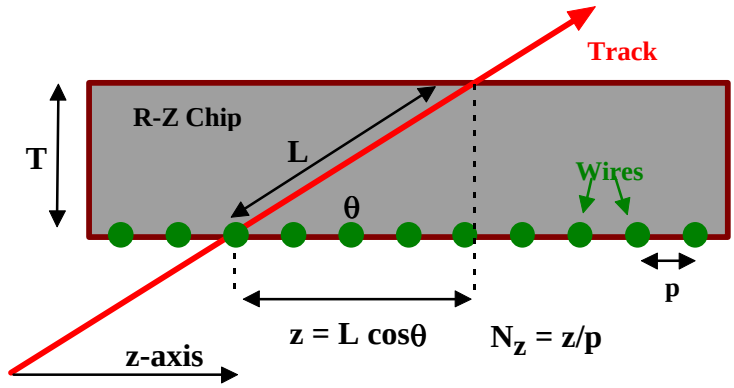
SVXII: R-Z Cluster Model

Simple Cluster Model:



The cluster size, $\mathbf{N_{cl}}$, is generated at random with a **gaussian distribution** with mean, $\langle N_{cl} \rangle$, computed as follows:

$$\langle N_{cl} \rangle = z/p + 1.5,$$

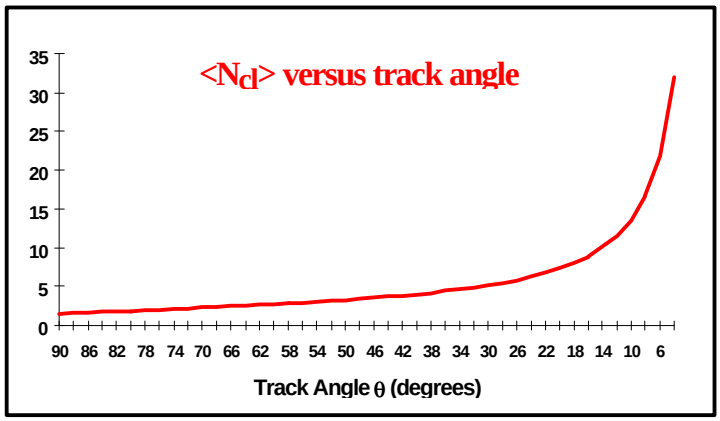
where **z** is the z-component of the track length **L** (**z = Lcosθ**) and **p is the pitch** (**1/p is the density of wires**). The standard deviation , **σ**, is given by $\sigma = f_\sigma \sigma_0$, where

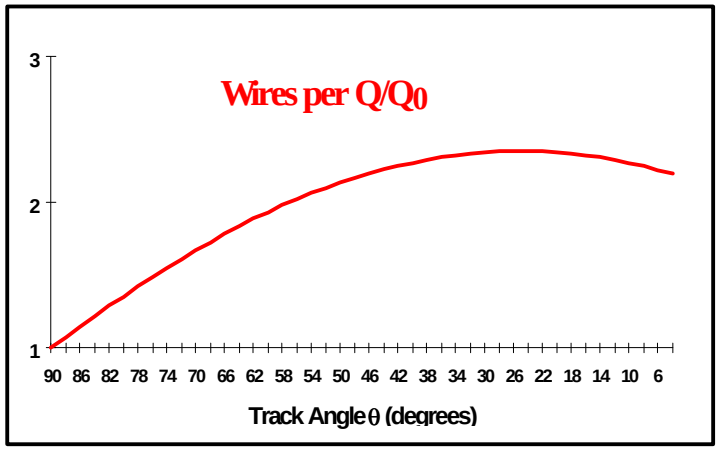
$$\sigma_0 = 0.8.$$

The factor

$$f_\sigma = (z/p+1)Q_0/Q,$$

where **Q** is the amount of charge produced by the track (**Q = λL**) and $\mathbf{Q_0} = \lambda \mathbf{T}$ (**1/f is the amount of charge per wire divided by Q_0**).





"Hits" per Track:

The number of "hits" per **t**rack is given by

$$N_{hit} = N_{cl} + NN + N_{over}$$

where **NN = 2** for **nearest neighbor** (**one on each side of the cluster**) and where the **overhead** is

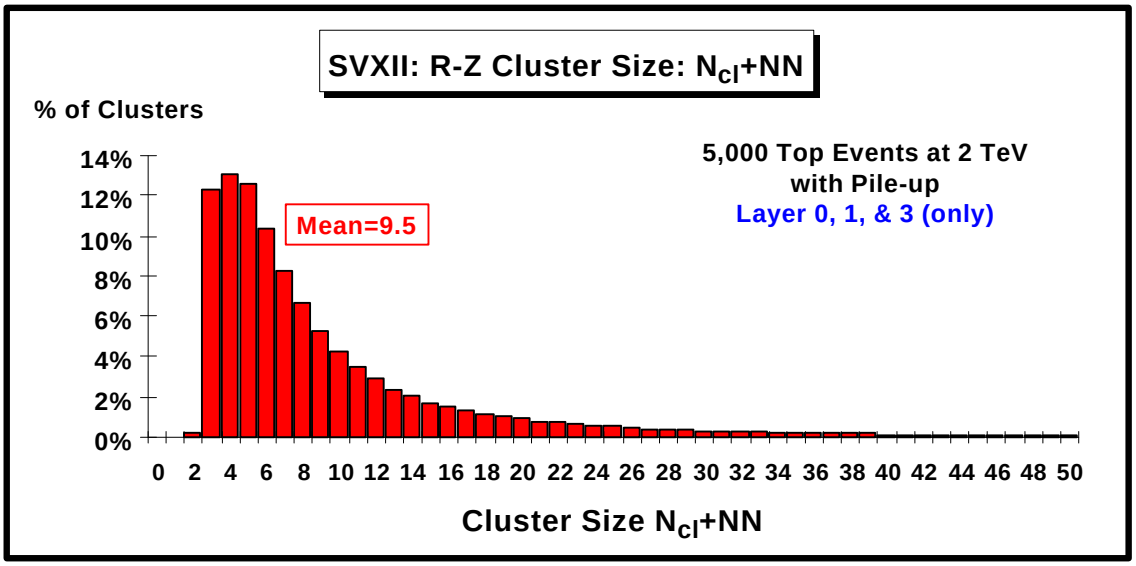
$$N_{over} = 1 \text{ (no noise)}$$

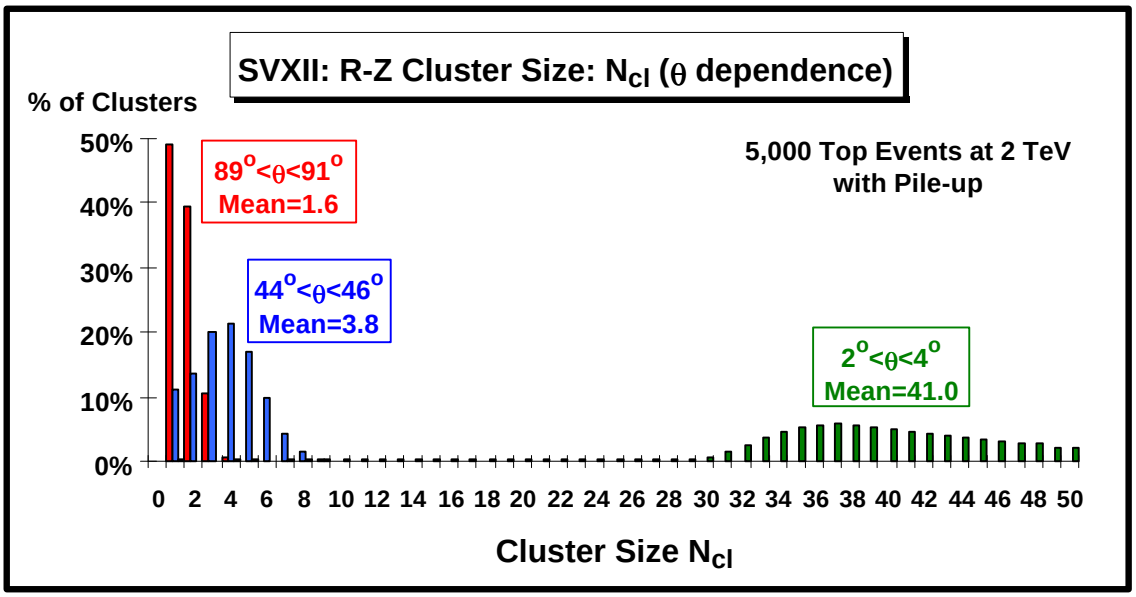
$$N_{over} = 1 + 6 = 7 \text{ (with noise of 2 per chip + NN).}$$

SVXII: Average R-Z Cluster Size

5,000 Top Events at 2 TeV (<Min-Bias>=3, σ_Z=30 cm):

SVXII	Average R-Z Cluster: Ncl+NN					5,000 Top + <3>MB	
Layer	iz= 1	2	3	4	5	6	sum
0	13.2	10.8	9.8	9.9	10.8	13.3	11.0
1	11.5	9.5	8.8	8.8	9.6	11.7	9.8
2	4.3	4.3	4.3	4.3	4.3	4.3	4.3
3	8.0	7.0	6.6	6.6	7.1	8.1	7.1
4	4.2	4.2	4.3	4.2	4.2	4.2	4.2
sum	8.6	7.5	7.0	7.0	7.5	8.7	7.6



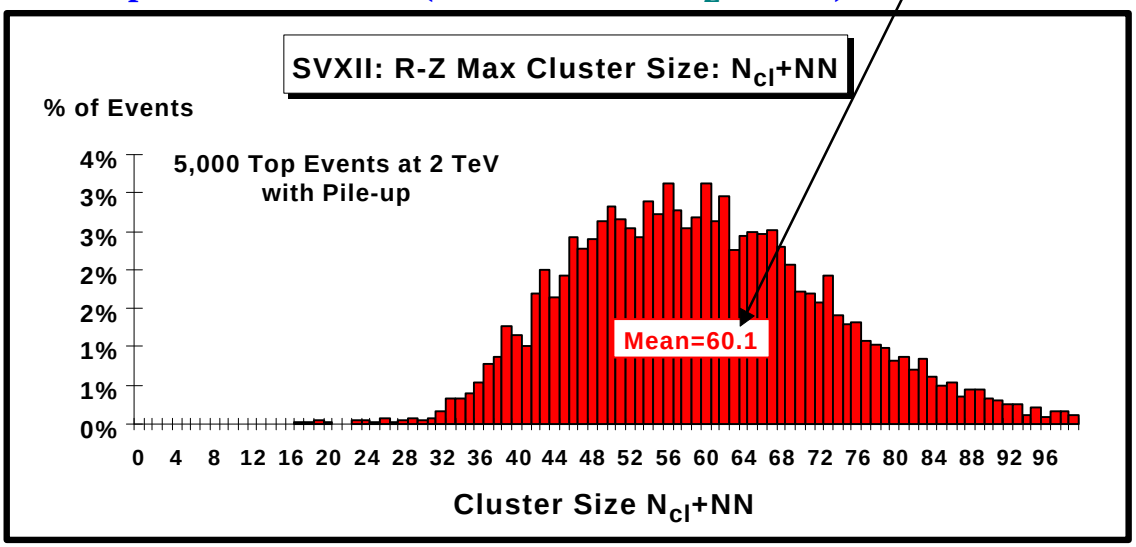


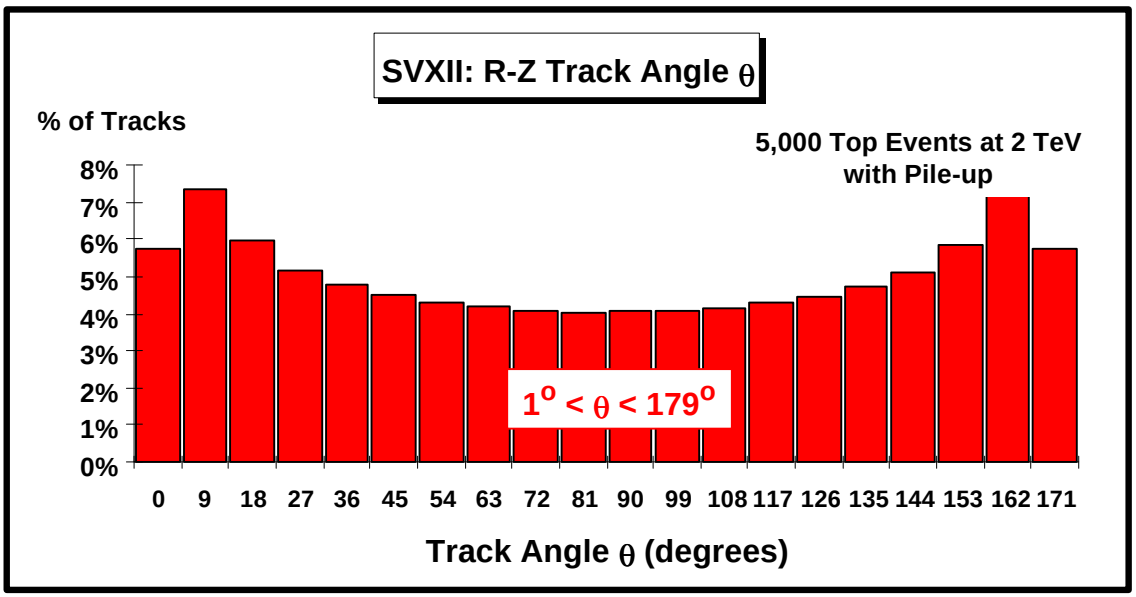
SVXII: Max R-Z Cluster Size

5,000 Top Events at 2 TeV (<Min-Bias>=3, σ_Z=30 cm):

