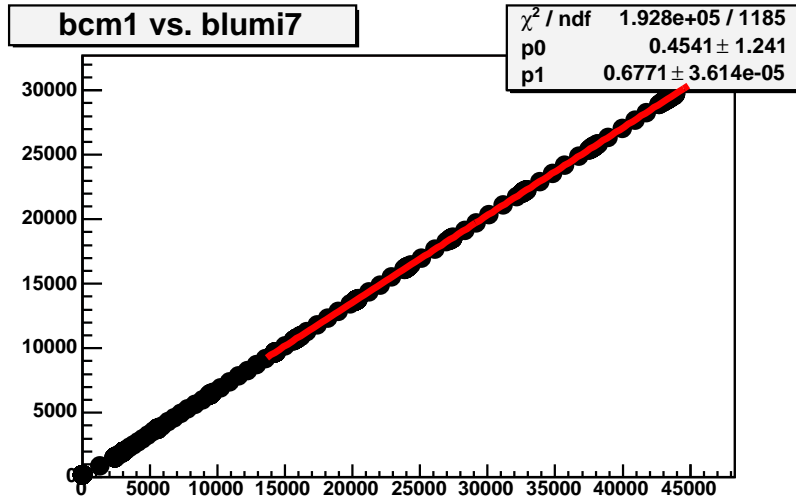


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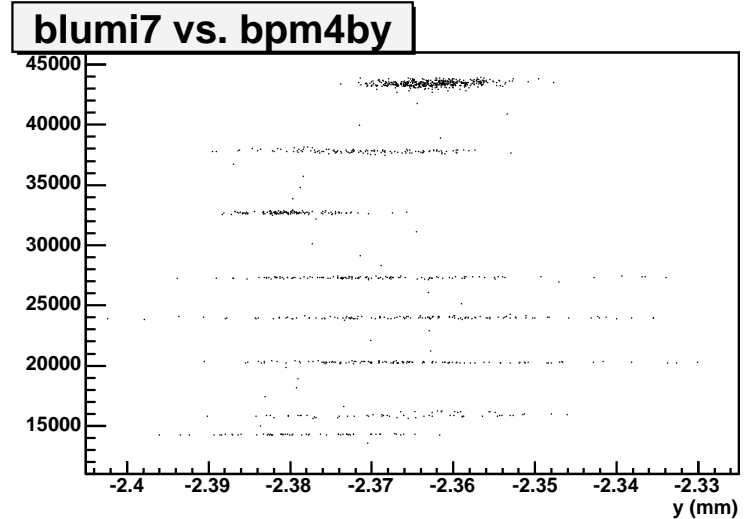
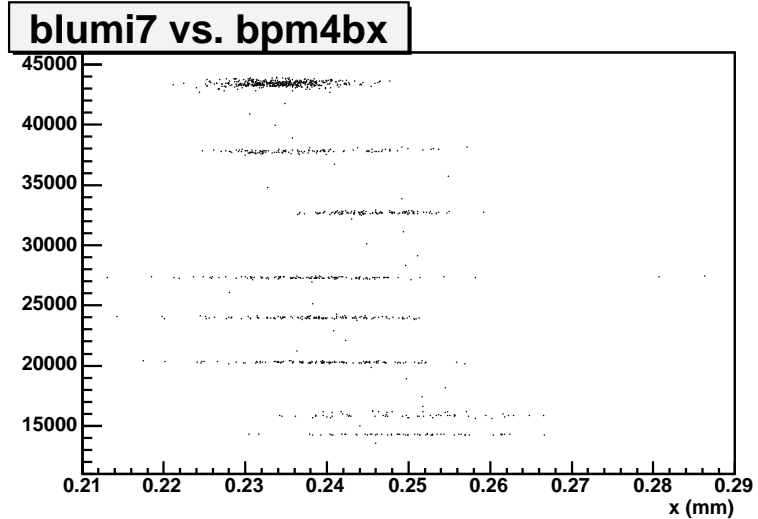
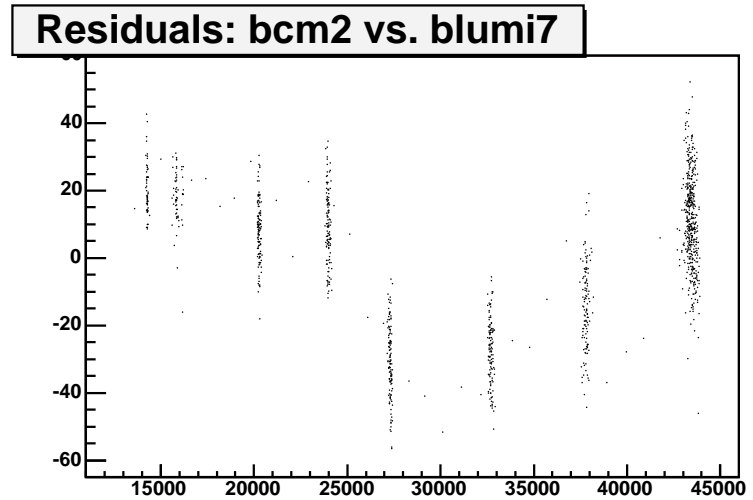
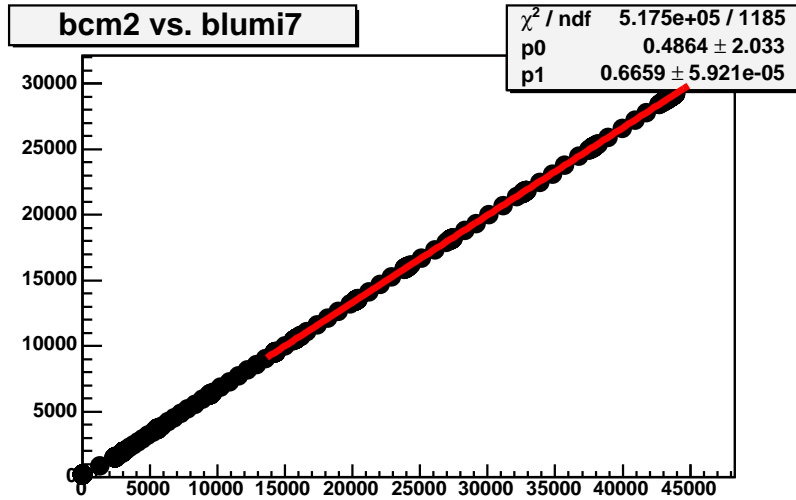
New Luminosity Monitors



