First Collision Results from Stage 0 for the COT

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Commissing Meeting
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- **Current Status**
- **Some Results from 1st Collisions**
- **Status and Plans**

Current Status

Running as an online consumer

- Filling histograms
- Fitting drift constants
- Consumers not started automatically yet

Currently no interaction with database

- Fitted results written to summary file
- Not copied to database

Results from First Collision Data

- **Run on all runs with COT from last weekend**
  - **- 101391**
  - **- 101399**
  - **- 101400**
  - **- 101401**
  - **- 101403**
  - **- 101426**
  - **- 101427**
- **Recall SL3 HV at 95%, SL4 HV at 98%**
- **Fill Standard Histograms**
- **Fit 3 drift parameters separately for each SL**
  - **- Drift Angle**
  - **- Drift velocity**
  - **-** t_0
- **Track Selection Criteria**
  - **- 3d Fit**
  - **- >20 Axial Hits**
  - **-** $|d_0| <$ **5.0 cm**

Results

- **8379 Track Found**
- **425 Tracks Used**

SL	Hits	β	$1/v_{drift}$(ns/cm)	t_0 (ns)
1	2300	-0.116	184.5	17.9
2	2757	-0.077	185.2	17.7
3	2032	-0.102	182.6	19.5
4	3482	-0.078	184.8	18.8
5	3604	-0.131	180.4	17.0
6	3218	-0.073	184.2	17.2
7	2560	-0.122	179.8	17.2
8	2434	-0.092	180.3	17.6

Typical Errors from Fit

- β: **+/- 0.004**
- $1/v$: **+/- 0.5**
- t_0: **+/- 0.2**

Run-to-run variations

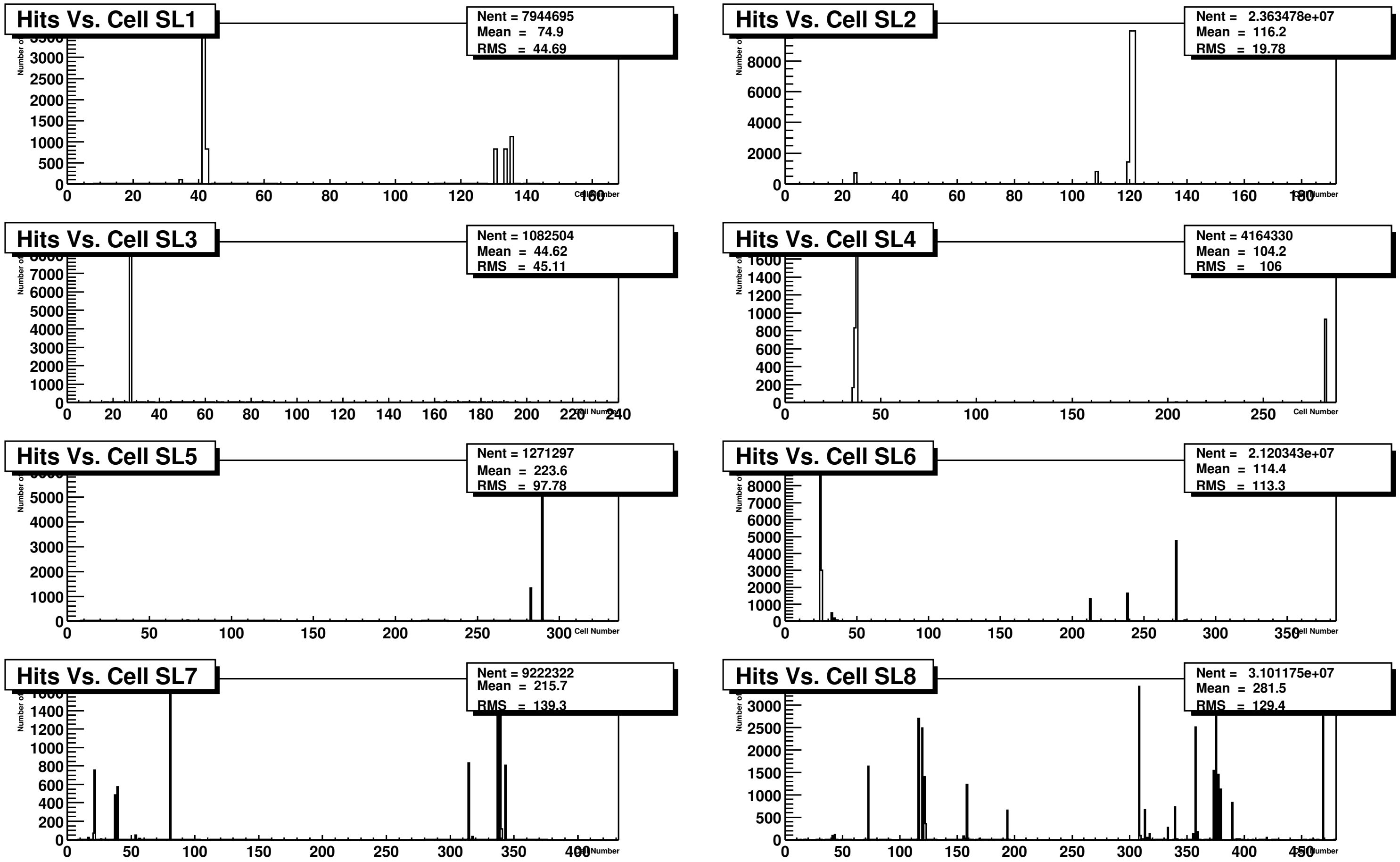
- **Fit all SL together**
- **Separate fits for each file**
- **Relax cuts on Axial Hits and d_0**