SVXII	Average Max R-Z Cluster: Ncl+NN						5,000 Top + <3>MB
Layer	iz= 1	2	3	4	5	6	all
0	45.6	38.8	34.7	34.8	38.8	45.3	59.8
1	33.6	29.0	26.2	26.2	29.2	33.9	43.9
2	5.6	6.0	6.2	6.2	6.0	5.6	7.8
3	18.0	16.0	14.7	14.7	16.0	18.1	22.6
4	5.6	5.9	6.1	6.3	5.9	5.5	7.6
all	47.9	40.6	36.1	36.0	40.6	47.9	60.1

5,000 Top Events at 2 TeV (<Min-Bias>=3, σ_Z=30 cm):





SVXII: R-ϕ Cluster Model

Simple Cluster Model:

The cluster size, $\mathbf{N_{cl}}$, is generated at random with a **gaussian distribution** with mean, **<Ncl>**, computed as follows:

$$\langle N_{cl}\rangle = z/p + 1.5,$$

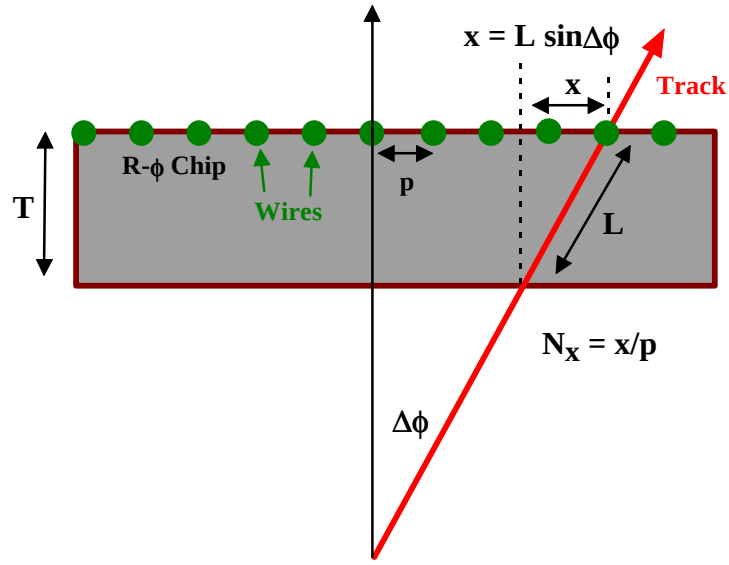
where **x** is the x-component of the track length **L** (**x = Lsin$\Delta\phi$**) and **p is the pitch** (**1/p is the density of wires**). The standard deviation , σ, is given by

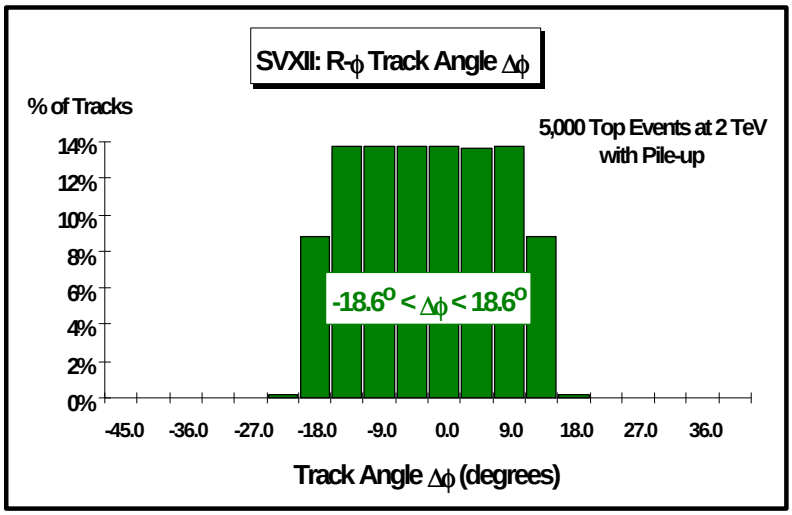
$\sigma = f_\sigma\, \sigma_0$, where $\sigma_0 = 0.8$.

The factor

$$f_\sigma = (x/p+1)Q_0/Q,$$

where **Q** is the amount of charge produced by the track (**Q** = λ**L**) and $\mathbf{Q_0} = \lambda\mathbf{T}$ (**1/f is the amount of charge per wire divided by Q_0**).





"Hits" per Track:

The number of "hits" per track is given by

$$N_{hit} = N_{cl} + NN + N_{over}$$

where **NN = 2** for **nearest neighbor** (**one on each side of the cluster**) and where the **overhead** is

$$N_{over} = 1 \text{ (no noise)}$$

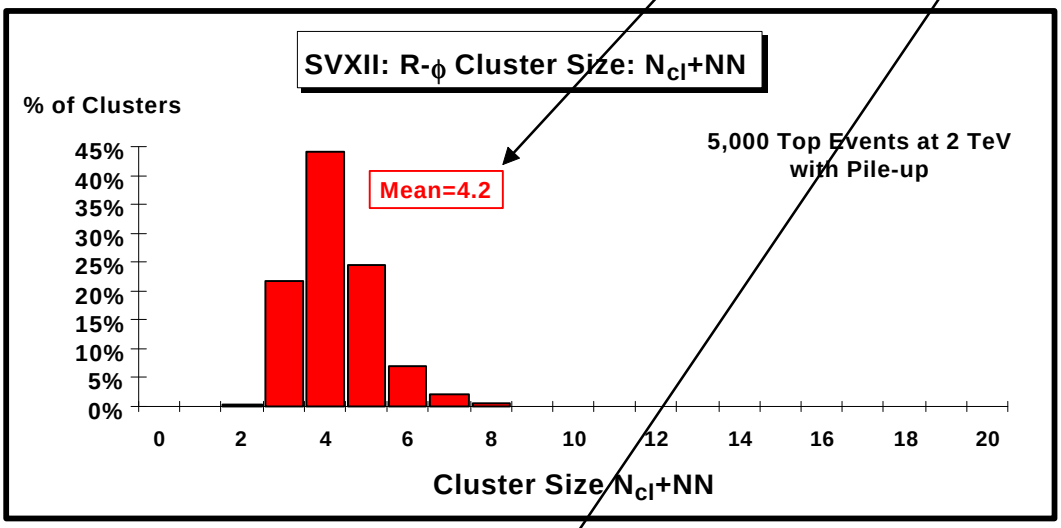
$$N_{over} = 1 + 6 = 7 \text{ (with noise of 2 per chip + NN).}$$

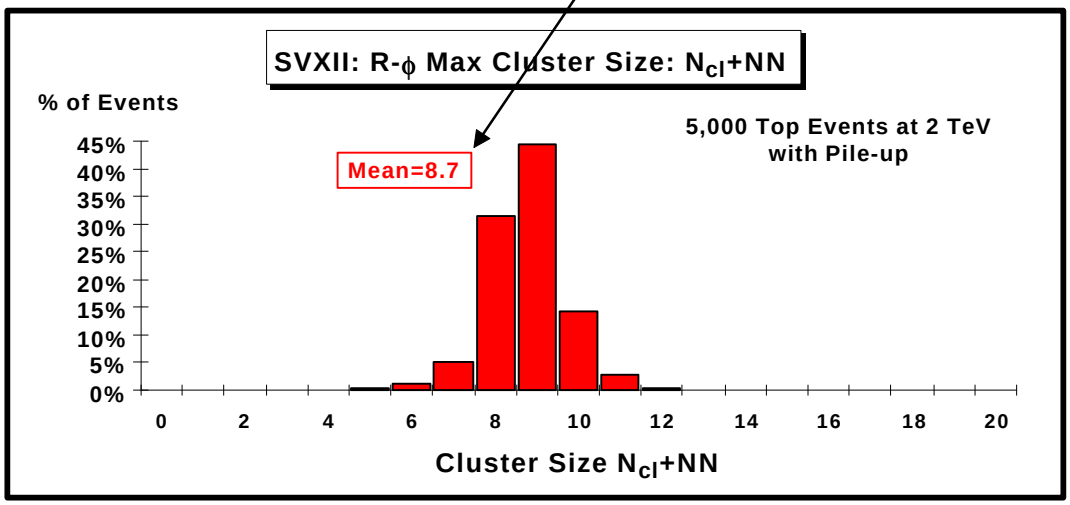
SVXII: Average R-ϕ Cluster Size

5,000 Top Events at 2 TeV (<Min-Bias>=3, σ_z=30 cm):

SVXII Layer	Average R-ϕ Cluster: Ncl+NN iz= 1	2	3	4	5	6	5,000 Top + <3>MB sum
0	4.3	4.3	4.3	4.3	4.3	4.3	4.3
1	4.2	4.2	4.2	4.2	4.2	4.2	4.2
2	4.3	4.3	4.3	4.3	4.3	4.3	4.3
3	4.2	4.2	4.2	4.2	4.2	4.2	4.2
4	4.2	4.2	4.2	4.2	4.2	4.2	4.2
sum	4.2	4.2	4.2	4.2	4.2	4.2	**4.2**

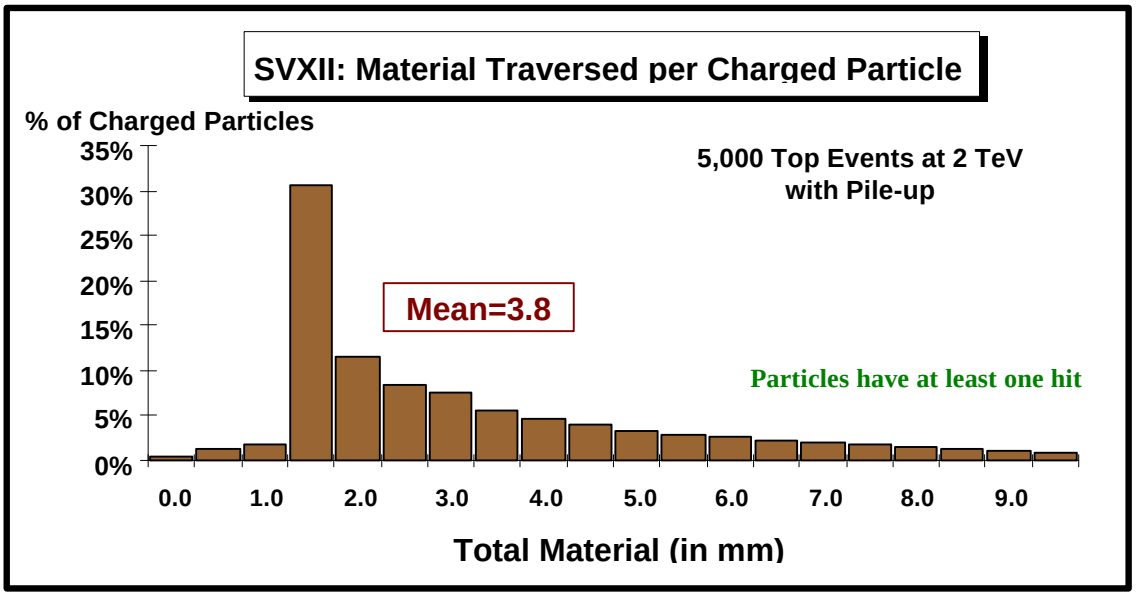
SVXII Layer	Average Max R-ϕ Cluster: Ncl+NN iz= 1	2	3	4	5	6	5,000 Top + <3>MB all
0	5.5	5.9	6.1	6.1	5.9	5.5	8.0
1	5.4	5.6	6.1	6.0	5.8	5.5	7.7
2	5.6	6.0	6.3	6.2	6.0	5.6	7.8
3	5.6	6.0	6.2	6.3	6.0	5.6	7.9
4	5.6	5.9	6.2	6.1	5.9	5.6	7.5
all	6.3	6.8	7.1	7.0	6.8	6.3	**8.7**



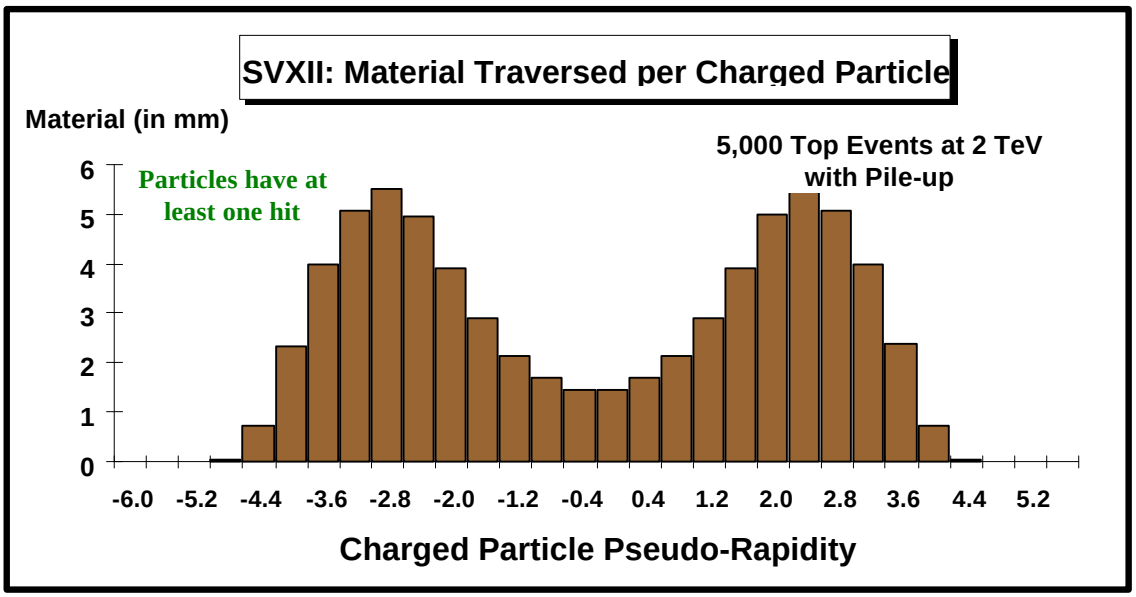


SVXII: Material Traversed

5,000 Top Events at 2 TeV (<Min-Bias>=3, σ_Z=30 cm):