BCM1 Pedestal Calibration

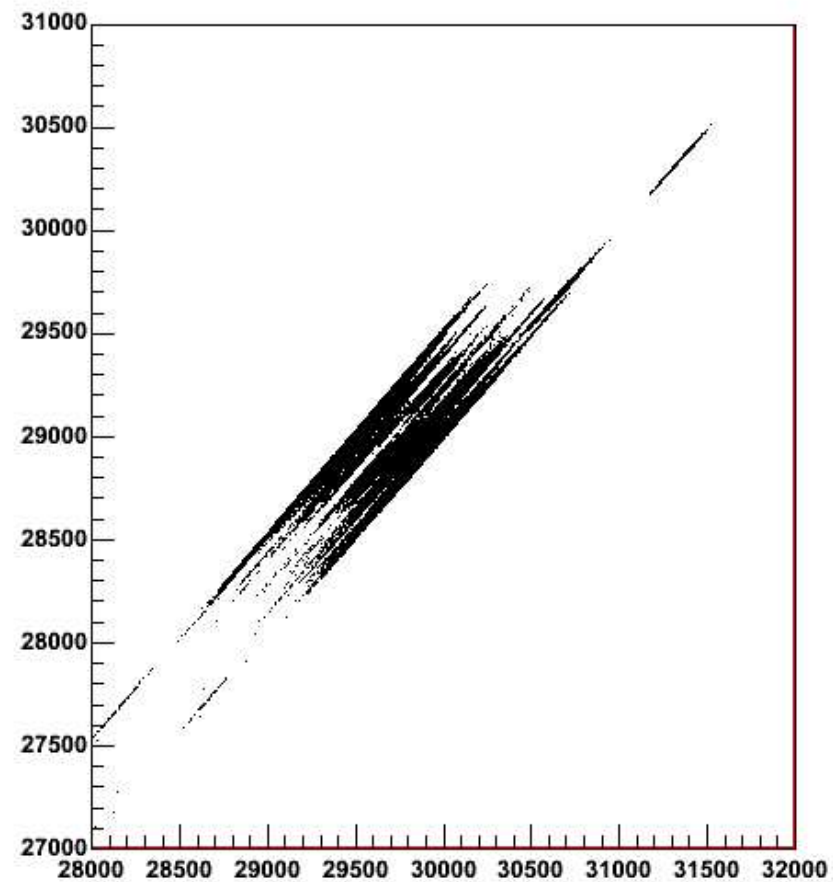
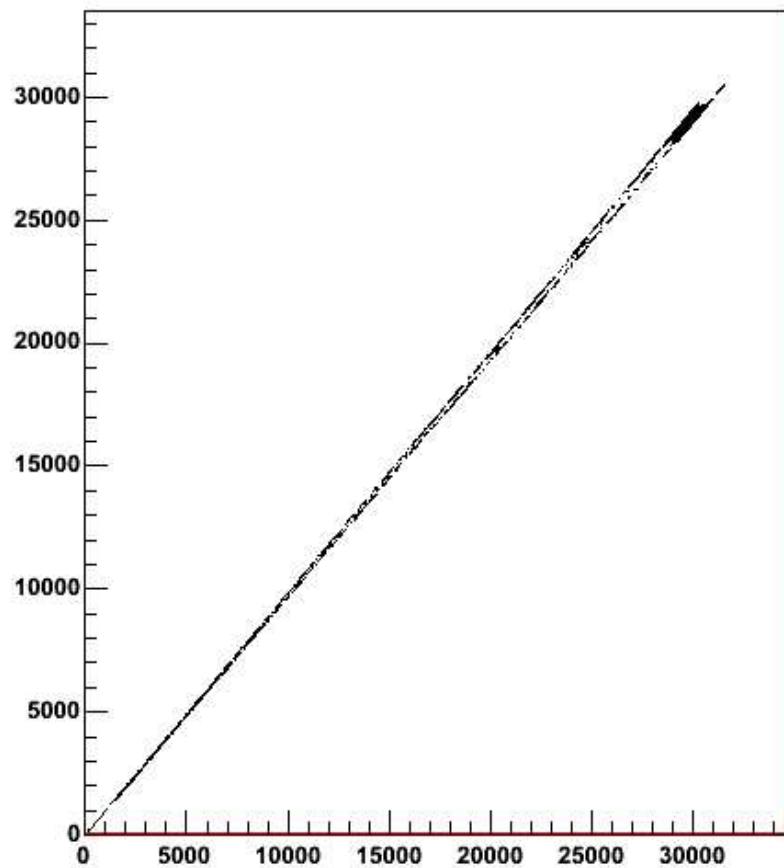


