Divided GEM strips

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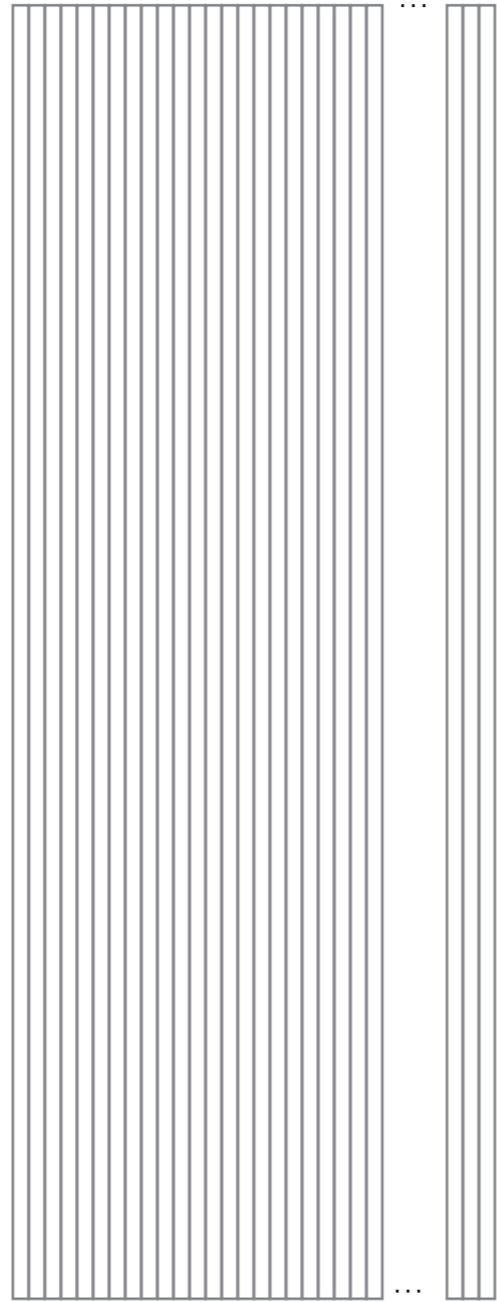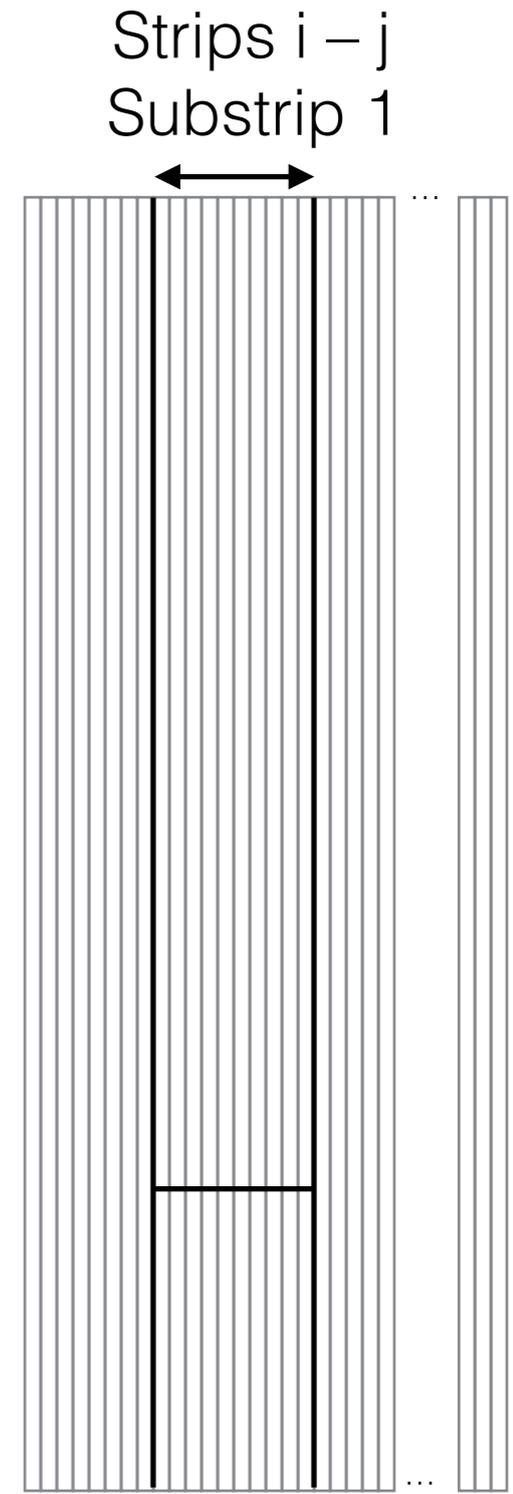
Strips i – j
Substrip 1