5,000 Top Events at 2 TeV (<Min-Bias>=3, σ_Z=30 cm):



SVXII: R-Z Chip with Maximum Hits

One Event at 2 TeV (Event #1):

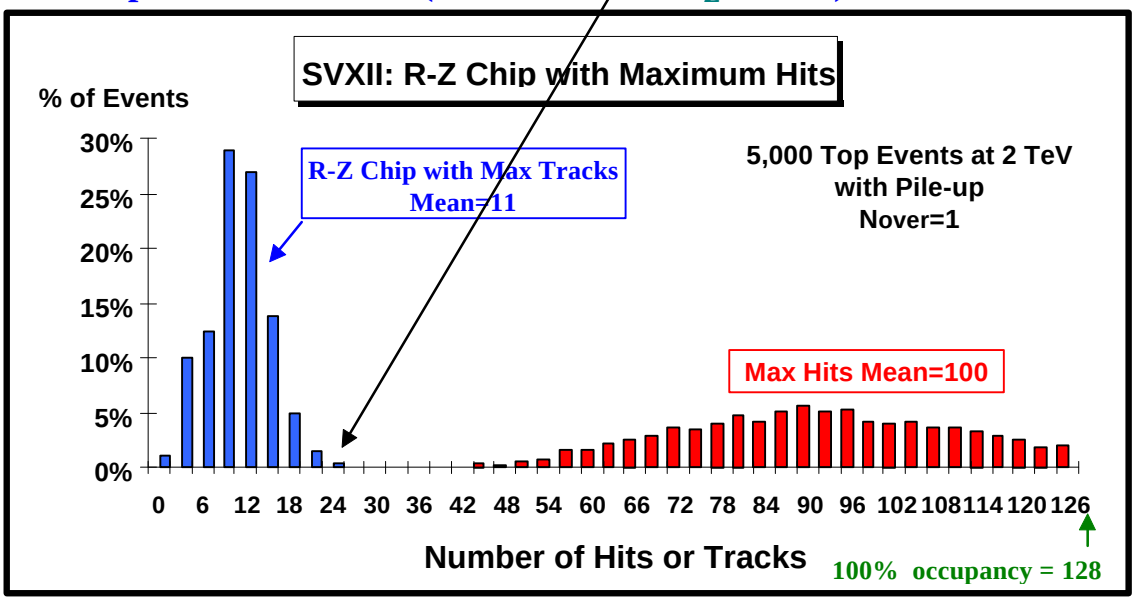
Reaction:	Top	Min-Bias	Min-Bias	Min-Bias	Min-Bias	Min-Bias
Z(int):	28.87	-30.42	21.9	-19.93	17.3	-73.45

SVXII	Maximum R-Phi Chip Tracks Event #1						
Layer	iz= 1	2	3	4	5	6	all
0	3	4	2	4	24	7	24
1	2	2	2	4	17	5	17
2	2	2	2	4	8	3	8
3	2	2	2	8	5	3	8
4	2	1	2	5	4	4	5
all	3	4	2	8	24	7	24

SVXII	Maximum R-Z Chip Cluster: Ncl+NN Event #1						
Layer	iz= 1	2	3	4	5	6	all
0	61	48	41	30	44	17	61
1	40	35	42	47	31	16	47
2	6	6	5	7	8	6	8
3	22	19	16	14	9	21	22
4	5	8	6	6	7	7	8
all	61	48	42	47	44	21	61

SVXII	Maximum R-Z Chip Hits Event #1						
Layer	iz= 1	2	3	4	5	6	all
0	109	89	56	71	166	51	166
1	41	41	47	78	119	50	119
2	8	10	10	27	33	14	33
3	23	52	29	77	34	29	77
4	9	9	10	24	19	20	24
all	109	89	56	78	166	51	166

5,000 Top Events at 2 TeV (<Min-Bias>=3, σ_z=30 cm):



SVXII: Average Maximum R-Z Chip

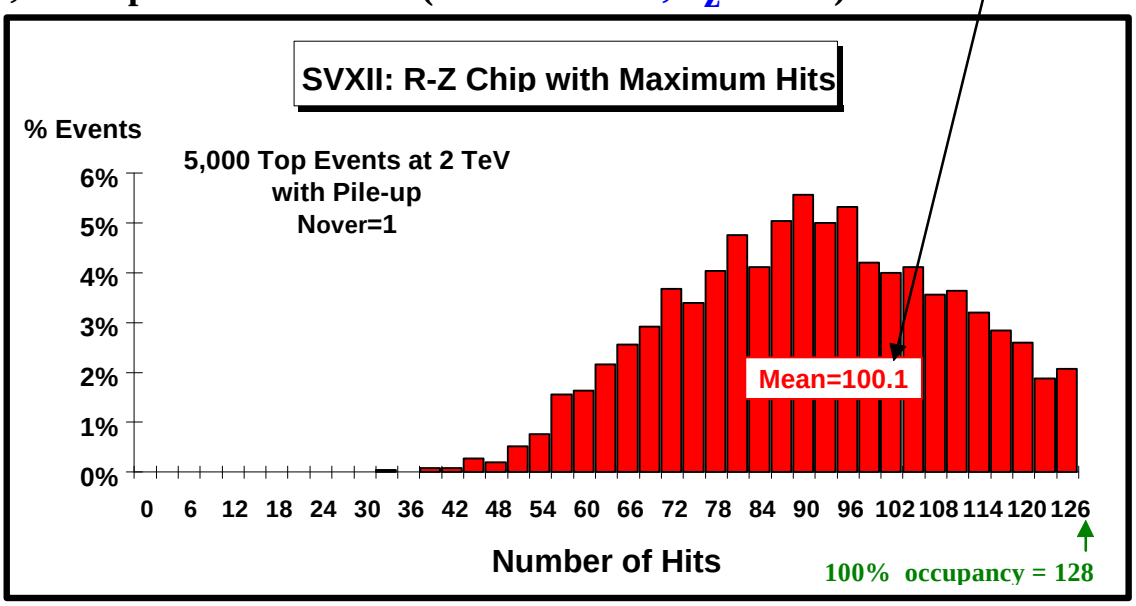
5,000 Top Events at 2 TeV (<Min-Bias>=3, σ_z=30 cm):

SVXII Layer	Average Max R-Z Chip Tracks iz= 1	2	3	4	5	6	5,000 Top + <3>MB all
0	3.4	4.4	5.1	5.0	4.3	3.5	11.2
1	2.7	3.5	4.0	3.9	3.4	2.8	8.0
2	2.3	2.8	3.1	3.1	2.7	2.3	5.7
3	2.4	2.9	3.3	3.3	2.9	2.4	5.9
4	2.0	2.4	2.6	2.6	2.3	2.0	4.5
all	3.8	4.8	5.5	5.4	4.7	3.9	11.2

SVXII Layer	Average R-Z Cluster: Ncl+NN iz= 1	2	3	4	5	6	5,000 Top + <3>MB sum
0	13.2	10.8	9.8	9.9	10.8	13.3	11.0
1	11.5	9.5	8.8	8.8	9.6	11.7	9.8
2	4.3	4.3	4.3	4.3	4.3	4.3	4.3
3	8.0	7.0	6.6	6.6	7.1	8.1	7.1
4	4.2	4.2	4.3	4.2	4.2	4.2	4.2
sum	8.6	7.5	7.0	7.0	7.5	8.7	7.6

SVXII Layer	Average Maximum R-Z Chip Hits iz= 1	2	3	4	5	6	5,000 Top + <3>MB all
0	67.5	65.0	64.0	64.0	64.8	66.4	99.3
1	46.8	45.0	44.5	44.6	45.4	46.8	68.2
2	11.4	13.4	14.9	14.8	13.4	11.1	26.4
3	26.3	26.0	25.9	26.0	26.0	25.7	39.4
4	10.1	11.7	12.6	12.6	11.5	9.8	20.7
all	71.0	67.6	66.1	66.1	67.6	70.3	100.1

5,000 Top Events at 2 TeV (<Min-Bias>=3, σ_z=30 cm):



SVXII: R-Z Chip with Maximum Occupation

One Event at 2 TeV (Event #1):

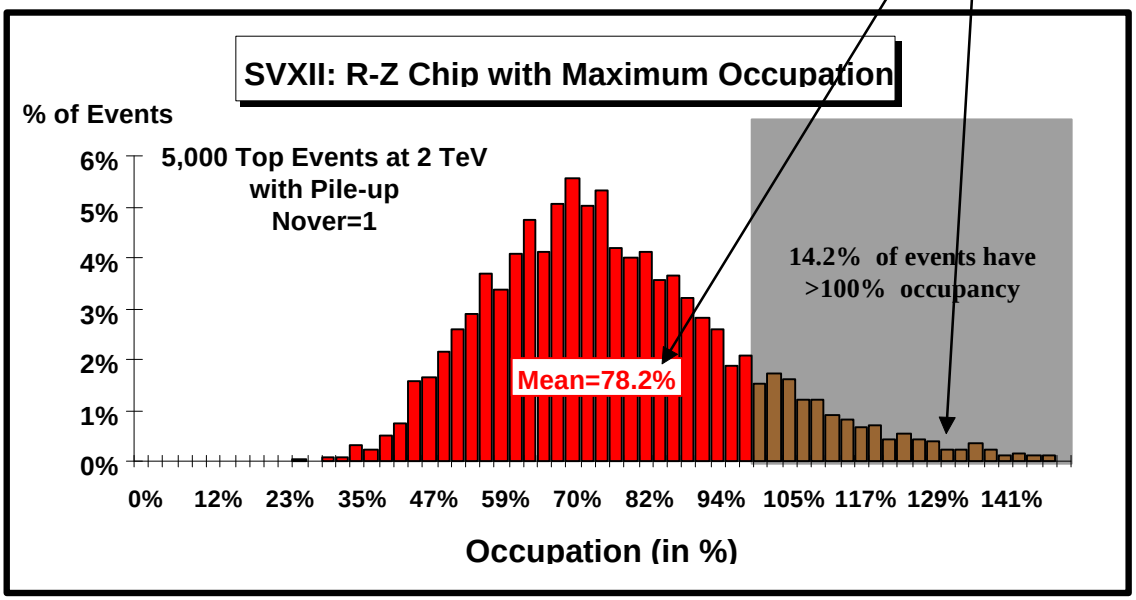
Reaction:	Top	Min-Bias	Min-Bias	Min-Bias	Min-Bias	Min-Bias
Z(int):	28.87	-30.42	21.9	-19.93	17.3	-73.45

SVXII	Maximum R-Z Chip Occupation					Event #1	
Layer	iz= 1	2	3	4	5	6	all
0	85.2%	69.5%	43.8%	55.5%	129.7%	39.8%	129.7%
1	32.0%	32.0%	36.7%	60.9%	93.0%	39.1%	93.0%
2	6.3%	7.8%	7.8%	21.1%	25.8%	10.9%	25.8%
3	18.0%	40.6%	22.7%	60.2%	26.6%	22.7%	60.2%
4	7.0%	7.0%	7.8%	18.8%	14.8%	15.6%	18.8%
all	85.2%	69.5%	43.8%	60.9%	129.7%	39.8%	129.7%

5,000 Top Events at 2 TeV (<Min-Bias>=3, σ_z=30 cm):

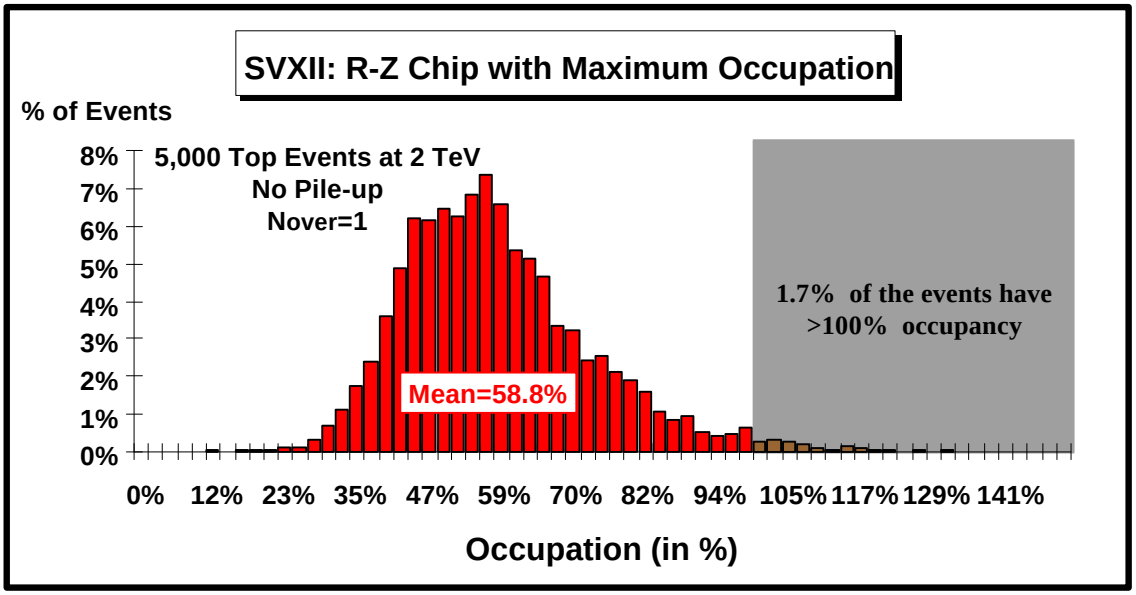
SVXII	Average Maximum R-Z Chip Hits					5,000 Top + <3>MB	
Layer	iz= 1	2	3	4	5	6	all
0	67.5	65.0	64.0	64.0	64.8	66.4	99.3
1	46.8	45.0	44.5	44.6	45.4	46.8	68.2
2	11.4	13.4	14.9	14.8	13.4	11.1	26.4
3	26.3	26.0	25.9	26.0	26.0	25.7	39.4
4	10.1	11.7	12.6	12.6	11.5	9.8	20.7
all	71.0	67.6	66.1	66.1	67.6	70.3	100.1