BCM2 Pedestal Calibration



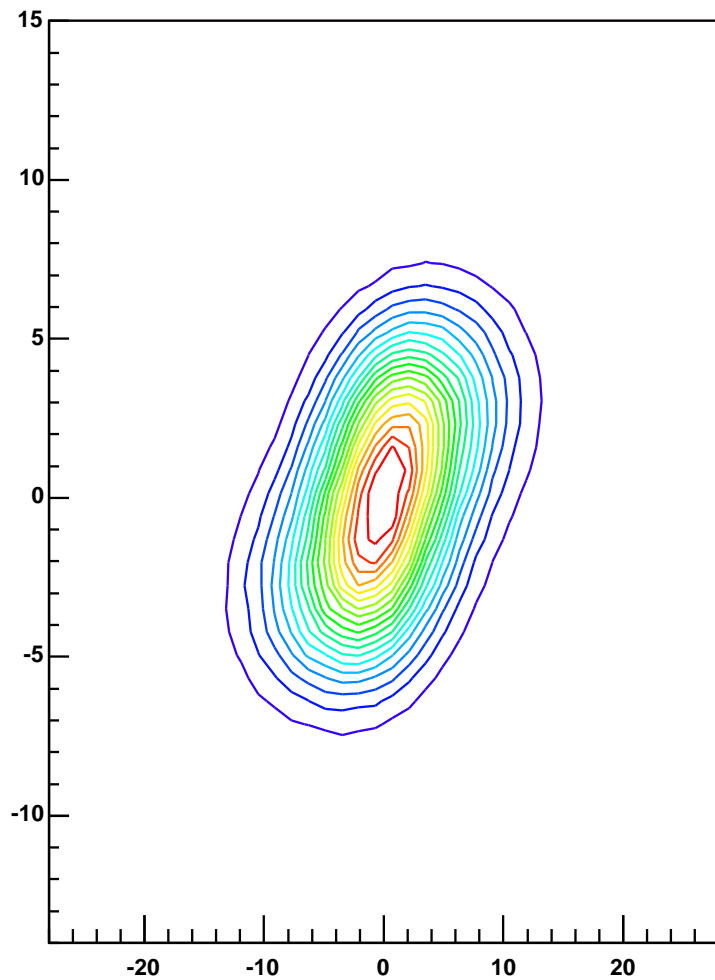
BCM Strangeness

BCM2 vs. BCM1

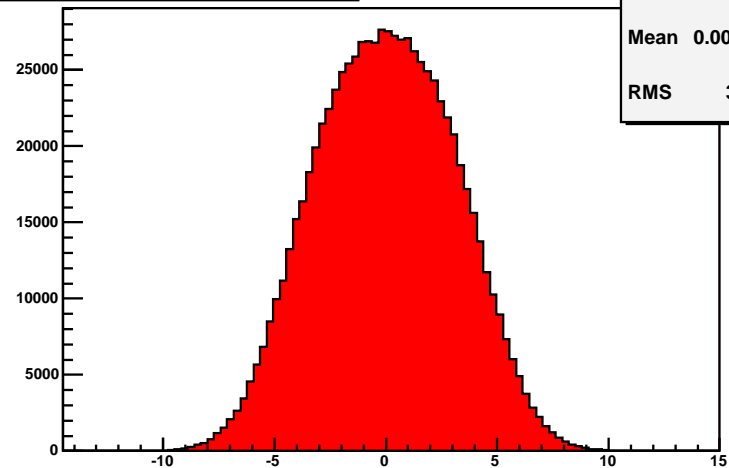


Lumi Pedestal Correlations

Run #1073: BLumi7 vs. Blumi3

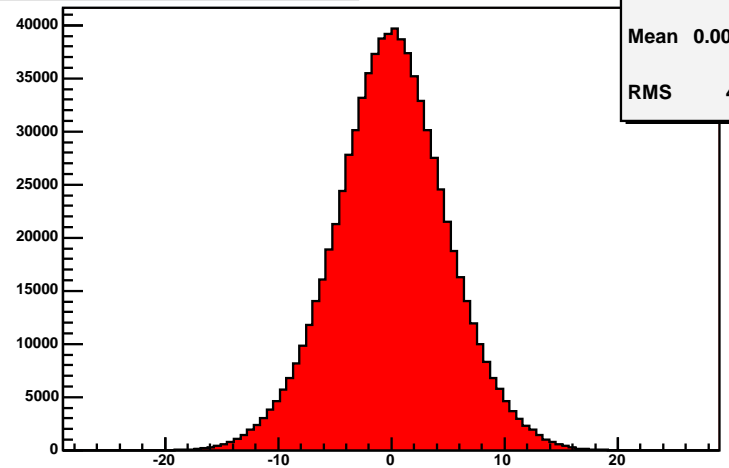


Blumi7 Pedestal



Entries	799947
Mean	0.002354
RMS	3.087

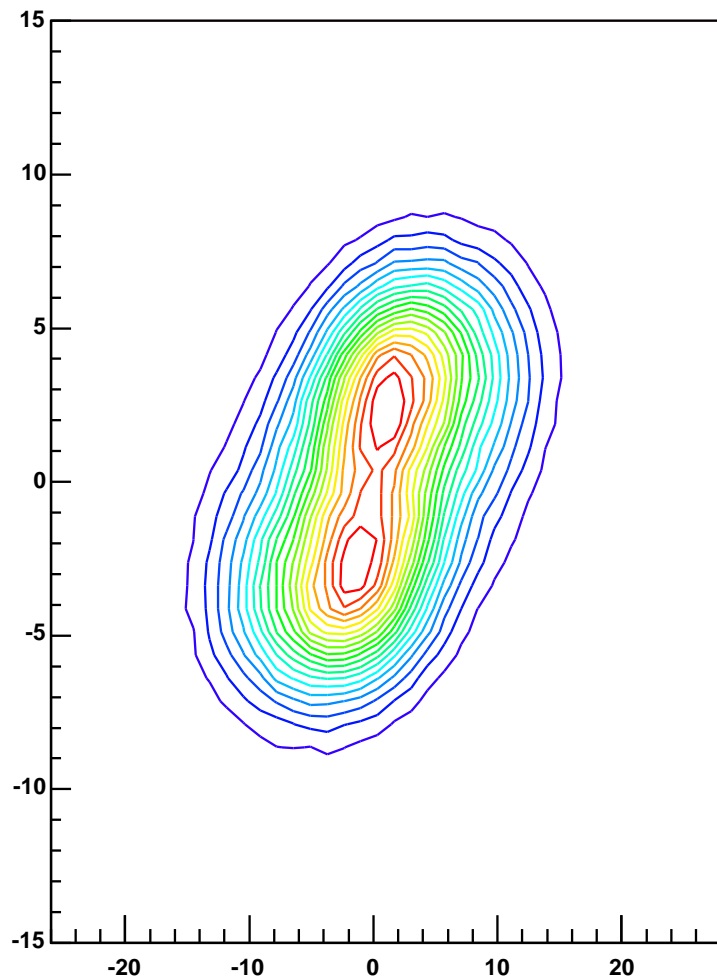
Blumi3 Pedestal



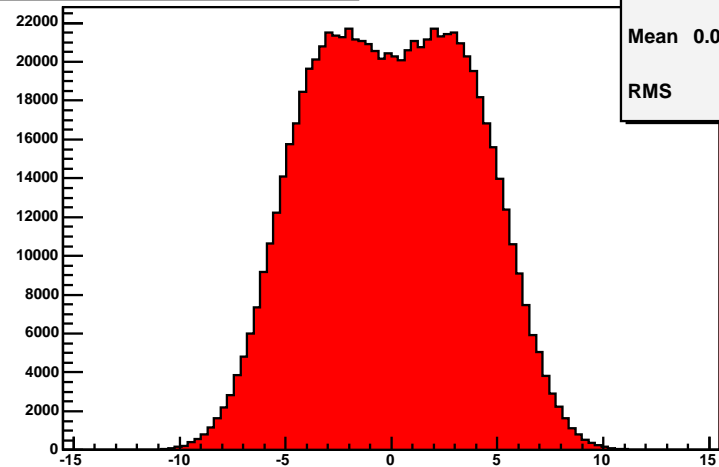