Strips 0 – n-1
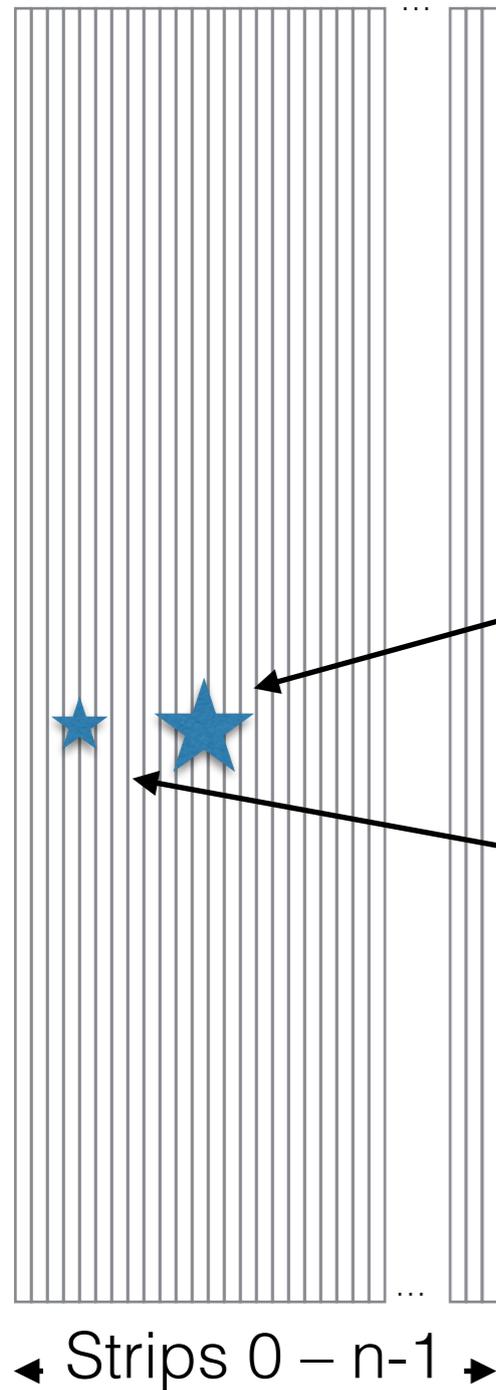
Strips 0 – n-1
Substrip 0

Crosstalk — Undivided strips

Strip	0	1	2	3	4	5	...	30	31	32	33	34	35	36	37	38	39	...	n-2	n-1
Signal	0	13	77	45	19	24	...	43	84	123	89	102	94	72	31	32	29	...	6	10

True hit

Crosstalk

Strips 0 – n-1
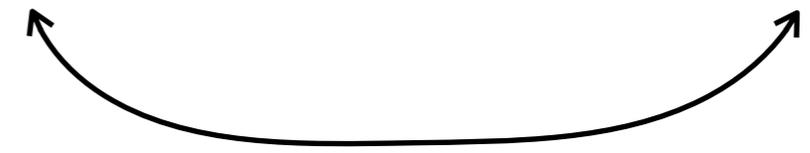
Crosstalk, any two
strips separated by 32

(Really should be only
between strips in one APV.)