File	Tks	GdTks	Hits	β	$1/v$	t_0
101391a	435	37	1645	-0.132	178.5	17.9
101391b	281	21	855	-0.096	181.9	17.1
101393a	442	47	2044	-0.119	181.6	18.0
101393b	536	67	2922	-0.092	183.2	15.9
101393c	294	30	1318	-0.124	183.6	14.3
101400a	667	50	2089	-0.085	181.6	15.9
101400b	410	50	2215	-0.123	182.2	17.2
101400c	267	13	562	+0.102	181.5	16.2
101401a	404	21	1039	-0.181	178.2	16.8
101403a	426	31	1346	-0.075	183.2	15.7
101426a	2292	313	14753	-0.063	184.1	17.7
101427a	1925	145	7535	-0.050	185.9	16.8

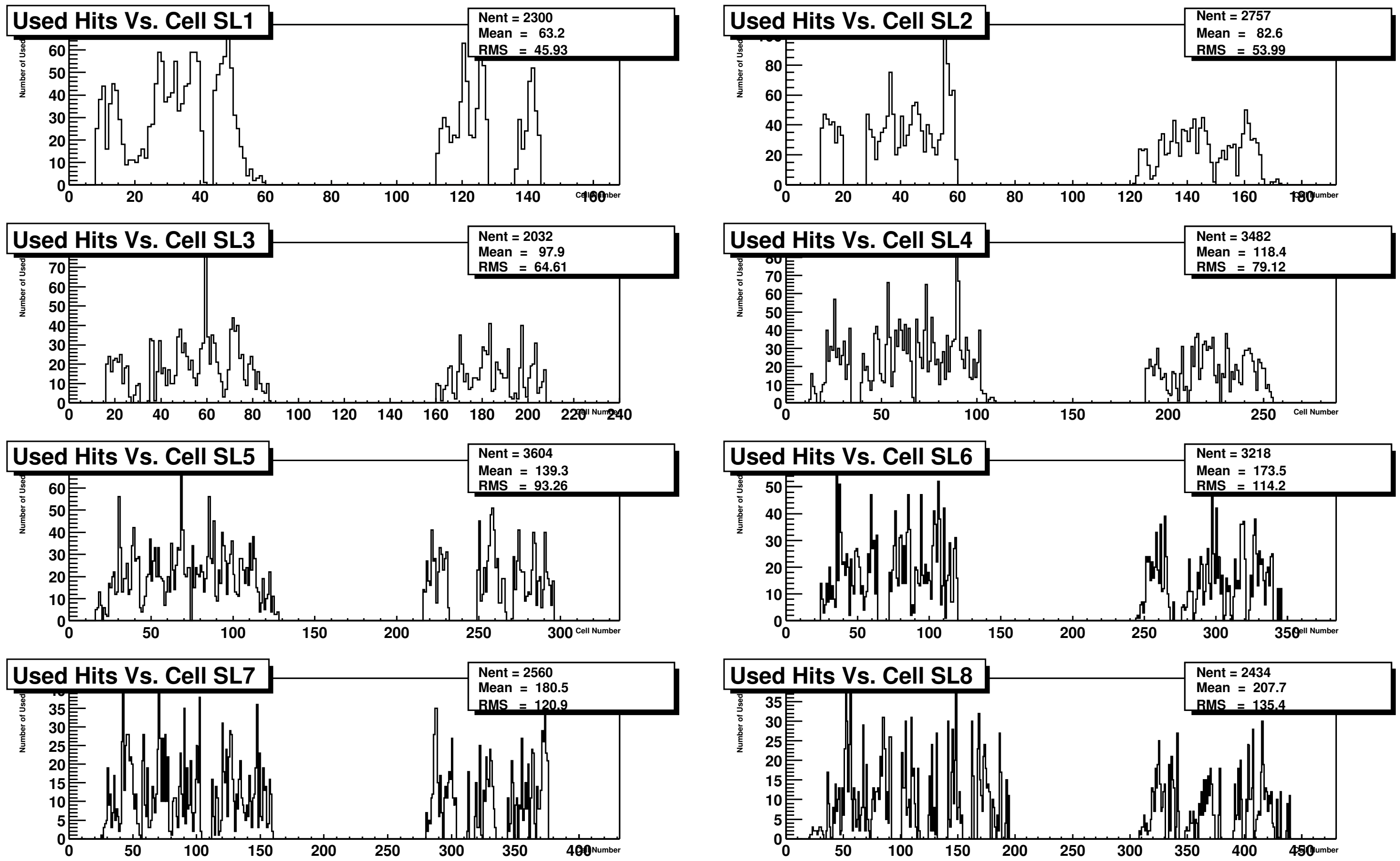
Status/Plans

- **Still need to include:**
  - **- Length calibrations**
  - **- Channel t_0's**
  - **- Penn Width Correction**
- **Fixed parameters in model taken from m.c.**
  - **- Can we get a large enough sample to fit them in data?**
- **Once we have a good set of constants**
  - **- Load into database**
  - **- Would be used by Level3, Stage0**
- **Longer term: Changes to drift model?**
  - **- Near wire**
  - **- Near field sheet**