Entries	799947
Mean	0.001845
RMS	4.955

Lumi Pedestal Correlations

Run #1074: BLumi7 vs. Blumi3

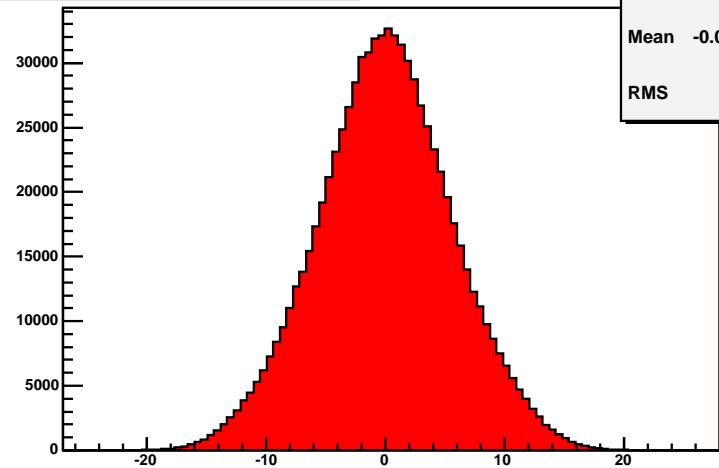


Blumi7 Pedestal



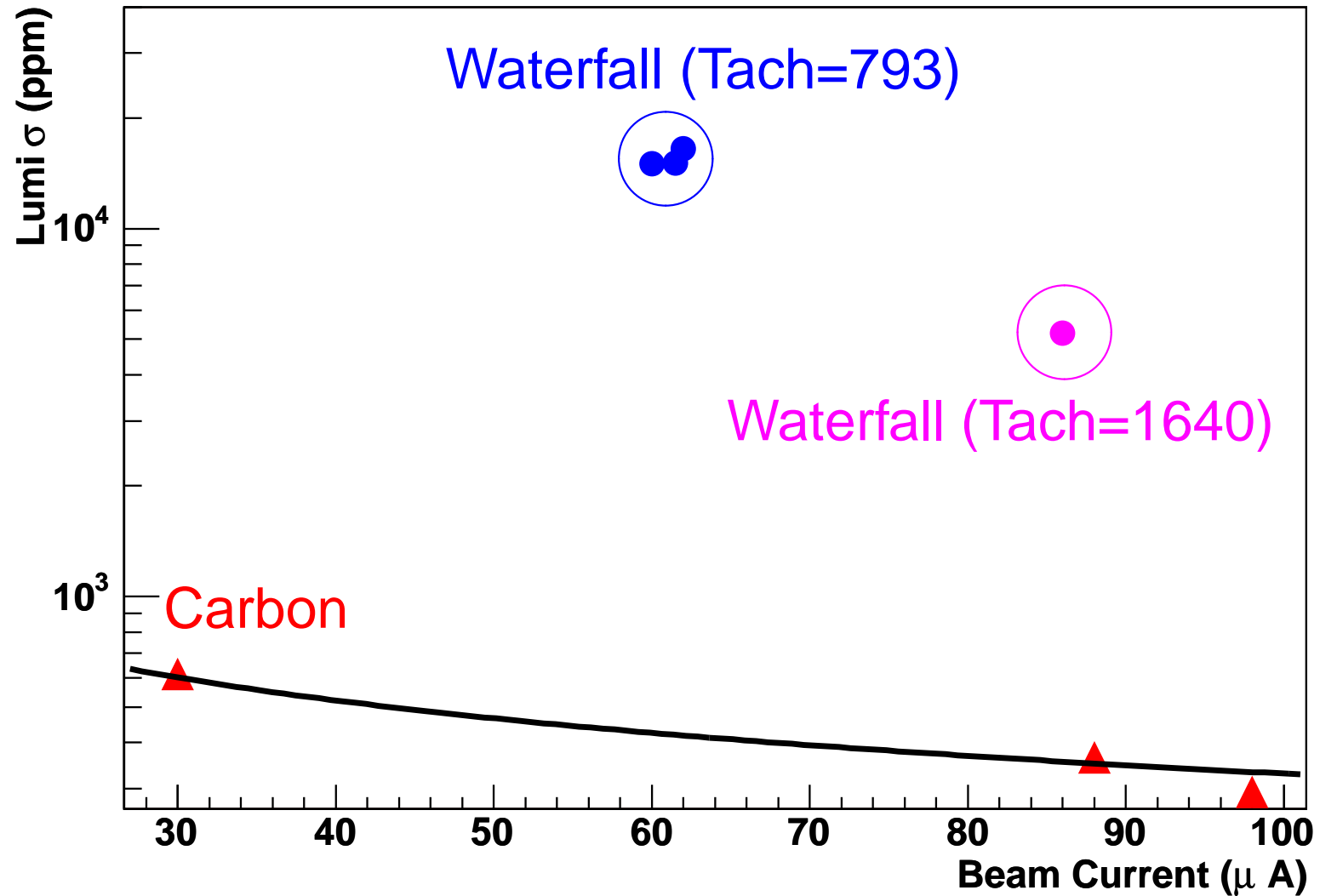
Entries	799953
Mean	0.000492
RMS	3.742

Blumi3 Pedestal



Entries	799953
Mean	-0.006604
RMS	5.639

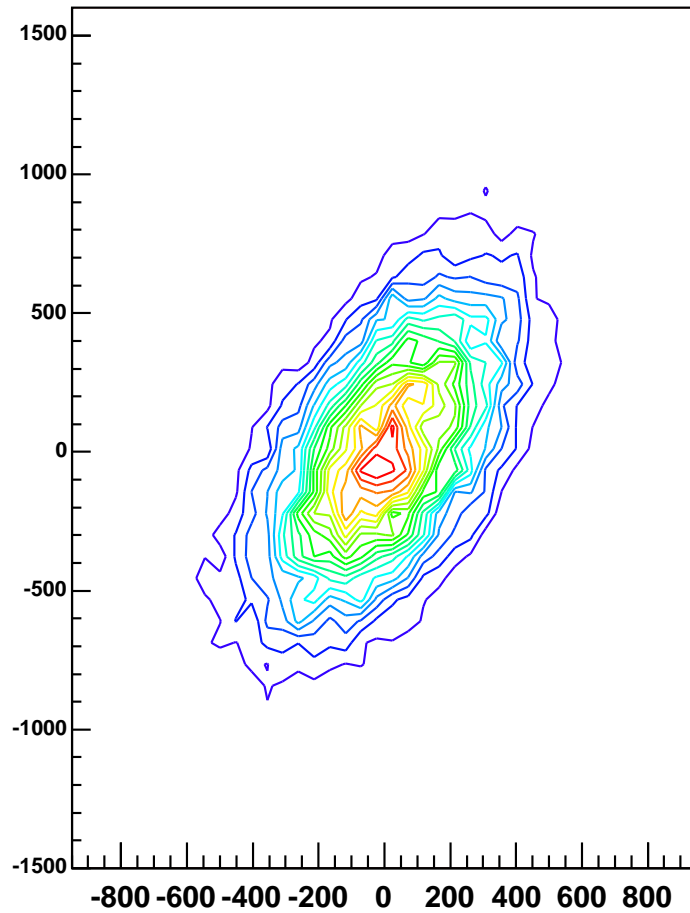
Lumi Asymmetry Widths



Lumi Asymmetry Correlations