Crosstalk — Divided strips

Strips i – j
Substrip 1

Strips 0 – n-1
Substrip 0
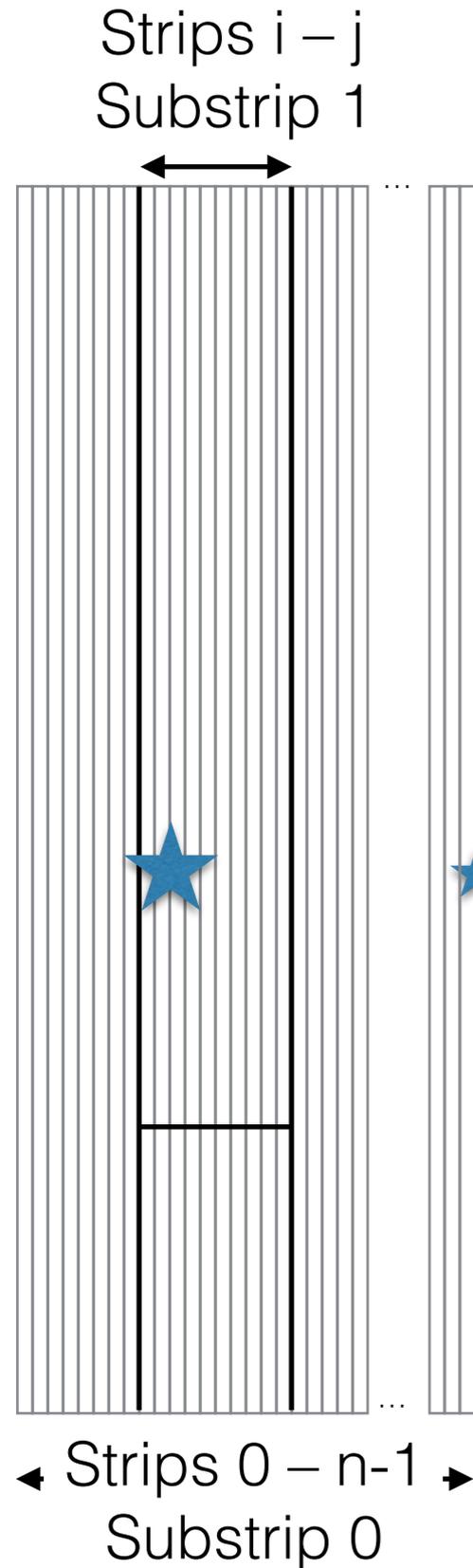
| Strip	0	1	2	3	4	5	...	n-2	n-1	i	i+1	i+2	i+3	i+4	...	i+28	i+29	i+30	...	j
Substrip	0	0	0	0	0	0	...	0	0	1	1	1	1	1	...	1	1	1	...	1
Signal	0	13	77	45	19	24	...	43	84	123	89	102	94	72	...	32	29	13	...	10

Crosstalk, any two channels separated by 32

Crosstalk far from true hit

(An arrangement that interleaves substrips 0 and 1 would be easy to code and give less goofy results, but still not entirely realistic.)
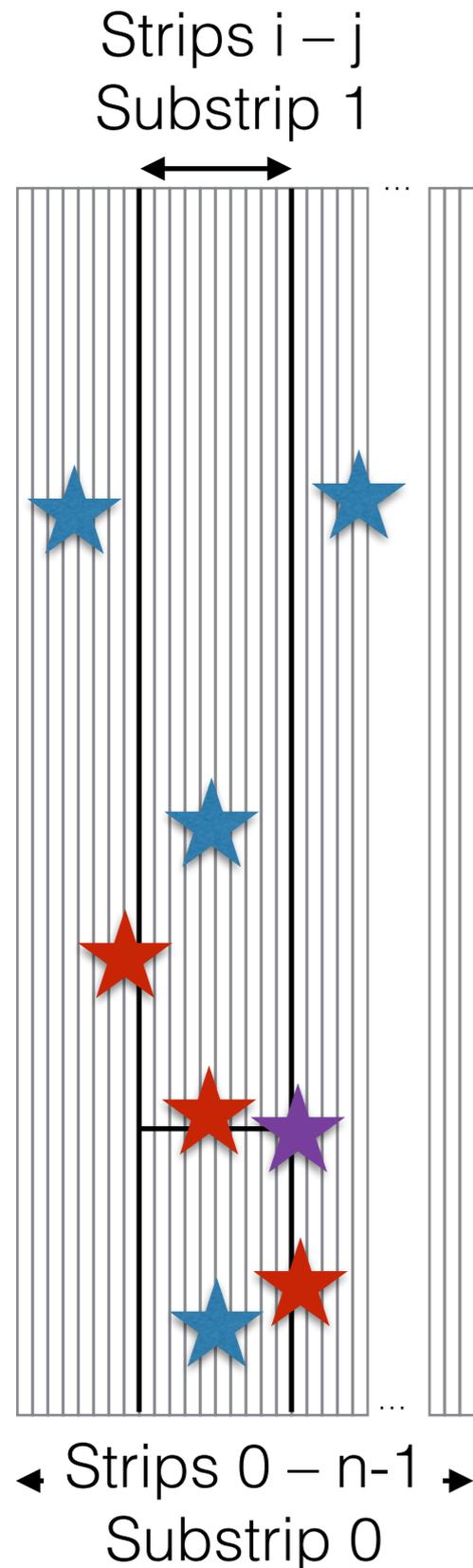
Clustering/Matching — Undivided strips