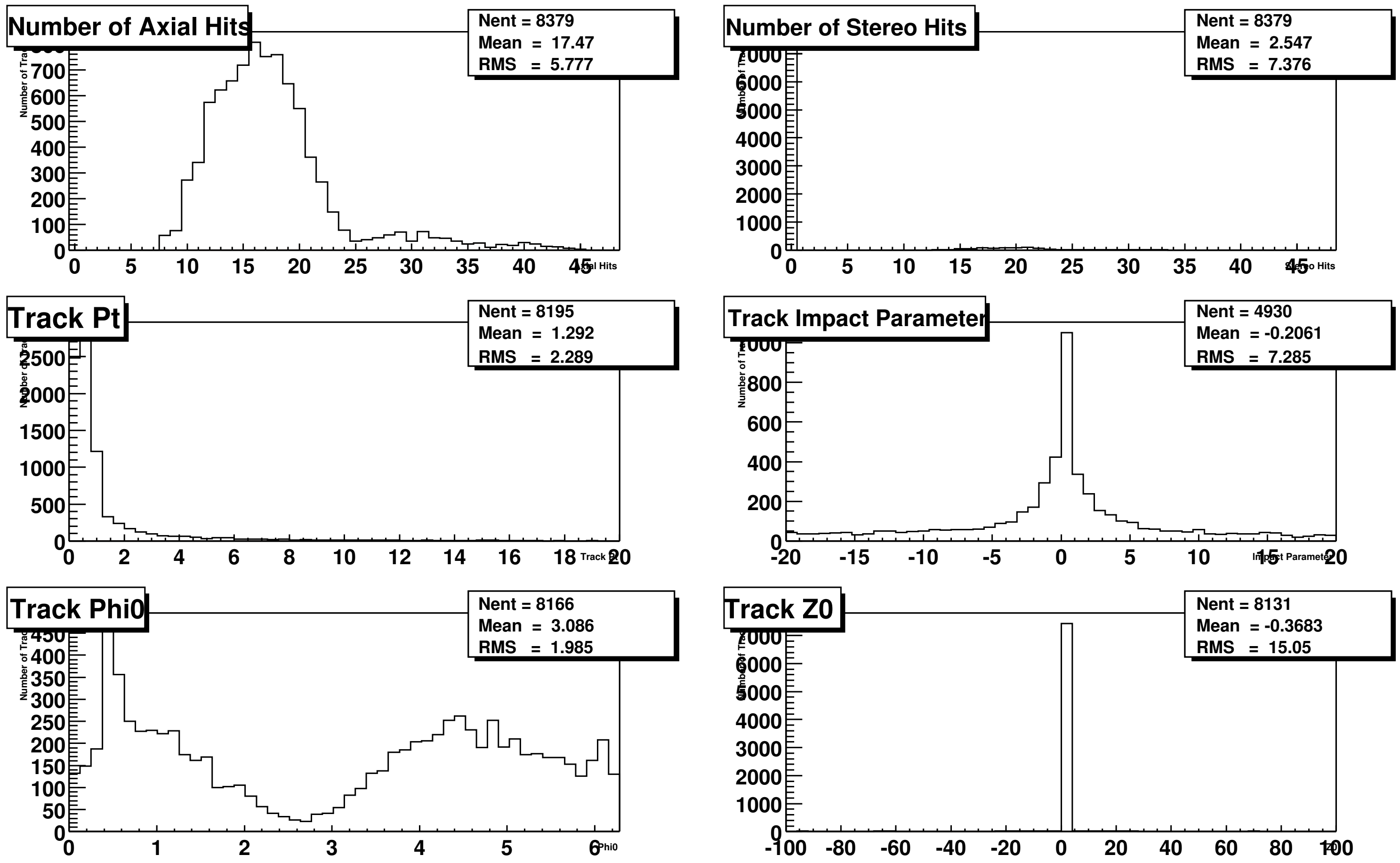
Stage0 COT plots Run:101xyz



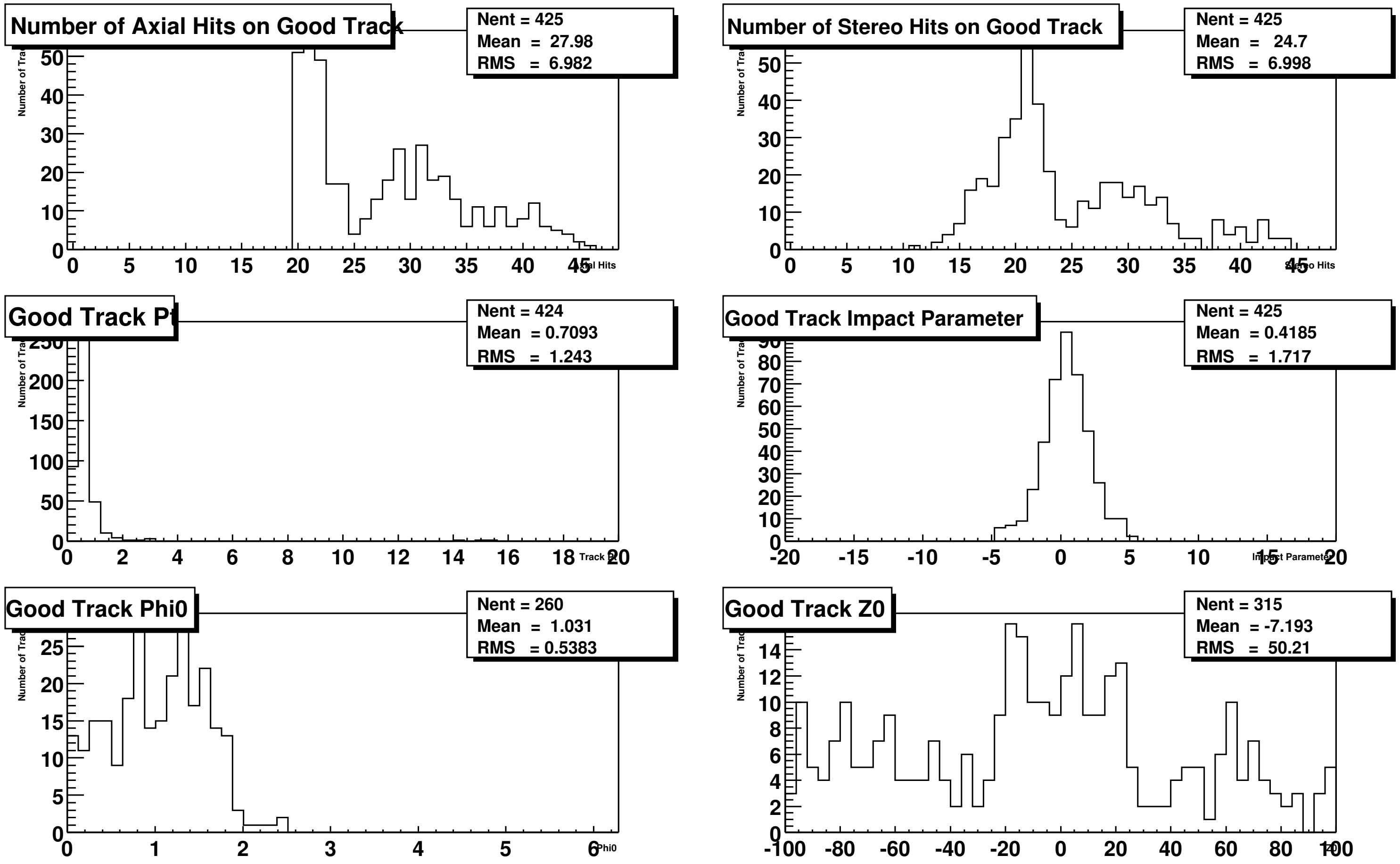
Stage0 COT plots Run:101xyz