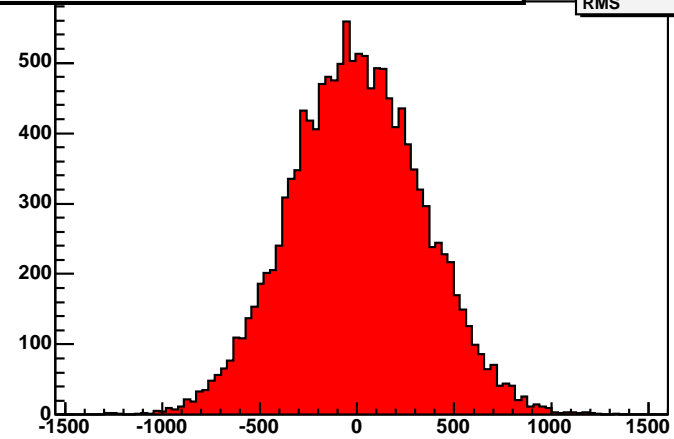
Carbon at $100\mu\text{A}$

Run #1046: BLumi7 vs. Blumi3



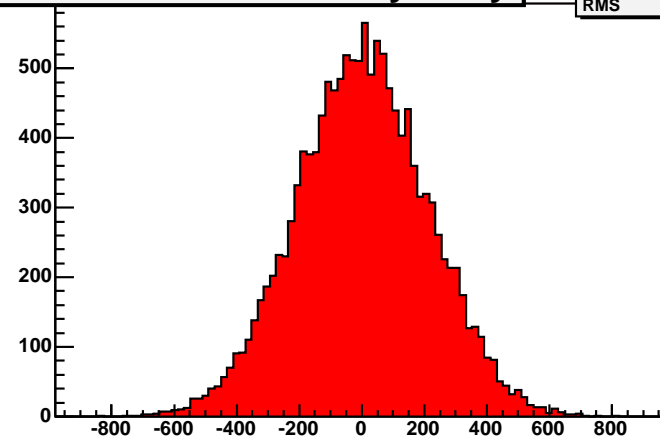
Normalized Blumi7 Asymmetry

Entries	14028
Mean	-0.09955
RMS	338.7



Normalized Blumi3 Asymmetry

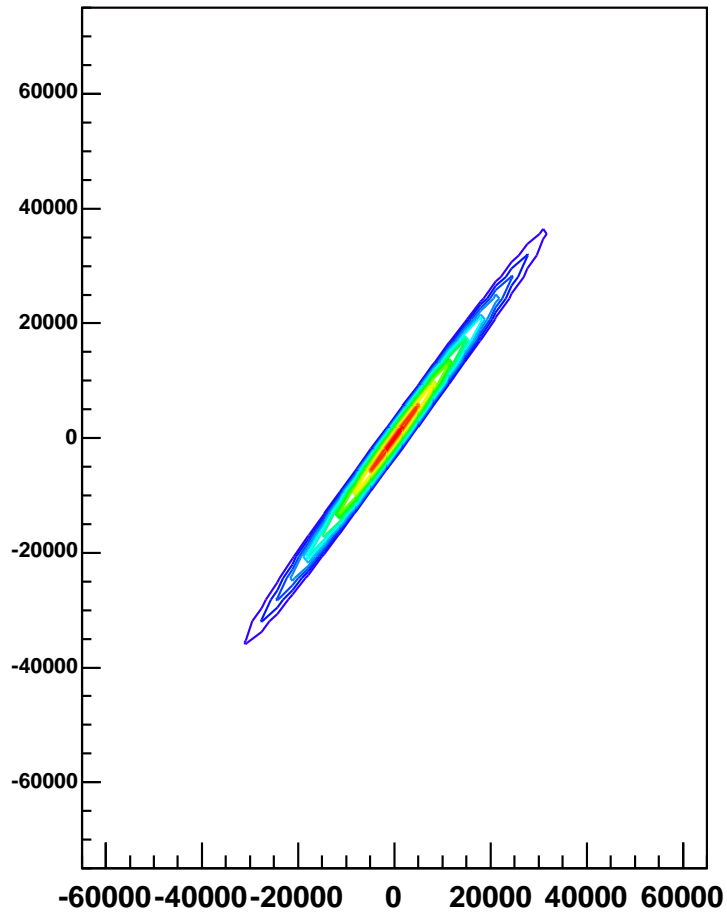
Entries	14028
Mean	1.474
RMS	210.2



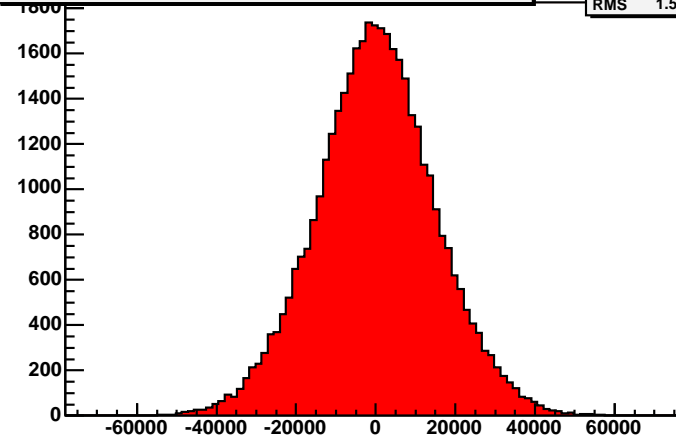
Lumi Asymmetry Correlations