SVXII	Average Maximum R-Z Chip Occupancy					5,000 Top + <3>MB	
Layer	iz= 1	2	3	4	5	6	all
0	52.7%	50.8%	50.0%	50.0%	50.6%	51.9%	77.6%
1	36.6%	35.2%	34.8%	34.8%	35.5%	36.6%	53.3%
2	8.9%	10.5%	11.6%	11.6%	10.5%	8.7%	20.6%
3	20.5%	20.3%	20.2%	20.3%	20.3%	20.1%	30.8%
4	7.9%	9.1%	9.8%	9.8%	9.0%	7.7%	16.2%
all	55.5%	52.8%	51.6%	51.6%	52.8%	54.9%	78.2%

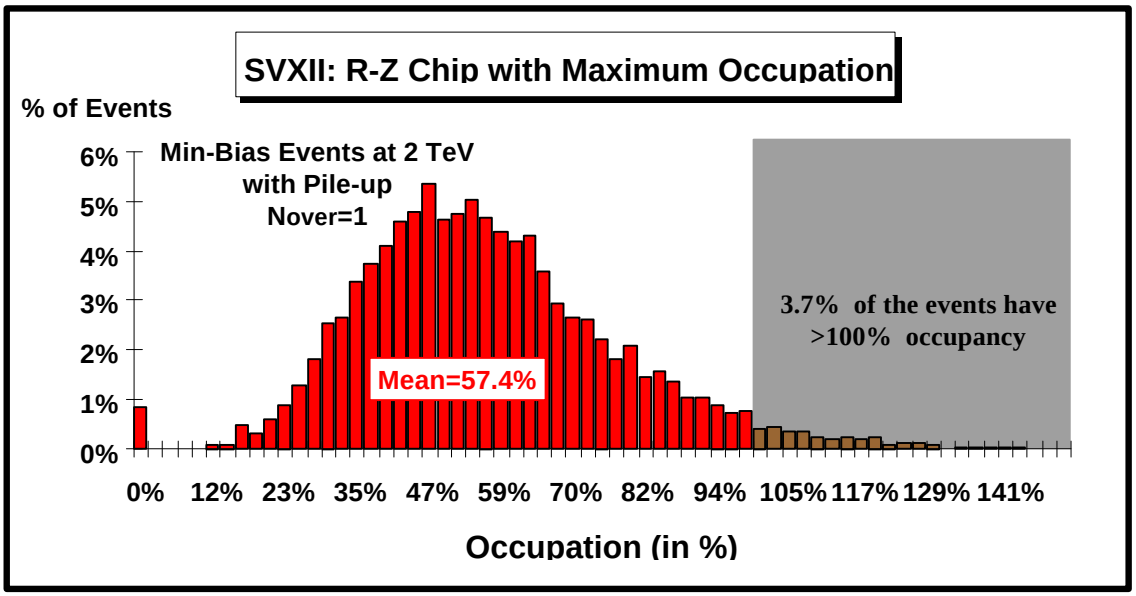


SVXII: R-Z Chip with Max Occupation (top only)

5,000 Top Events at 2 TeV (No Pile-up, σ_Z=30 cm):

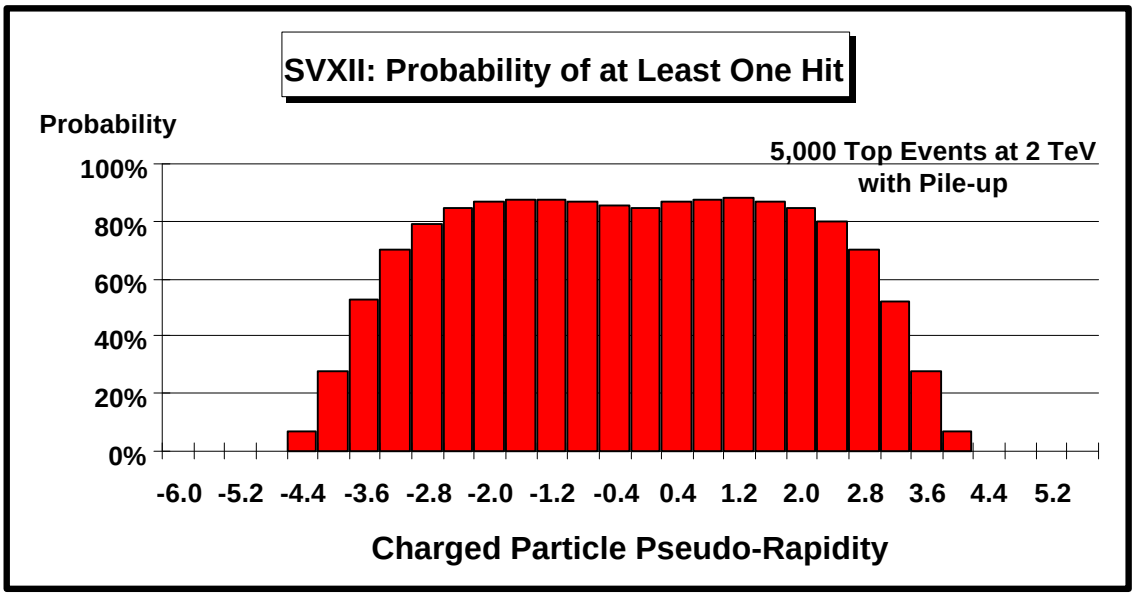


Minimum Bias Events at 2 TeV (<Min-Bias>=3, σ_Z=30 cm):

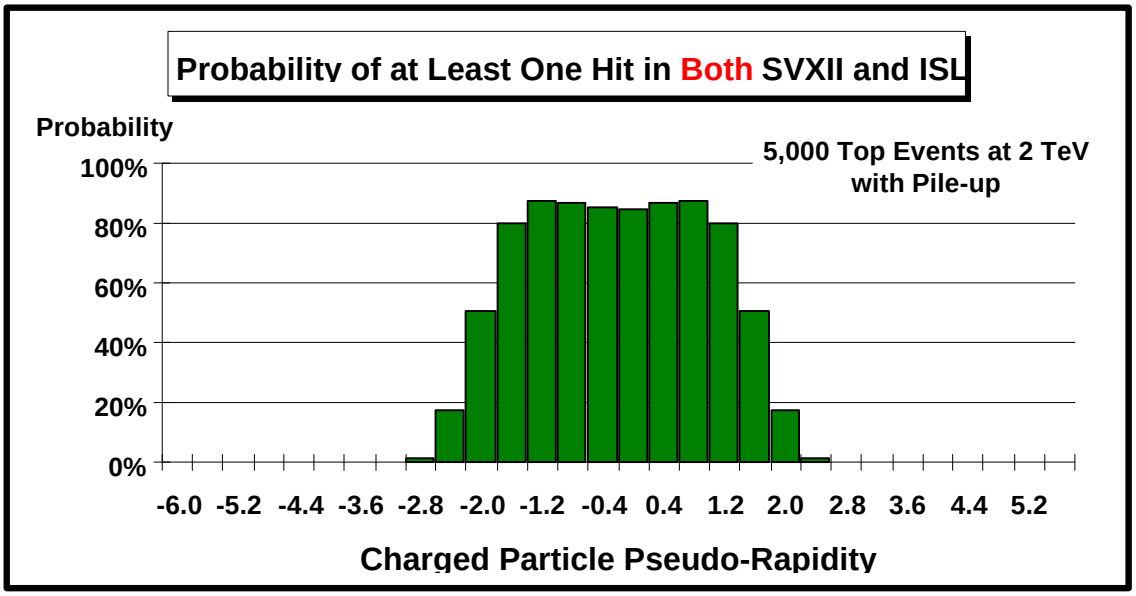


SVXII: Geometric Acceptance

5,000 Top Events at 2 TeV (<Min-Bias>=3, σ_z=30 cm):

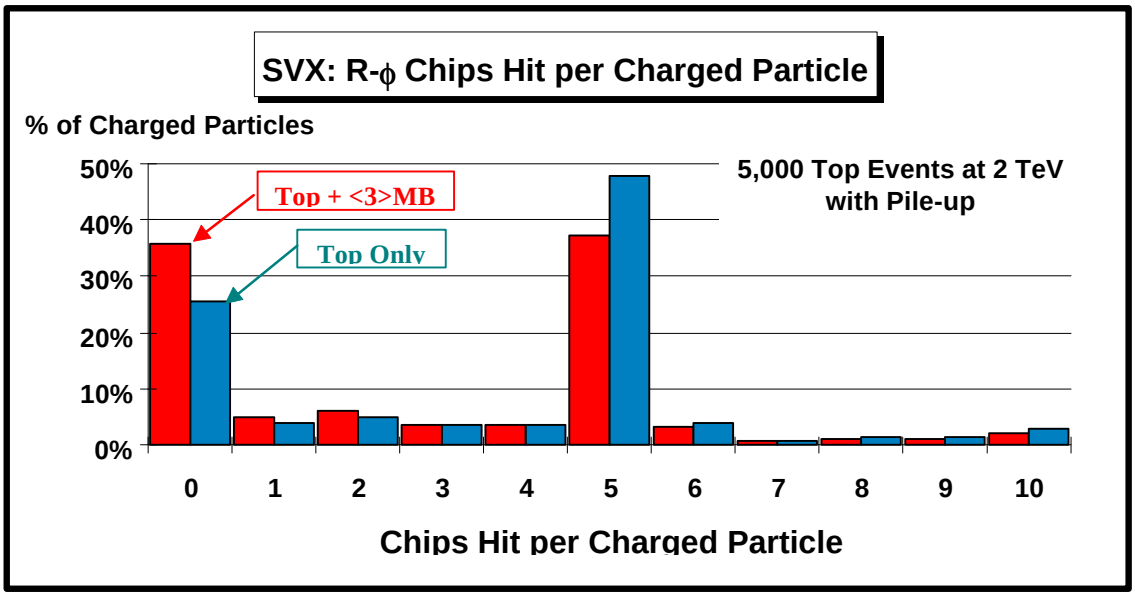


5,000 Top Events at 2 TeV (<Min-Bias>=3, σ_z=30 cm):

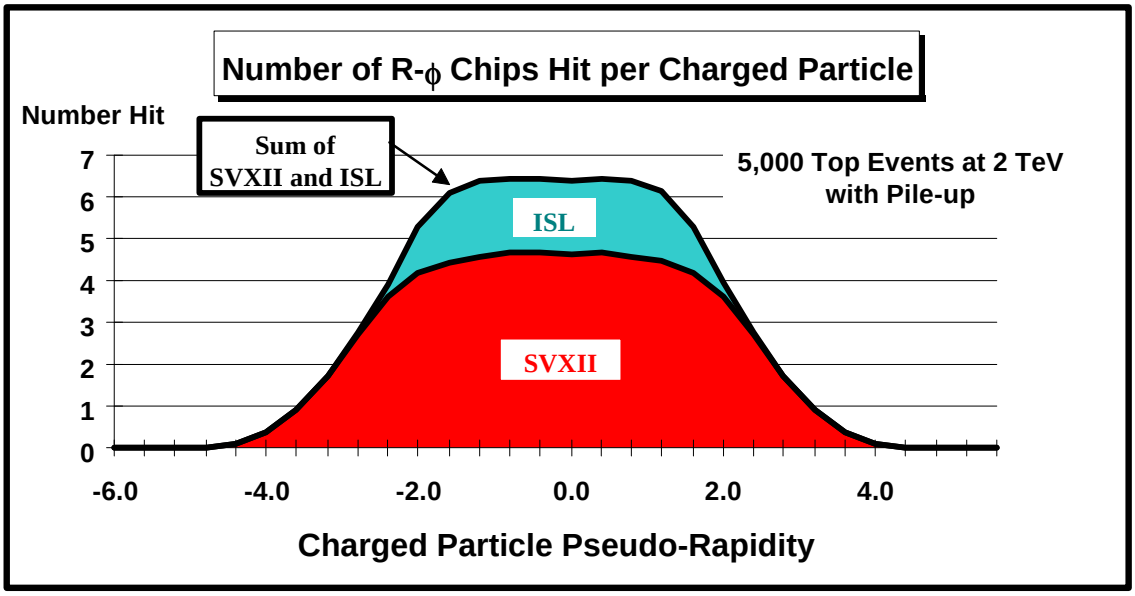


SVXII: R-ϕ Chips Hit per Charged Particle

5,000 Top Events at 2 TeV (<Min-Bias>=3, σ_z=30 cm):



5,000 Top Events at 2 TeV (<Min-Bias>=3, σ_z=30 cm):



SVXII: R-ϕ Chip with Maximum Hits

One Event at 2 TeV (Event #1):