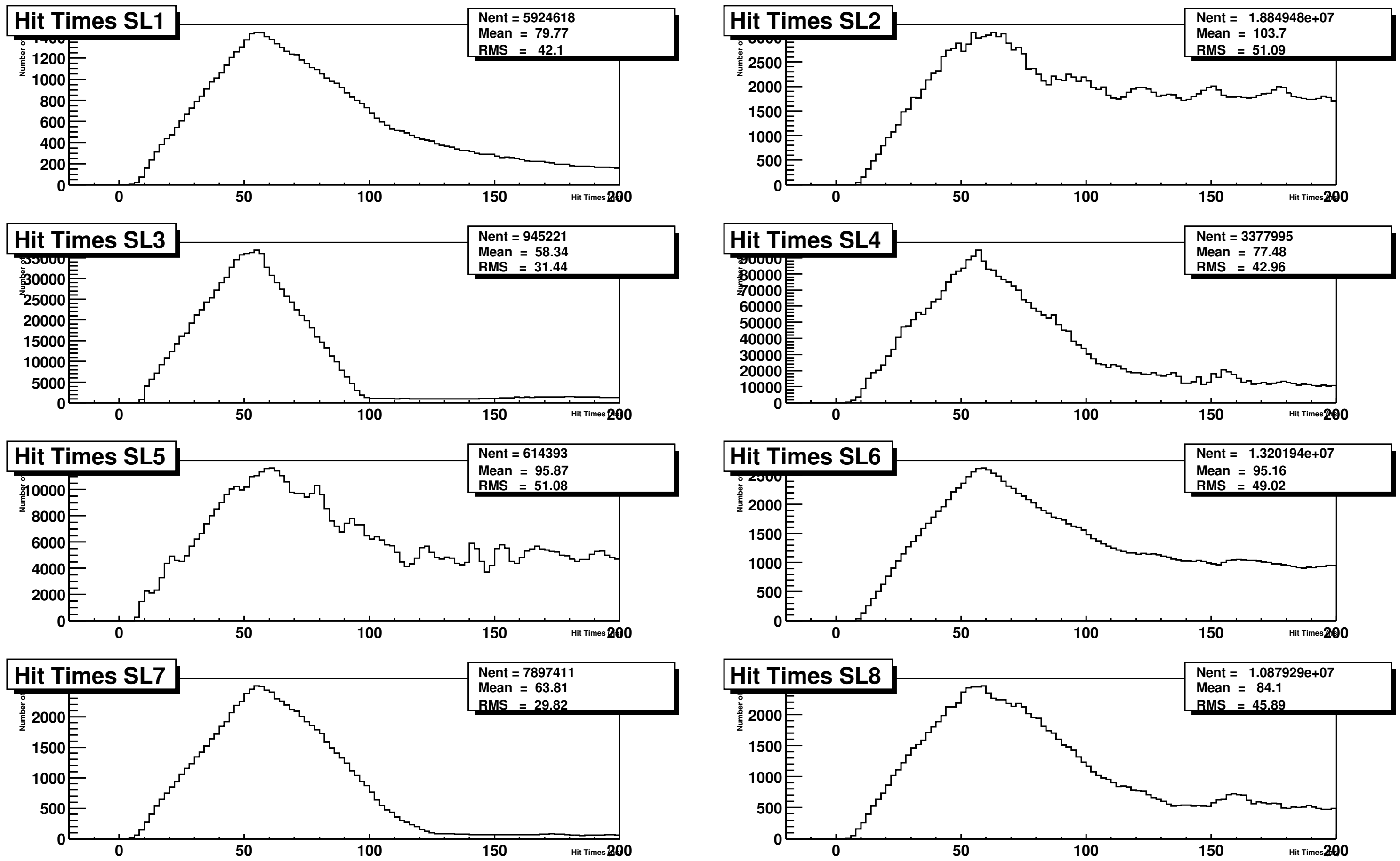
Stage0 COT plots Run:101xyz



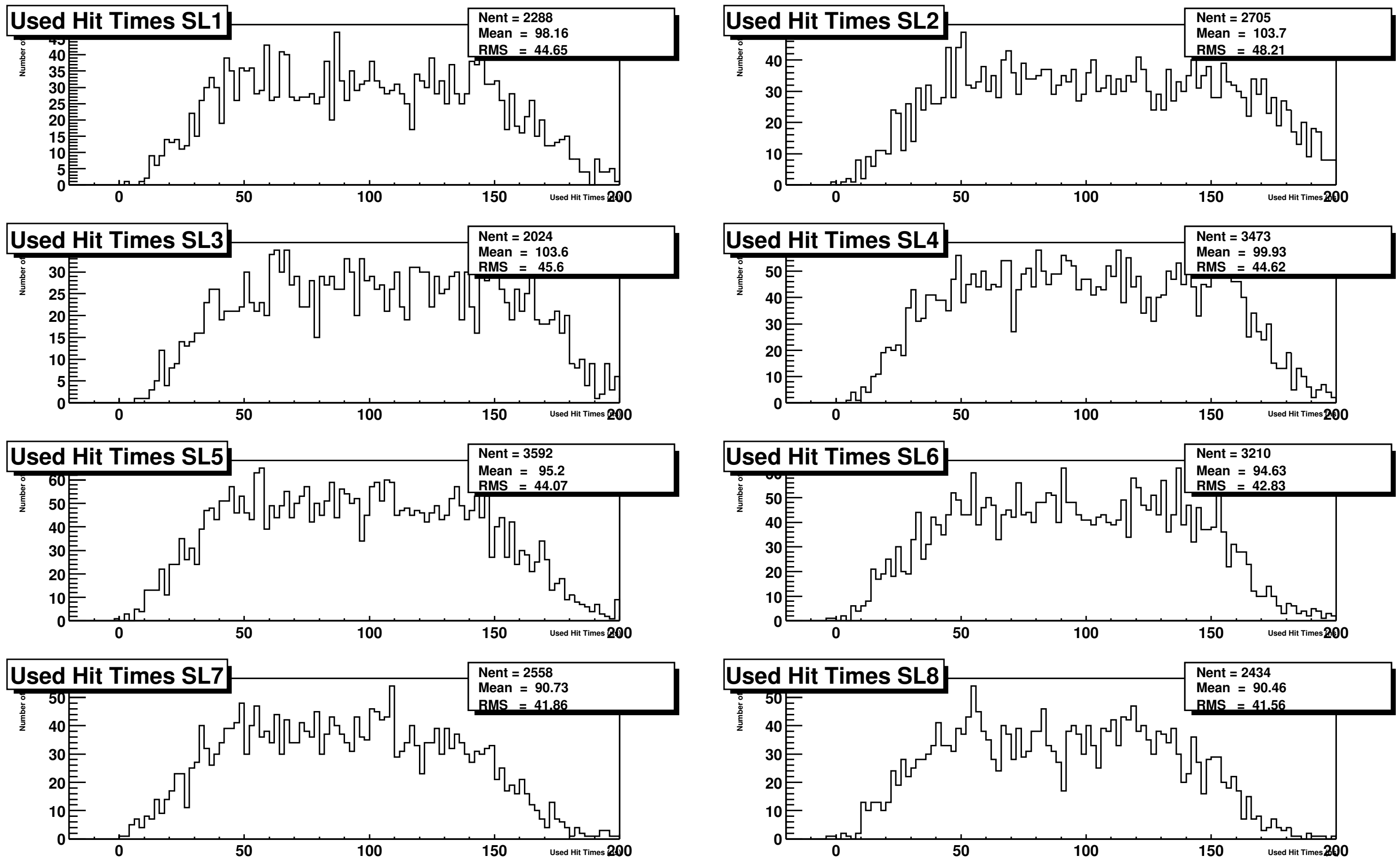
Stage0 COT plots Run:101xyz