Waterfall at $60\mu\text{A}$

Run #1056: BLumi7 vs. Blumi3

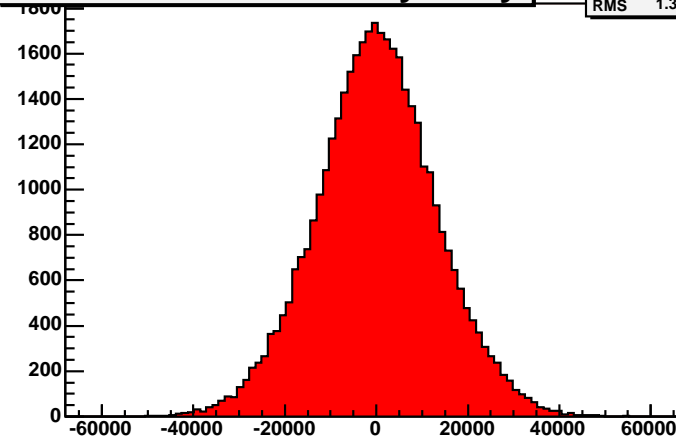


Normalized Blumi7 Asymmetry



Entries	39816
Mean	55.12
RMS	1.502e+04

Normalized Blumi3 Asymmetry

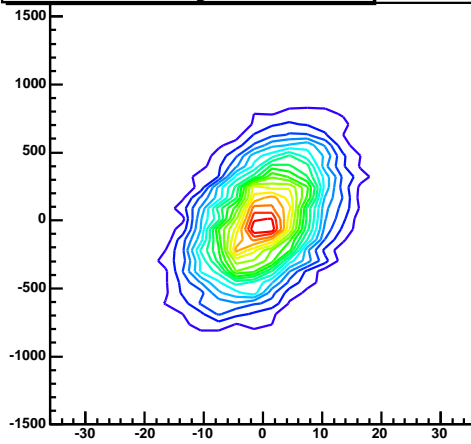


Entries	39816
Mean	48.93
RMS	1.317e+04

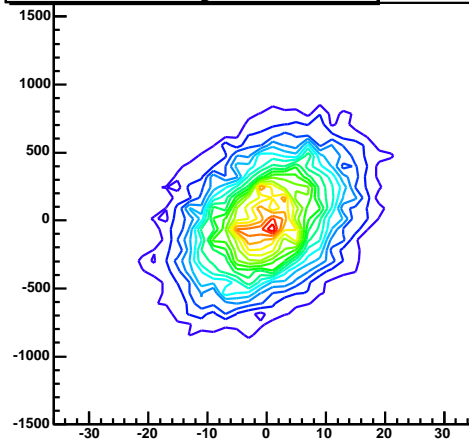
Regression Results

Carbon at $100\mu\text{A}$

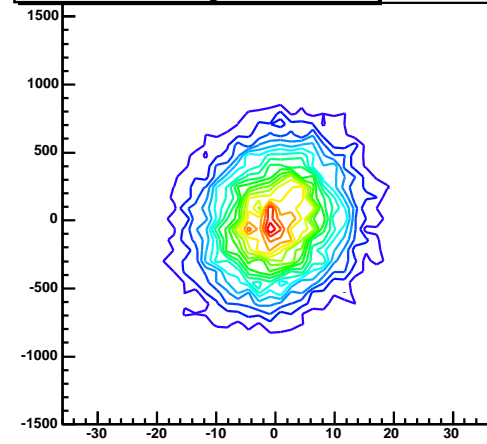