(done in tracking package, not digitization)

Strips around a local maximum are mapped to a coordinate in a single dimension. Matched based on strip crossings with other plane to generate hit coordinates in two dimensions.

2 clusters

Strips 0 – n-1
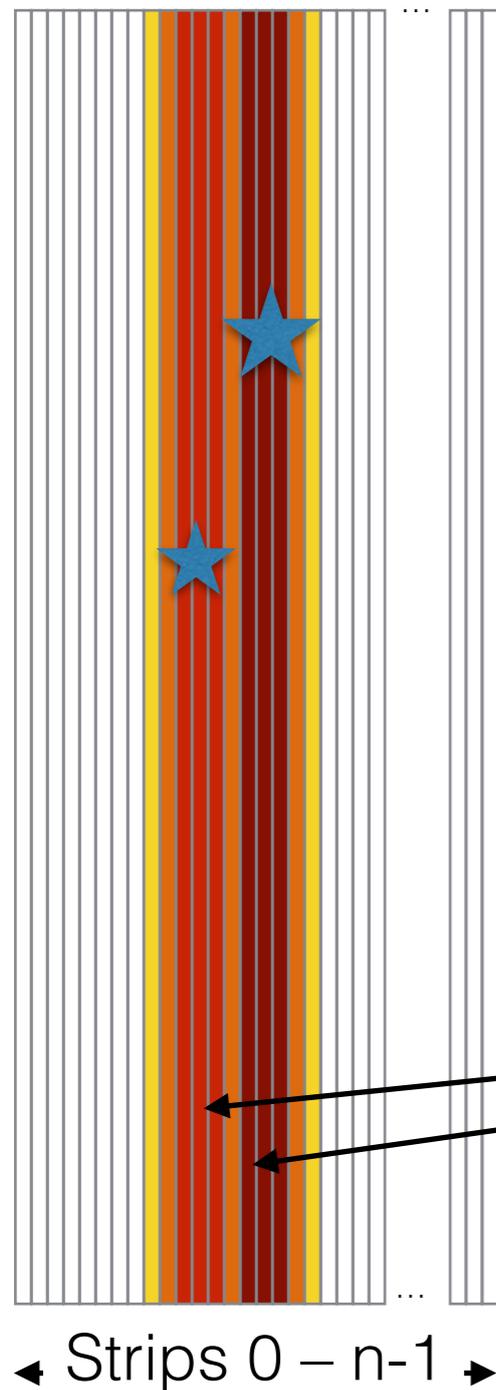
Clustering/Matching — Divided strips

Must develop clusters from non-homogeneous substrip groups

⭐ Cluster in homogeneous substrip group

⭐ Cluster in two substrip groups

⭐ Cluster in three substrip groups

Partial 2-dimensional information to be matched with partial 2-dimensional information from other plane

Non trivial changes to matching and clustering algorithms