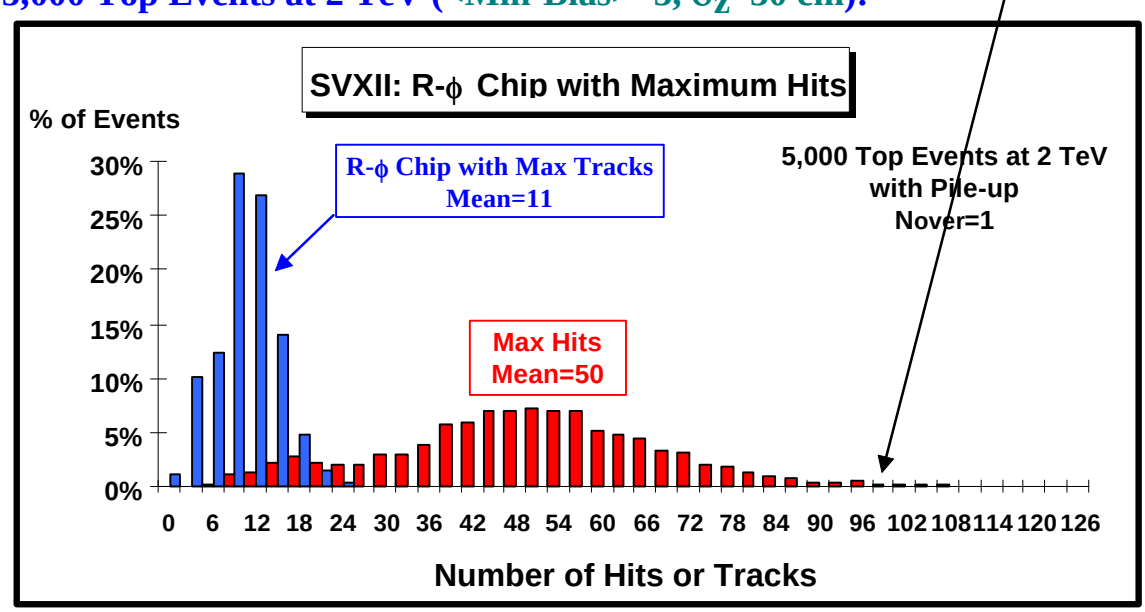
Reaction:	Top	Min-Bias	Min-Bias	Min-Bias	Min-Bias	Min-Bias
Z(int):	28.87	-30.42	21.9	-19.93	17.3	-73.45

SVXII	Maximum R-Phi Chip Tracks				Event #1		
Layer	iz= 1	2	3	4	5	6	all
0	3	4	2	4	24	7	24
1	2	2	2	4	17	5	17
2	2	2	2	4	8	3	8
3	2	2	2	8	5	3	8
4	2	1	2	5	4	4	5
all	3	4	2	8	24	7	24

SVXII	Maximum R-Phi Chip Ncl+NN				Event #1		
Layer	iz= 1	2	3	4	5	6	all
0	6	7	6	5	9	6	9
1	7	6	6	5	8	8	8
2	6	5	5	6	9	7	9
3	6	6	5	5	9	8	9
4	7	7	5	6	8	6	8
all	7	7	6	6	9	8	9

SVXII	Maximum R-Phi Chip Hits				Event #1		
Layer	iz= 1	2	3	4	5	6	all
0	13	18	11	16	100	33	100
1	9	11	10	18	84	22	84
2	11	11	10	32	29	13	32
3	11	14	9	34	21	11	34
4	10	9	10	25	19	21	25
all	13	18	11	34	100	33	100

5,000 Top Events at 2 TeV (<Min-Bias>=3, σ_z=30 cm):



SVXII: Average Maximum R-ϕ Chip

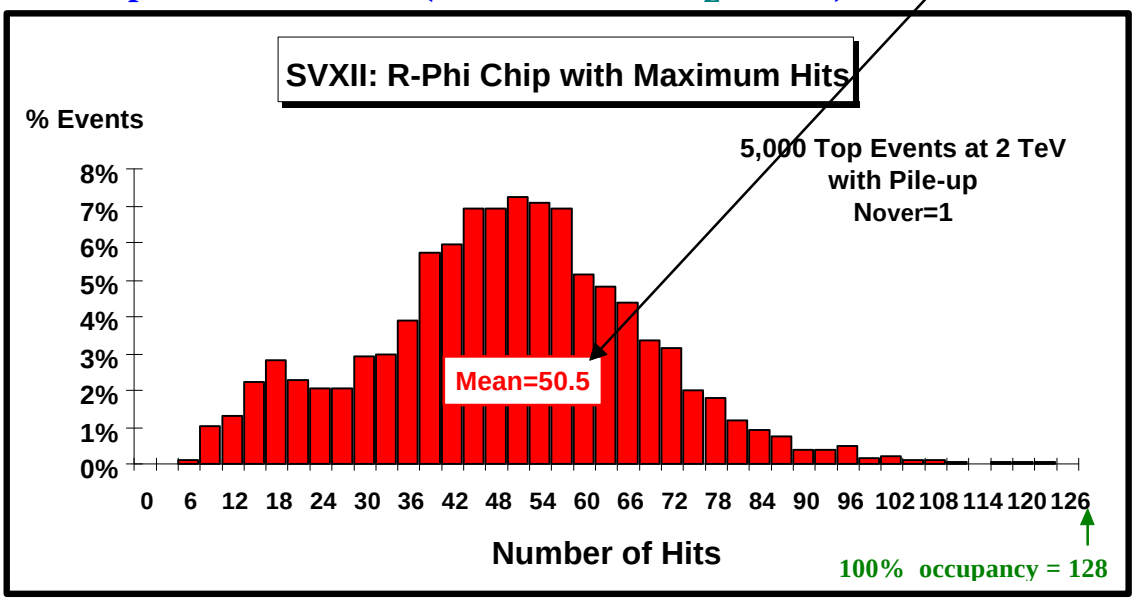
5,000 Top Events at 2 TeV (<Min-Bias>=3, σ_z=30 cm):

SVXII	Average Max R-ϕ Chip Tracks						5,000 Top + <3>MB
Layer	iz= 1	2	3	4	5	6	all
0	3.4	4.4	5.1	5.0	4.3	3.5	11.2
1	2.7	3.5	4.0	3.9	3.4	2.8	8.0
2	2.3	2.8	3.1	3.1	2.7	2.3	5.7
3	2.4	2.9	3.3	3.3	2.9	2.4	5.9
4	2.0	2.4	2.6	2.6	2.3	2.0	4.5
all	3.8	4.8	5.5	5.4	4.7	3.9	11.2

SVXII	Average R-ϕ Cluster: Ncl+NN						5,000 Top + <3>MB
Layer	iz= 1	2	3	4	5	6	sum
0	4.3	4.3	4.3	4.3	4.3	4.3	4.3
1	4.2	4.2	4.2	4.2	4.2	4.2	4.2
2	4.3	4.3	4.3	4.3	4.3	4.3	4.3
3	4.2	4.2	4.2	4.2	4.2	4.2	4.2
4	4.2	4.2	4.2	4.2	4.2	4.2	4.2
sum	4.2	4.2	4.2	4.2	4.2	4.2	4.2

SVXII	Average Maximum R-ϕ Chip Hits						5,000 Top + <3>MB
Layer	iz= 1	2	3	4	5	6	all
0	16.2	20.5	23.3	23.0	20.5	15.7	50.1
1	13.4	16.2	18.3	18.1	16.2	12.9	35.9
2	11.4	13.4	14.8	14.7	13.4	11.1	26.3
3	10.6	12.3	13.5	13.3	12.2	10.3	22.7
4	10.1	11.7	12.6	12.6	11.6	9.9	20.6
all	18.1	22.1	24.9	24.6	22.1	17.5	50.5

5,000 Top Events at 2 TeV (<Min-Bias>=3, σ_z=30 cm):



SVXII: R-ϕ Chip with Maximum Occupation

One Event at 2 TeV (Event #1):

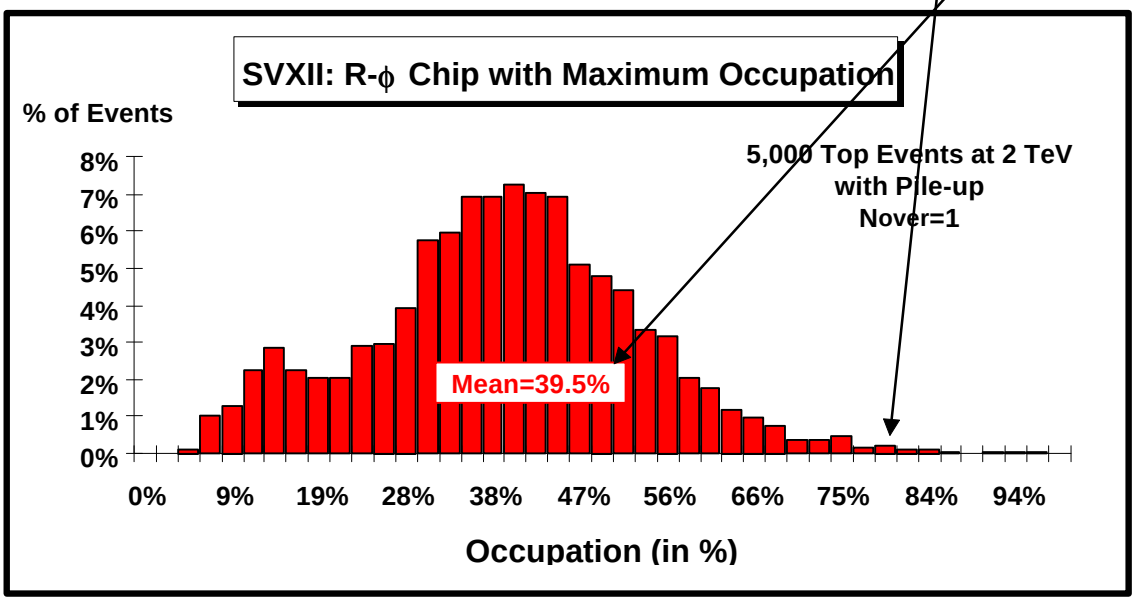
Reaction:	Top	Min-Bias	Min-Bias	Min-Bias	Min-Bias	Min-Bias
Z(int):	28.87	-30.42	21.9	-19.93	17.3	-73.45

SVXII	Maximum R-Phi Chip Occupation					Event #1	
Layer	iz= 1	2	3	4	5	6	all
0	10.2%	14.1%	8.6%	12.5%	78.1%	25.8%	78.1%
1	7.0%	8.6%	7.8%	14.1%	65.6%	17.2%	65.6%
2	8.6%	8.6%	7.8%	25.0%	22.7%	10.2%	25.0%
3	8.6%	10.9%	7.0%	26.6%	16.4%	8.6%	26.6%
4	7.8%	7.0%	7.8%	19.5%	14.8%	16.4%	19.5%
all	10.2%	14.1%	8.6%	26.6%	78.1%	25.8%	78.1%

5,000 Top Events at 2 TeV (<Min-Bias>=3, σ_z=30 cm):

SVXII	Average Maximum R-ϕ Chip Hits					5,000 Top + <3>MB	
Layer	iz= 1	2	3	4	5	6	all
0	16.2	20.5	23.3	23.0	20.5	15.7	50.1
1	13.4	16.2	18.3	18.1	16.2	12.9	35.9
2	11.4	13.4	14.8	14.7	13.4	11.1	26.3
3	10.6	12.3	13.5	13.3	12.2	10.3	22.7
4	10.1	11.7	12.6	12.6	11.6	9.9	20.6
all	18.1	22.1	24.9	24.6	22.1	17.5	50.5

SVXII	Average Maximum R-ϕ Chip Occupancy					5,000 Top + <3>MB	
Layer	iz= 1	2	3	4	5	6	all
0	12.7%	16.0%	18.2%	18.0%	16.0%	12.3%	39.1%
1	10.5%	12.7%	14.3%	14.1%	12.7%	10.1%	28.0%
2	8.9%	10.5%	11.6%	11.5%	10.5%	8.7%	20.5%
3	8.3%	9.6%	10.5%	10.4%	9.5%	8.0%	17.7%
4	7.9%	9.1%	9.8%	9.8%	9.1%	7.7%	16.1%
all	14.1%	17.3%	19.5%	19.2%	17.3%	13.7%	39.5%



SVXII: Number of Pathway Hits

One Event at 2 TeV (Event #1):

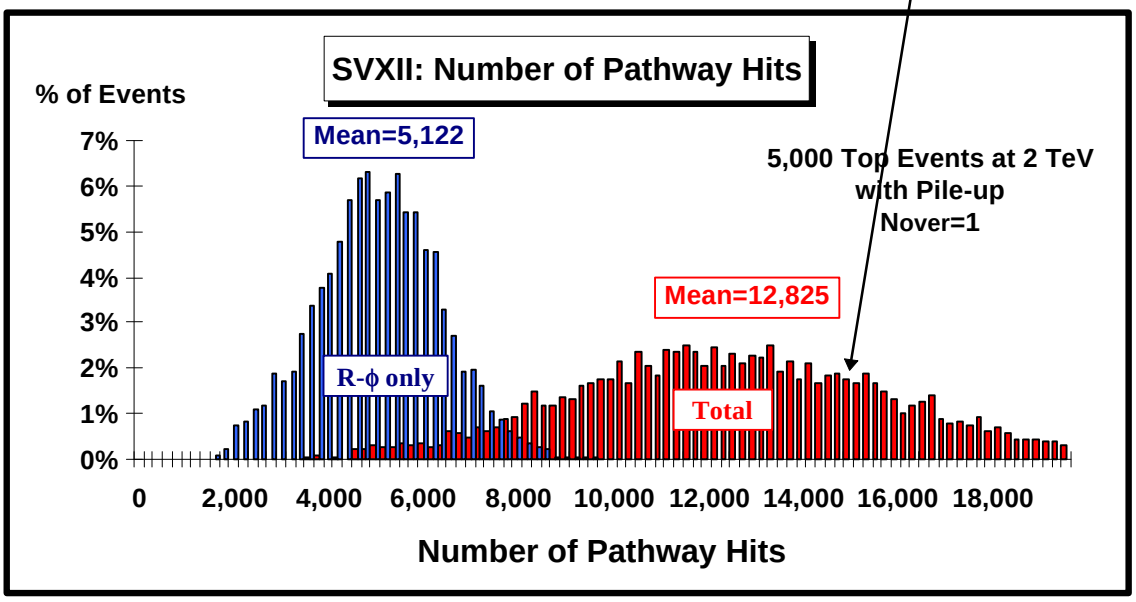
Reaction:	Top	Min-Bias	Min-Bias	Min-Bias	Min-Bias	Min-Bias
Z(int):	28.87	-30.42	21.9	-19.93	17.3	-73.45