Sensitivity to 4BX



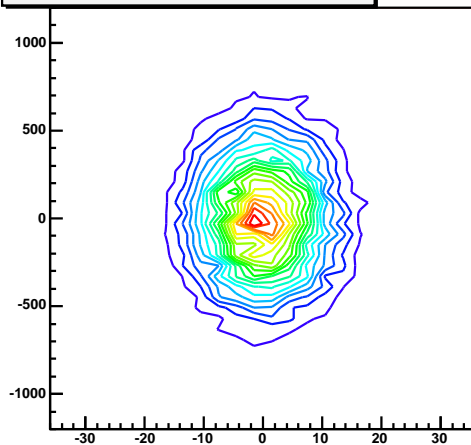
Sensitivity to 4BY



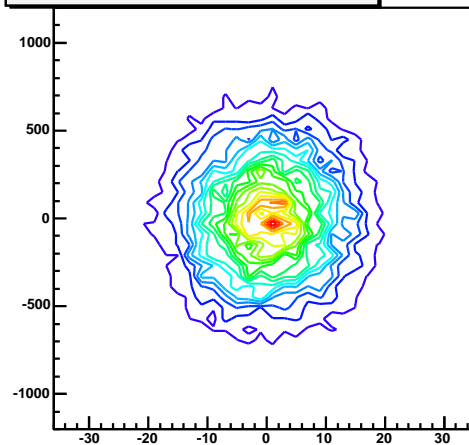
Sensitivity to 12X



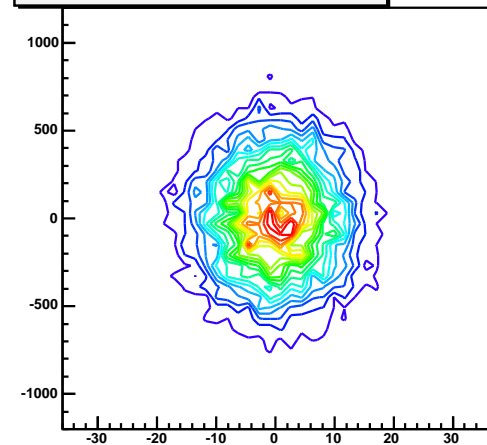
Slope = $14.4 \pm 1.2 \text{ ppm}/\mu\text{m}$



Slope = $9.8 \pm 1.3 \text{ ppm}/\mu\text{m}$



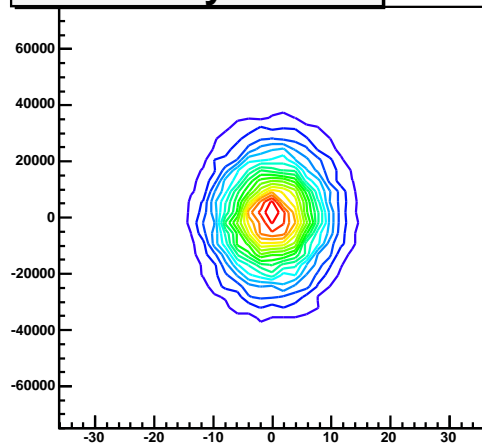
Slope = $1.1 \pm 0.4 \text{ ppm}/\mu\text{m}$