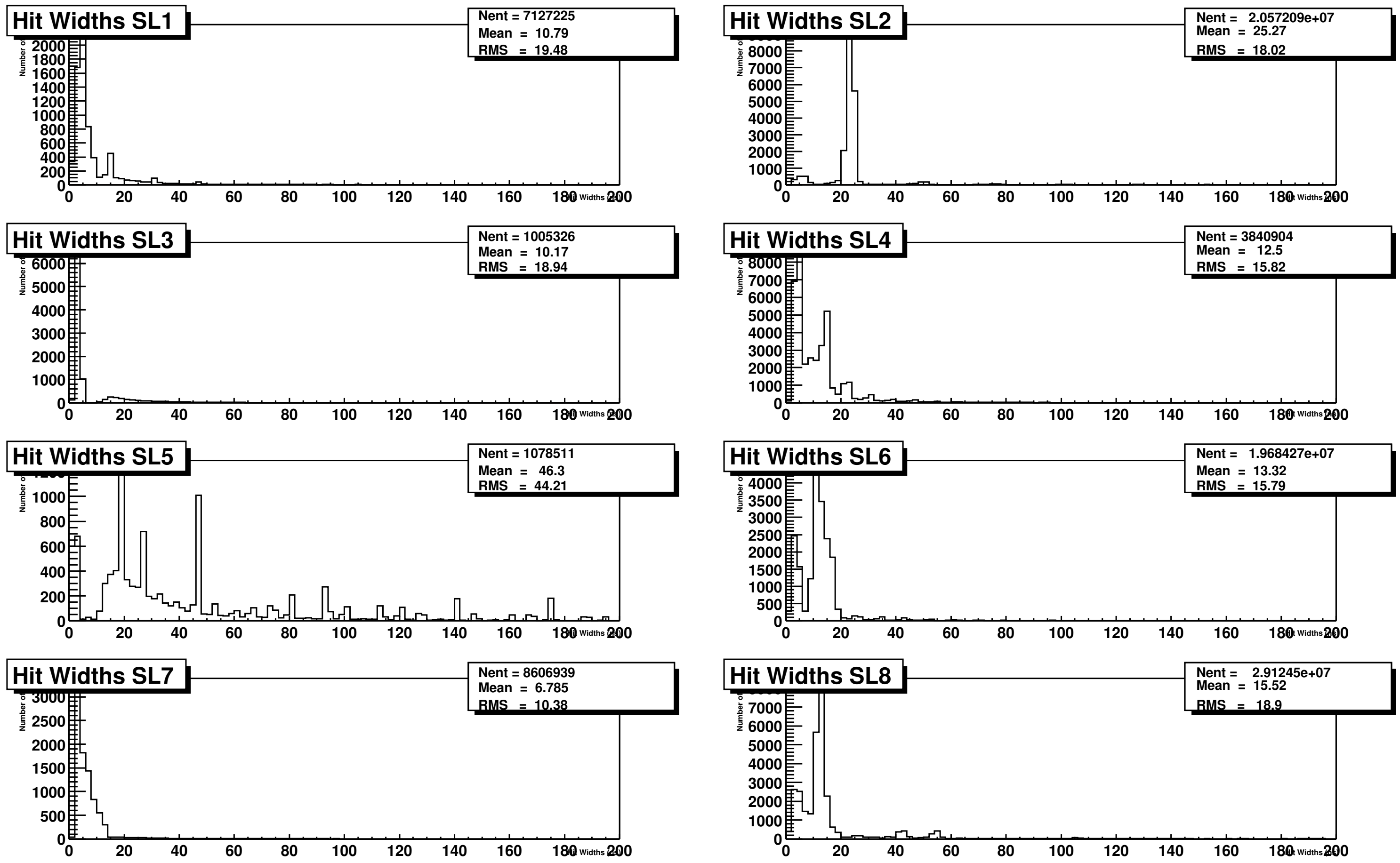
Stage0 COT plots Run:101xyz



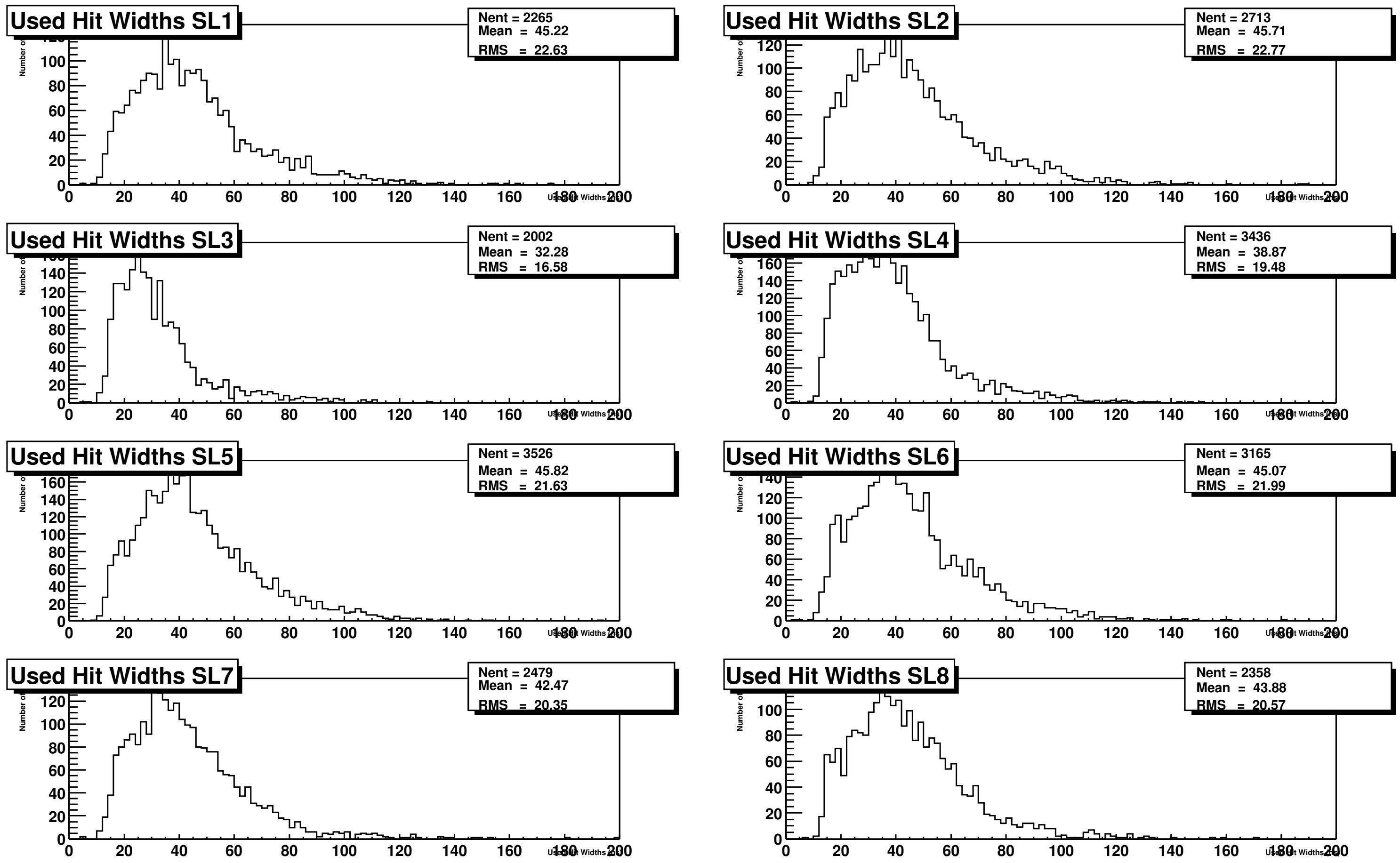
Stage0 COT plots Run:101xyz



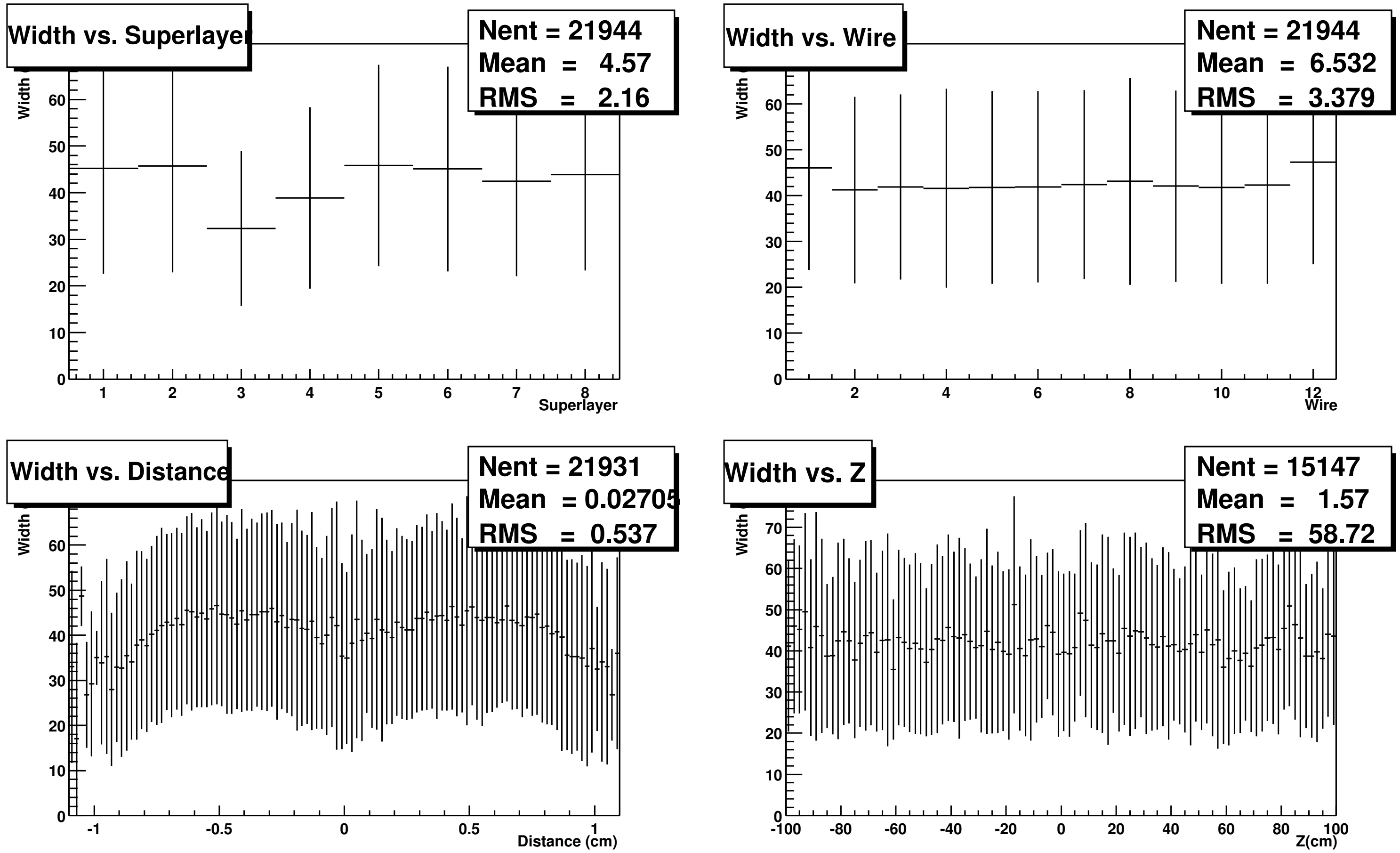