SVXII	Number of Pathway Hits				Event #1		
Layer	iz= 1	2	3	4	5	6	sum
0	599	686	376	653	1,268	579	4,161
1	282	366	611	545	1,054	687	3,545
2	244	337	291	413	714	507	2,506
3	402	394	334	611	594	557	2,892
4	309	295	340	491	577	461	2,473
sum	1,836	2,078	1,952	2,713	4,207	2,791	15,577

5,000 Top Events at 2 TeV (<Min-Bias>=3, σ_z=30 cm):

SVXII	Average Pathway Hits						5,000 Top + <3>MB
Layer	iz= 1	2	3	4	5	6	all
0	480	570	628	628	569	469	3,344
1	417	490	534	536	489	412	2,878
2	295	355	394	393	355	289	2,081
3	349	399	430	430	397	343	2,348
4	321	370	400	399	367	317	2,174
all	1,862	2,184	2,386	2,386	2,177	1,830	12,825

SVXII	Average Pathway Occupancy						5,000 Top + <3>MB
Layer	iz= 1	2	3	4	5	6	all
0	7.8%	9.3%	10.2%	10.2%	9.3%	7.6%	9.1%
1	4.5%	5.3%	5.8%	5.8%	5.3%	4.5%	5.2%
2	1.9%	2.3%	2.6%	2.6%	2.3%	1.9%	2.3%
3	2.3%	2.6%	2.8%	2.8%	2.6%	2.2%	2.5%
4	1.5%	1.7%	1.9%	1.9%	1.7%	1.5%	1.7%
all	3.6%	4.2%	4.6%	4.7%	4.2%	3.5%	4.2%



SVXII: Pathway with Maximum Hits

One Event at 2 TeV (Event #1):

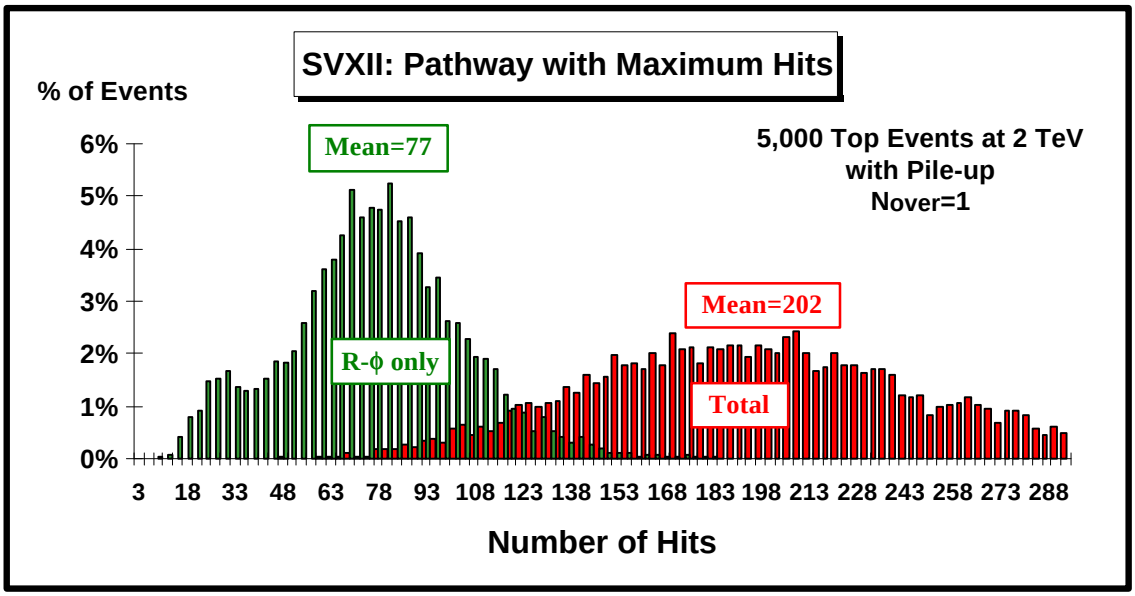
Reaction:	Top	Min-Bias	Min-Bias	Min-Bias	Min-Bias	Min-Bias
Z(int):	28.87	-30.42	21.9	-19.93	17.3	-73.45

SVXII	Maximum Pathway Hits				Event #1		
Layer	iz= 1	2	3	4	5	6	all
0	169	160	93	109	331	97	331
1	58	53	100	151	300	106	300
2	38	43	46	76	195	63	195
3	66	74	53	135	158	69	158
4	52	42	56	111	138	74	138
all	169	160	100	151	331	106	331

SVXII	Max Path Hits (R-ϕ only)				Event #1		
Layer	iz= 1	2	3	4	5	6	all
0	19	23	16	24	136	38	136
1	16	15	17	24	126	42	126
2	19	22	23	39	89	33	89
3	21	20	21	47	76	34	76
4	25	23	28	56	67	36	67
all	25	23	28	56	136	42	136

SVXII	Maximum Pathway Occupation					Event #1	
Layer	iz= 1	2	3	4	5	6	all
0	33.0%	31.3%	18.2%	21.3%	64.6%	18.9%	64.6%
1	7.6%	6.9%	13.0%	19.7%	39.1%	13.8%	39.1%
2	4.9%	5.6%	6.0%	9.9%	25.4%	8.2%	25.4%
3	5.2%	5.8%	4.1%	10.5%	12.3%	5.4%	12.3%
4	2.9%	2.3%	3.1%	6.2%	7.7%	4.1%	7.7%
all	33.0%	31.3%	18.2%	21.3%	64.6%	18.9%	64.6%

5,000 Top Events at 2 TeV (<Min-Bias>=3, σ_z=30 cm):



SVXII: Average Maximum Pathway

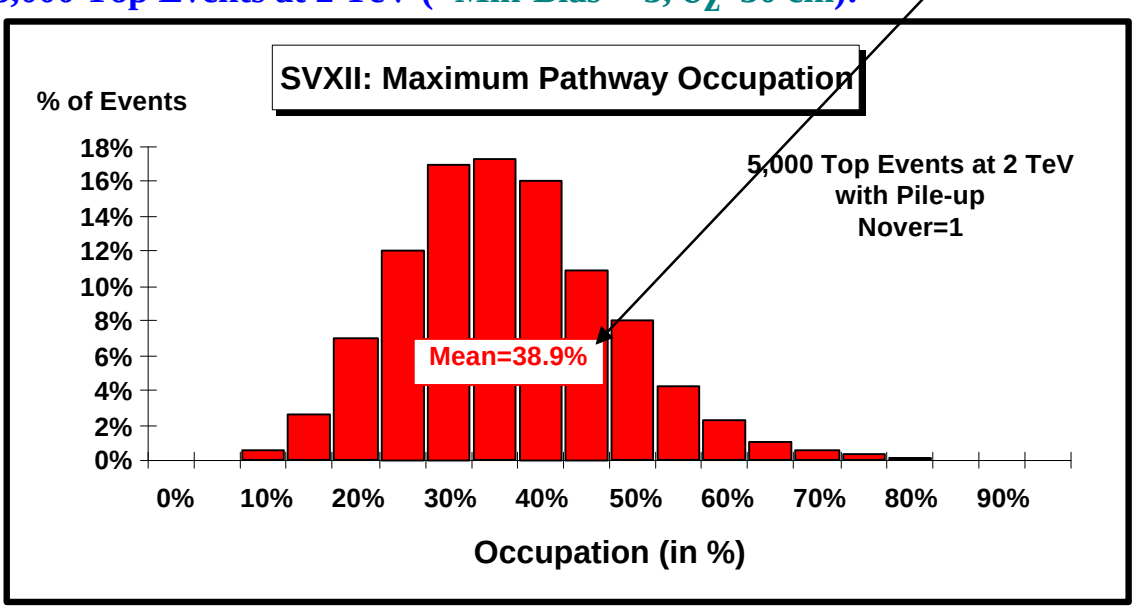
5,000 Top Events at 2 TeV (<Min-Bias>=3, σ_z=30 cm):

SVXII Layer	Average Maximum Pathway Hits iz= 1	2	3	4	5	6	5,000 Top + <3>MB all
0	105	113	118	117	112	103	199
1	88	95	100	100	95	87	167
2	49	59	66	65	59	47	123
3	66	73	78	78	73	64	127
4	50	59	65	64	59	49	110
all	115	122	127	126	121	114	202

SVXII Layer	Average Max Path Hits (R-ϕ only) iz= 1	2	3	4	5	6	5,000 Top + <3>MB all
0	23	30	34	33	29	22	75
1	23	28	32	32	28	22	66
2	24	29	33	33	29	23	61
3	24	29	32	32	29	24	57
4	25	30	33	32	29	25	55
all	31	37	41	41	37	30	77

SVXII Layer	Average Maximum Pathway Occupancy iz= 1	2	3	4	5	6	5,000 Top + <3>MB all
0	20.5%	22.1%	23.0%	22.9%	21.9%	20.1%	38.9%
1	11.4%	12.3%	13.0%	13.0%	12.3%	11.3%	21.8%
2	3.8%	4.6%	5.1%	5.1%	4.6%	3.6%	9.6%
3	5.2%	5.7%	6.1%	6.1%	5.7%	5.0%	9.9%
4	2.8%	3.3%	3.6%	3.6%	3.3%	2.7%	6.2%
all	20.8%	22.2%	23.1%	23.0%	22.1%	20.5%	38.9%

5,000 Top Events at 2 TeV (<Min-Bias>=3, σ_z=30 cm):



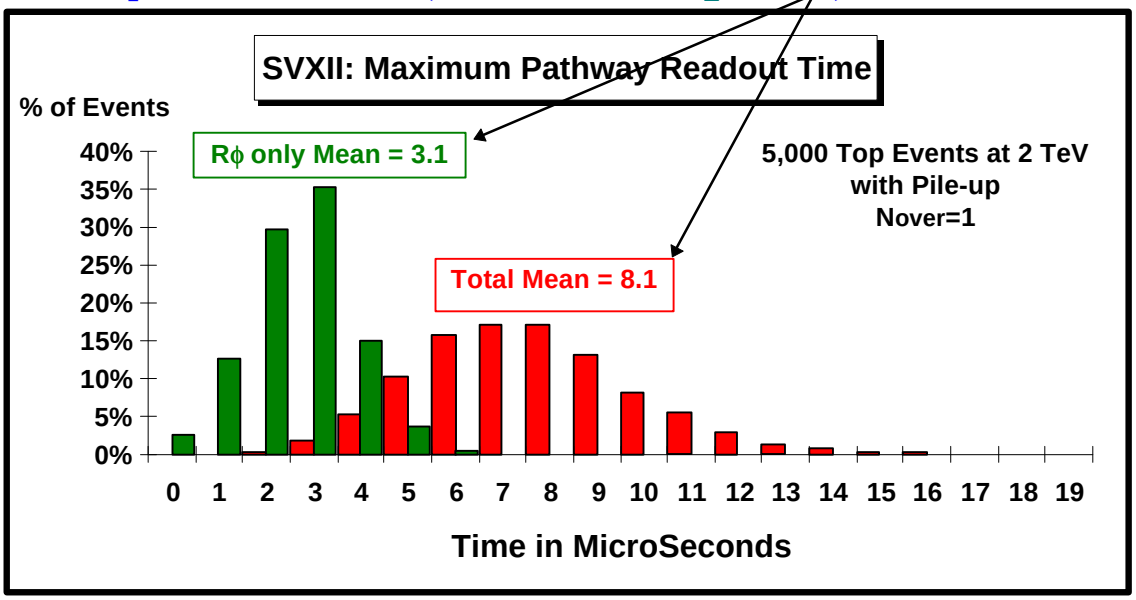
SVXII: Maximum Readout Time

5,000 Top Events at 2 TeV (<Min-Bias>=3, σ_z=30 cm):

SVXII Layer	Ave Max Readout Time (μs) iz= 1	2	3	4	5	6	5,000 Top + <3>MB all
0	4.2	4.5	4.7	4.7	4.5	4.1	8.0
1	3.5	3.8	4.0	4.0	3.8	3.5	6.7
2	1.9	2.3	2.6	2.6	2.3	1.9	4.9
3	2.7	2.9	3.1	3.1	2.9	2.6	5.1
4	2.0	2.4	2.6	2.6	2.3	2.0	4.4
all	4.6	4.9	5.1	5.0	4.8	4.6	8.1

SVXII Layer	Ave Max Readout Time (R-ϕ only) iz= 1	2	3	4	5	6	5,000 Top + <3>MB all
0	0.9	1.2	1.4	1.3	1.2	0.9	3.0
1	0.9	1.1	1.3	1.3	1.1	0.9	2.6
2	1.0	1.2	1.3	1.3	1.2	0.9	2.5
3	1.0	1.2	1.3	1.3	1.2	0.9	2.3
4	1.0	1.2	1.3	1.3	1.2	1.0	2.2
all	1.2	1.5	1.7	1.6	1.5	1.2	3.1