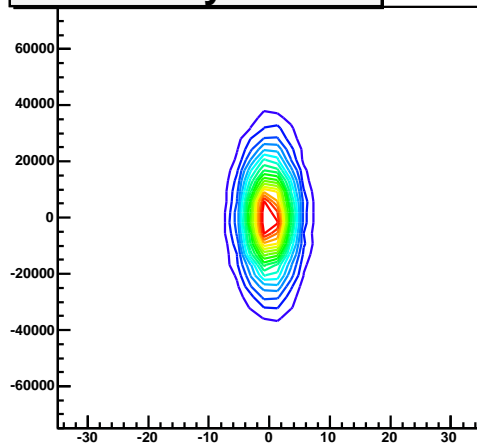
Regression Results

Waterfall at $60\mu\text{A}$

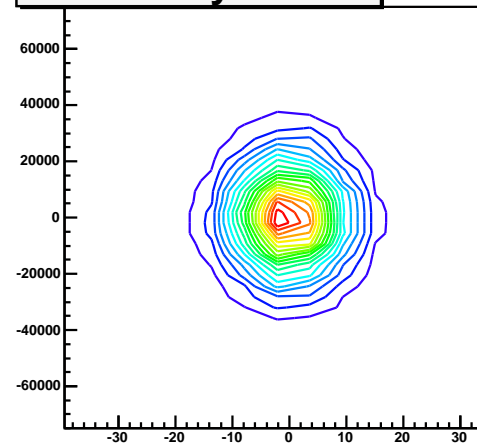
Sensitivity to 4BX



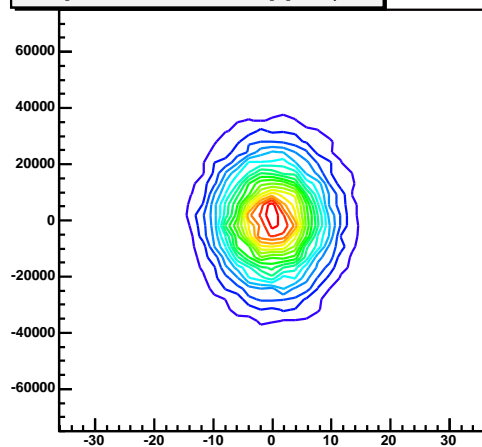
Sensitivity to 4BY



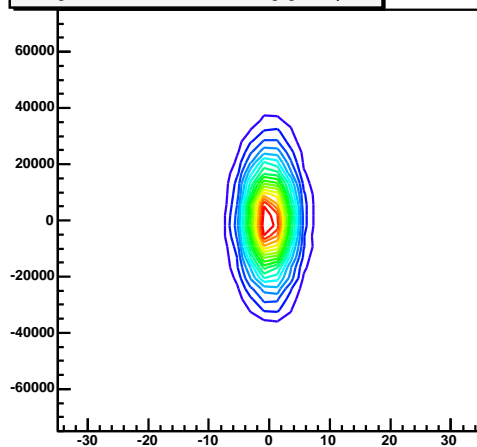
Sensitivity to 12X



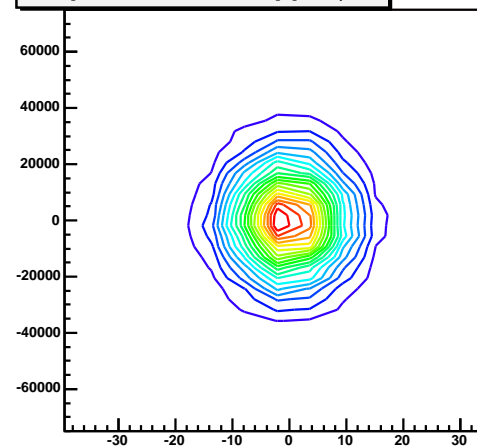
Slope = 58.2 ± 27.5 ppm/ μm



Slope = -34.9 ± 46.5 ppm/ μm

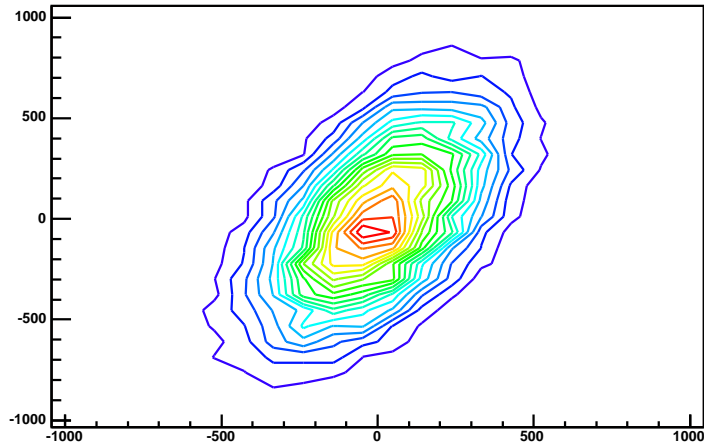


Slope = 12.6 ± 12.2 ppm/ μm

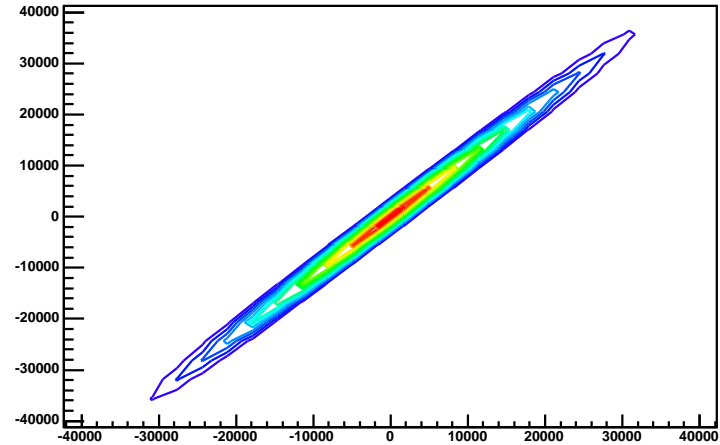


Lumi Correlations after Regression

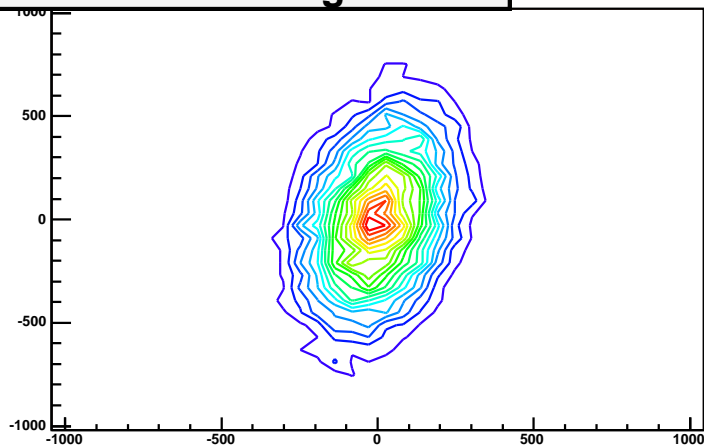
Carbon



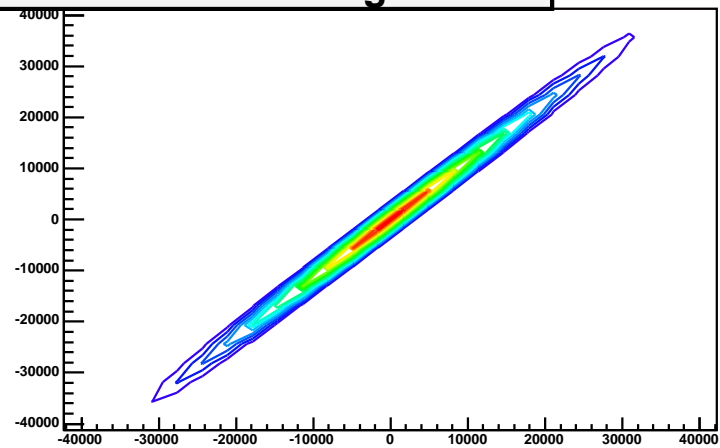
Waterfall



Carbon: After Regression



Waterfall: After Regression



Interesting Regression Slopes

^{12}C	Blumi3	Blumi 7
4BX	15.2 ± 0.7	14.4 ± 1.2
4AX	1.8 ± 0.9	6.1 ± 1.3
4BY	9.6 ± 0.8	9.8 ± 1.3
4AY	2.0 ± 0.8	2.7 ± 1.3

(Units of ppm/ μm)