Stage0 COT plots Run:101xyz

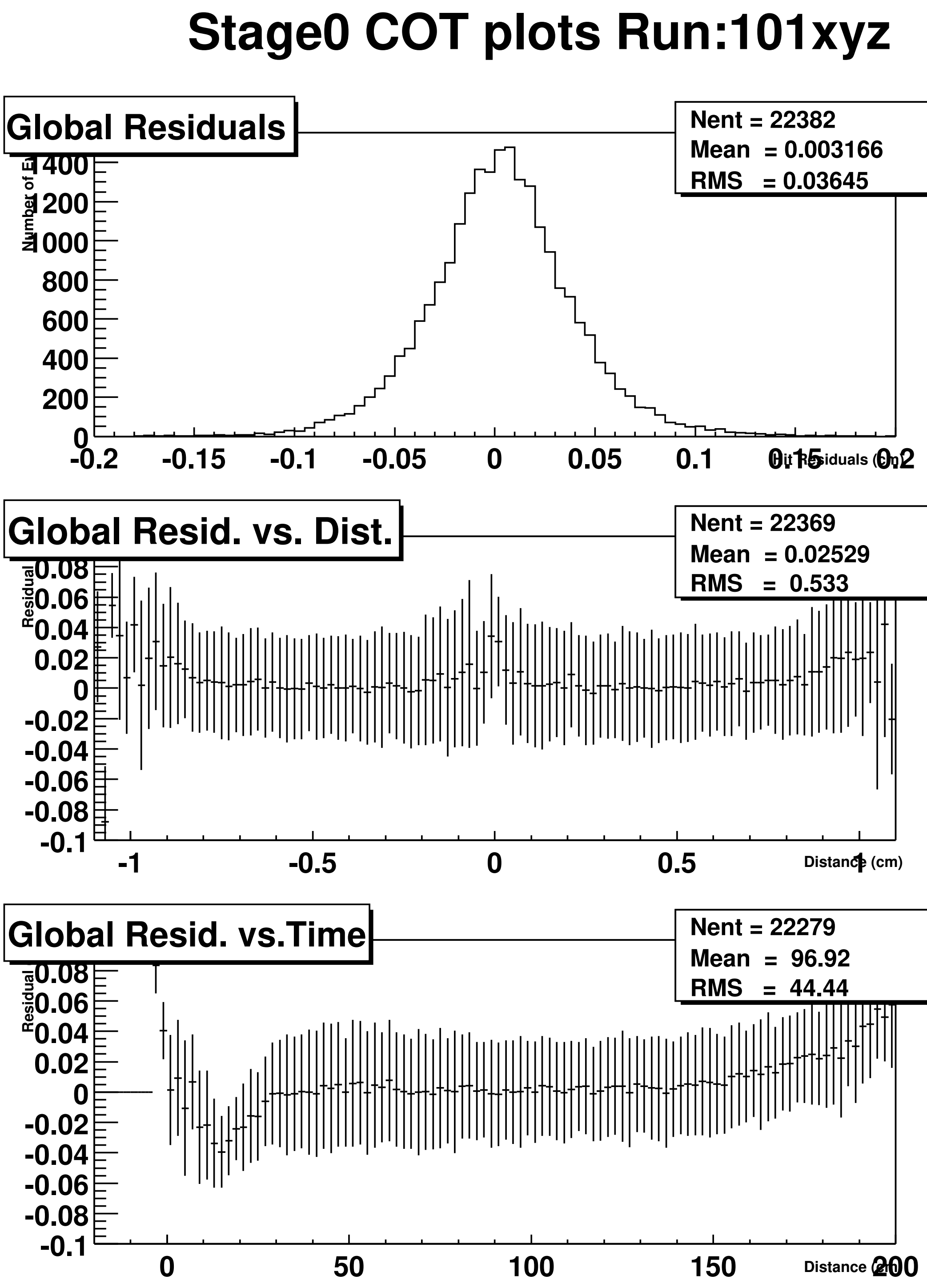


Stage0 COT plots Run:101xyz



Stage0 COT plots Run:101xyz




Stage0 COT plots Run:101xyz
Global Residuals
Nent = 22382
Mean = 0.003166
RMS = 0.03645
Hit Residuals (cm)
Global Resid. vs. Dist.
Nent = 22369
Mean = 0.02529
RMS = 0.533
Residual
Distance (cm)
Global Resid. vs.Time
Nent = 22279
Mean = 96.92
RMS = 44.44
Residual
Distance (cm)

Stage0 COT plots Run:101xyz