5,000 Top Events at 2 TeV (<Min-Bias>=3, σ_z=30 cm):



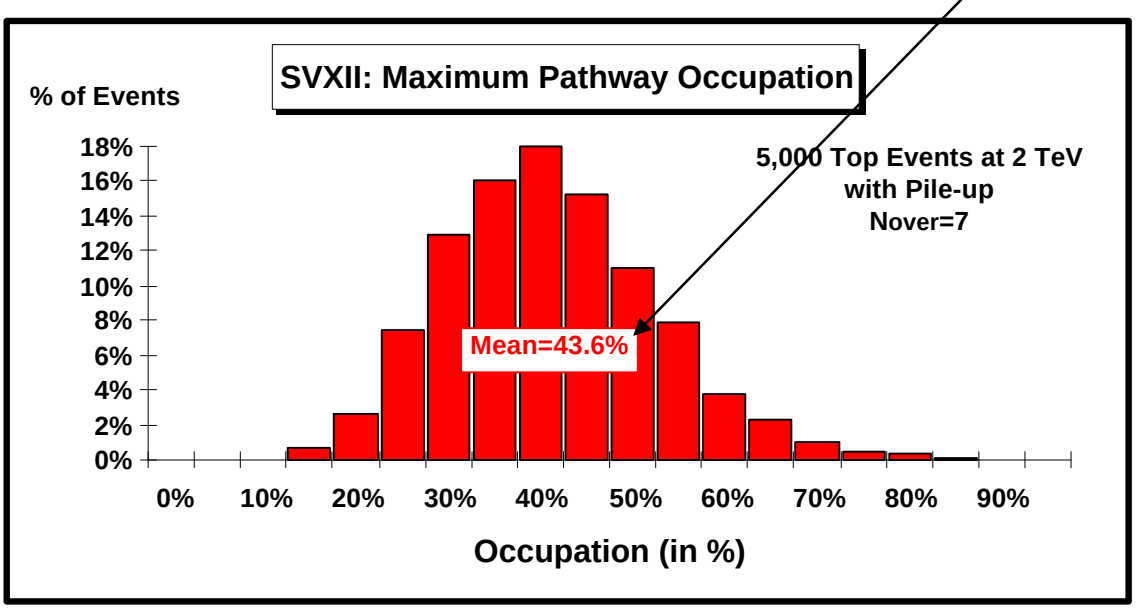
SVXII: Average Max Pathway (with noise)

5,000 Top Events at 2 TeV (<Min-Bias>=3, σ_z=30 cm):

SVXII Layer	Ave Max Pathway Hits (Nover=6+1) iz= 1	2	3	4	5	6	5,000 Top + <3>MB all
0	129	137	142	141	136	127	223
1	124	130	136	136	131	123	203
2	108	119	125	125	119	107	183
3	126	133	138	137	133	124	187
4	134	143	149	148	143	133	194
all	155	163	168	168	162	154	234

SVXII Layer	Average Max Path Hits (R-ϕ only) iz= 1	2	3	4	5	6	5,000 Top + <3>MB all
0	35	42	46	45	41	34	87
1	41	46	50	50	46	40	84
2	54	59	63	63	59	53	91
3	60	65	68	68	65	60	93
4	67	72	75	74	71	67	97
all	68	73	76	76	73	68	102

SVXII Layer	Ave Max Pathway Occupancy (Nover=6+1) iz= 1	2	3	4	5	6	5,000 Top + <3>MB all
0	25.2%	26.8%	27.7%	27.5%	26.6%	24.8%	43.6%
1	16.1%	16.9%	17.7%	17.7%	17.1%	16.0%	26.4%
2	8.4%	9.3%	9.8%	9.8%	9.3%	8.4%	14.3%
3	9.8%	10.4%	10.8%	10.7%	10.4%	9.7%	14.6%
4	7.5%	8.0%	8.3%	8.3%	8.0%	7.4%	10.8%
all	25.5%	26.9%	27.8%	27.7%	26.8%	25.2%	43.6%

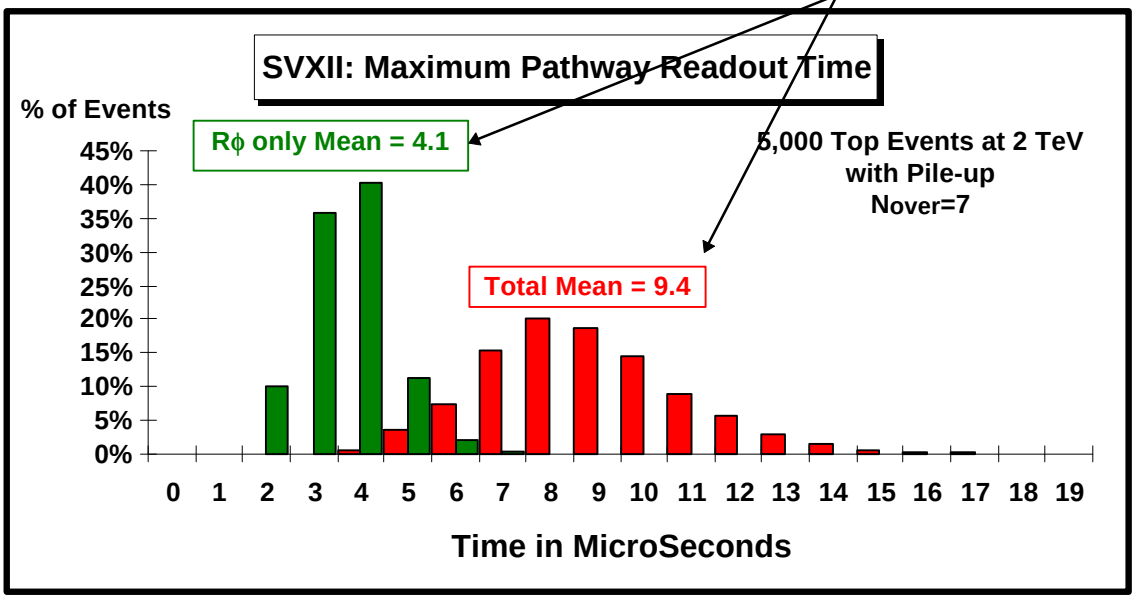


SVXII: Max Readout Time (with noise)

5,000 Top Events at 2 TeV (<Min-Bias>=3, σ_z=30 cm):

SVXII Layer	Ave Max Readout Time (μs) Nover=6+1 iz= 1	2	3	4	5	6	5,000 Top + <3>MB all
0	5.2	5.5	5.7	5.6	5.4	5.1	8.9
1	5.0	5.2	5.4	5.4	5.2	4.9	8.1
2	4.3	4.8	5.0	5.0	4.8	4.3	7.3
3	5.0	5.3	5.5	5.5	5.3	5.0	7.5
4	5.4	5.7	6.0	5.9	5.7	5.3	7.8
all	6.2	6.5	6.7	6.7	6.5	6.2	9.4

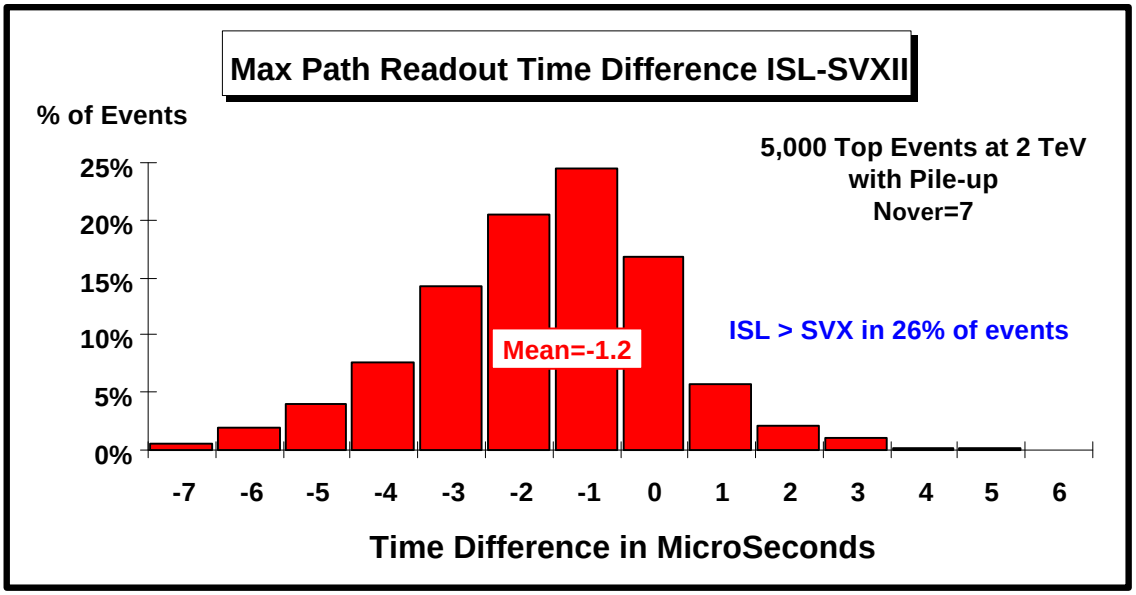
SVXII Layer	Ave Max Readout Time (R-ϕ only, Nover=6+1) iz= 1	2	3	4	5	6	5,000 Top + <3>MB all
0	1.4	1.7	1.8	1.8	1.7	1.4	3.5
1	1.6	1.8	2.0	2.0	1.8	1.6	3.4
2	2.2	2.4	2.5	2.5	2.4	2.1	3.7
3	2.4	2.6	2.7	2.7	2.6	2.4	3.7
4	2.7	2.9	3.0	3.0	2.9	2.7	3.9
all	2.7	2.9	3.1	3.0	2.9	2.7	4.1



SVXII: Readout Time Comparisons

Maxium Readout Time (event by event) SVXII versus ISL

5,000 Top Events at 2 TeV (<Min-Bias>=3, σ_z=30 cm):



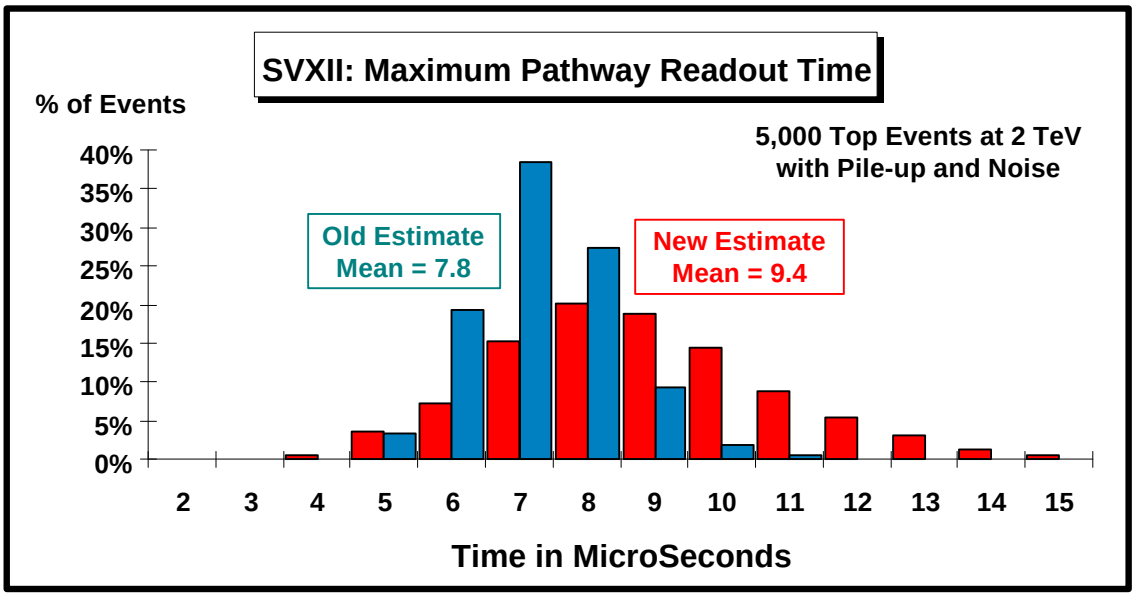
Comparison with "Super-Naive" Prediction

Last Time: $N_{hit} = 3(1+2+1) = 12$ **(old estimate)**

Now: $N_{hit} = N_{cl} + NN + 6 + 1$ **with** $\langle N_{cl}+NN\rangle_{RZ}=9.5$ $\langle N_{cl}+NN\rangle_{R\phi}=4.2$

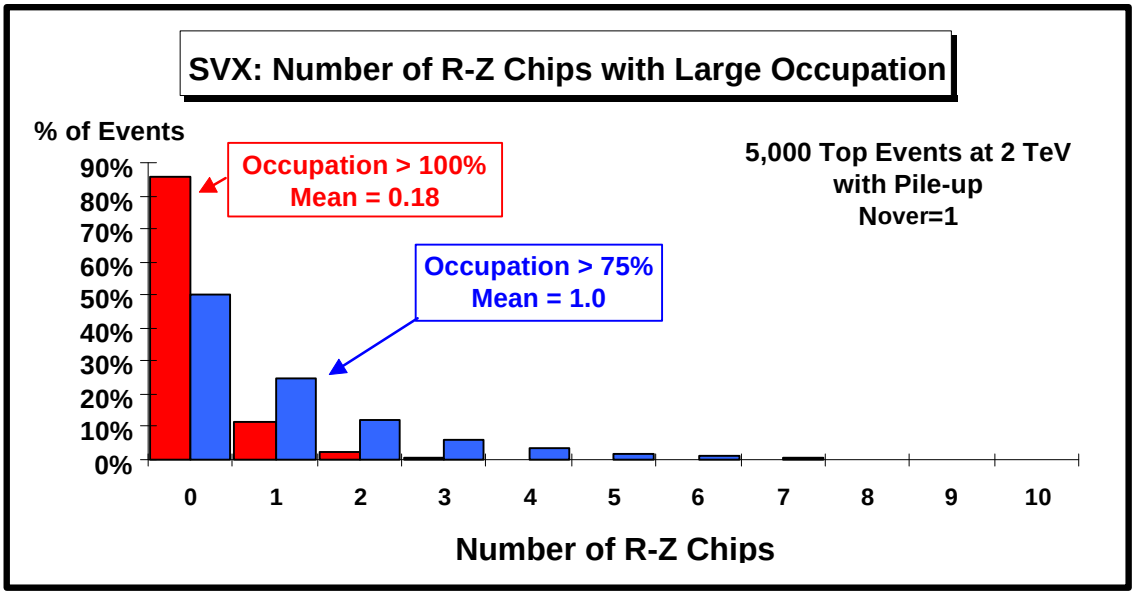
$\langle N_{hit}\rangle_{RZ} = 16.5$ $\langle N_{hit}\rangle_{R\phi} = 11.2$ **(new estimate)**

5,000 Top Events at 2 TeV (<Min-Bias>=3, σ_z=30 cm):

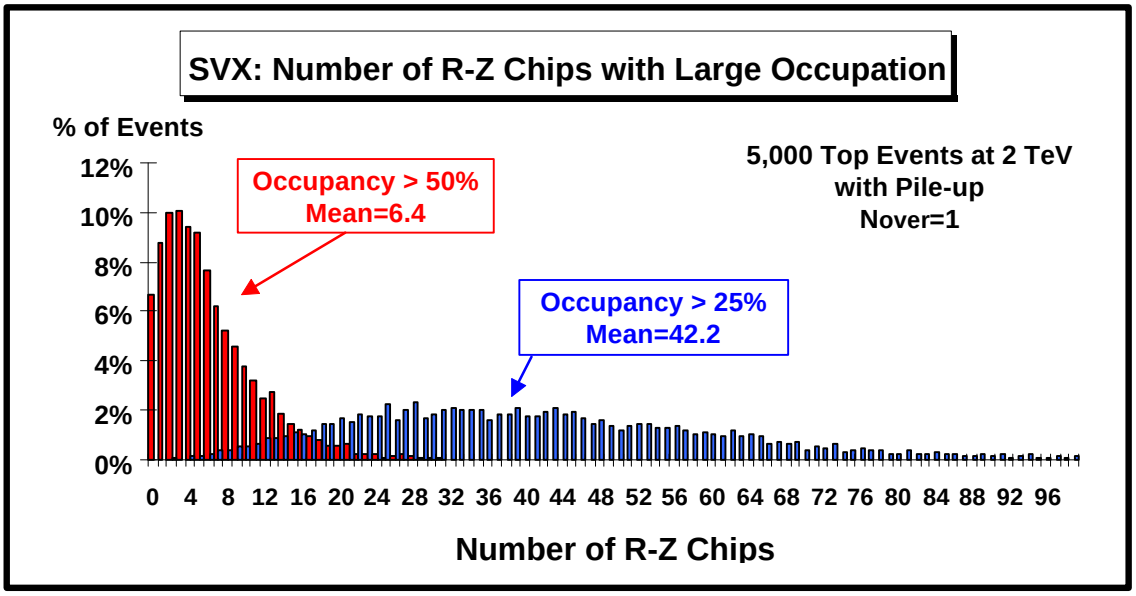


SVXII: Number of R-Z Chips with Large Occupancy

5,000 Top Events at 2 TeV (<Min-Bias>=3, σ_z=30 cm):

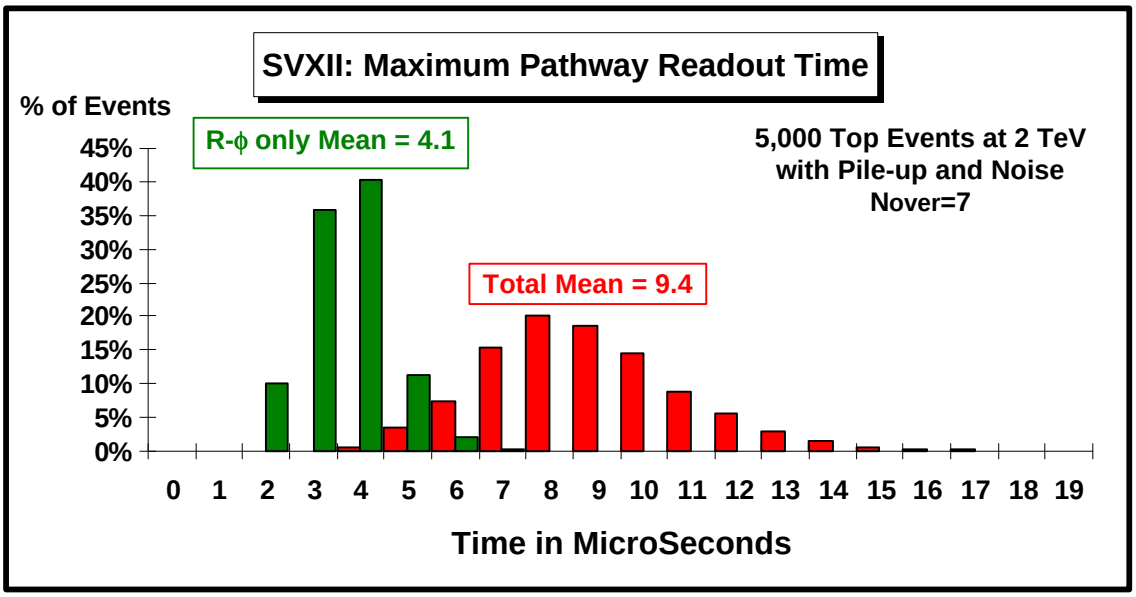


5,000 Top Events at 2 TeV (<Min-Bias>=3, σ_z=30 cm):

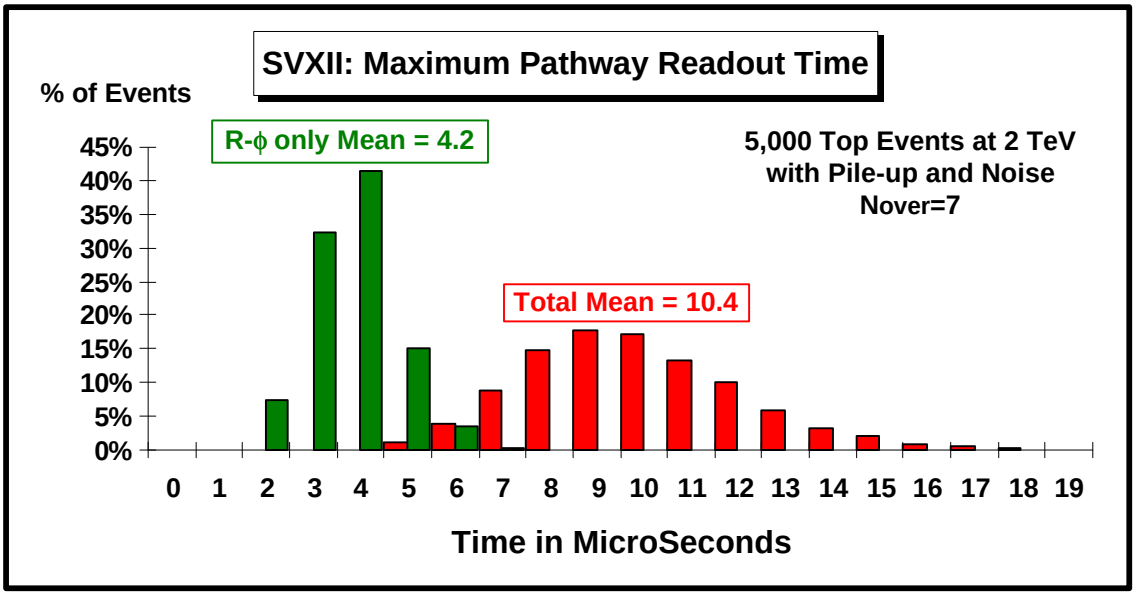


SVXII: Readout Time and Beam Conditions

5,000 Top Events at 2 TeV (<Min-Bias>=3, σ_z=30 cm):

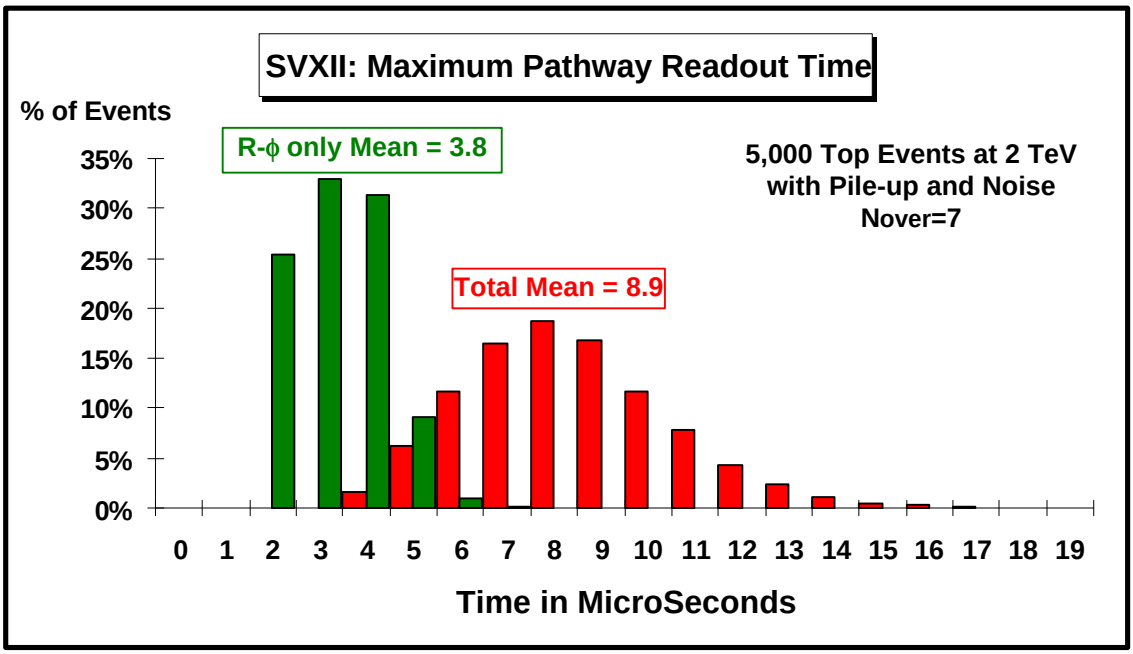


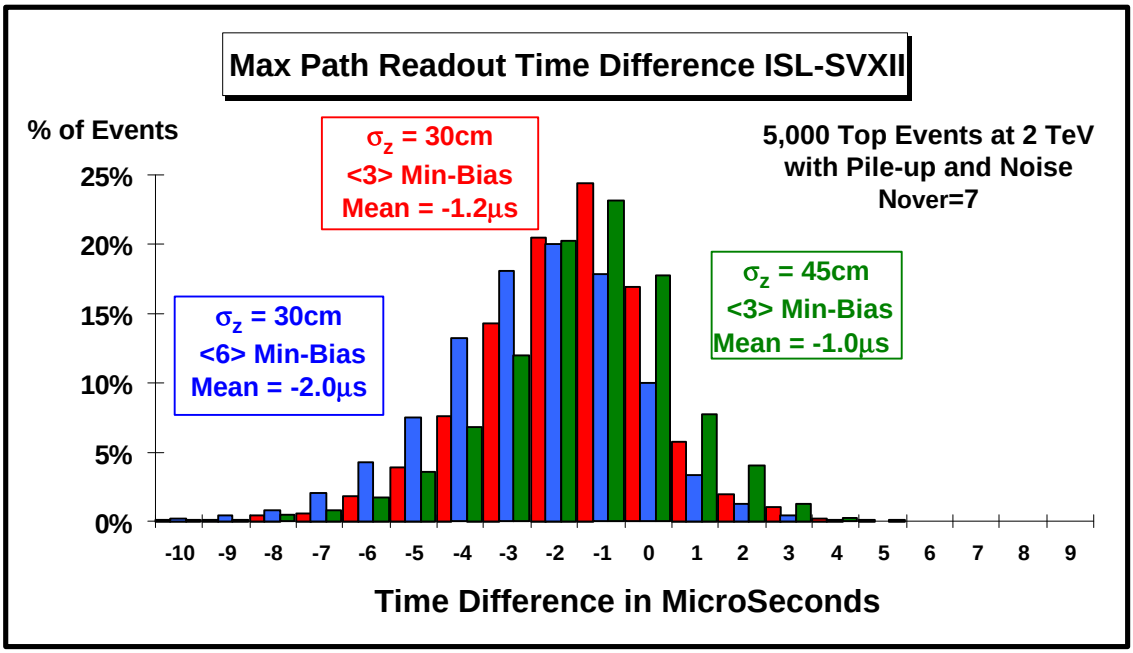
5,000 Top Events at 2 TeV (<Min-Bias>=6, σ_z=30 cm):



SVXII: Readout Time and Beam Conditions

5,000 Top Events at 2 TeV (<Min-Bias>=3, σ_z=45 cm):



Maxium Readout Time (event by event) SVXII versus ISL

5,000 Top Events at 2 TeV (Nover=7):