

X-RAY TRANSFER

USES.

e-/DN CALIBRATION

ABSOLUTE CHARGE TRANSFER EFFICIENCY (CTE)

CHARGE COLLECTION EFFICIENCY (POINT SPREAD)

X-RAY INTERACTION

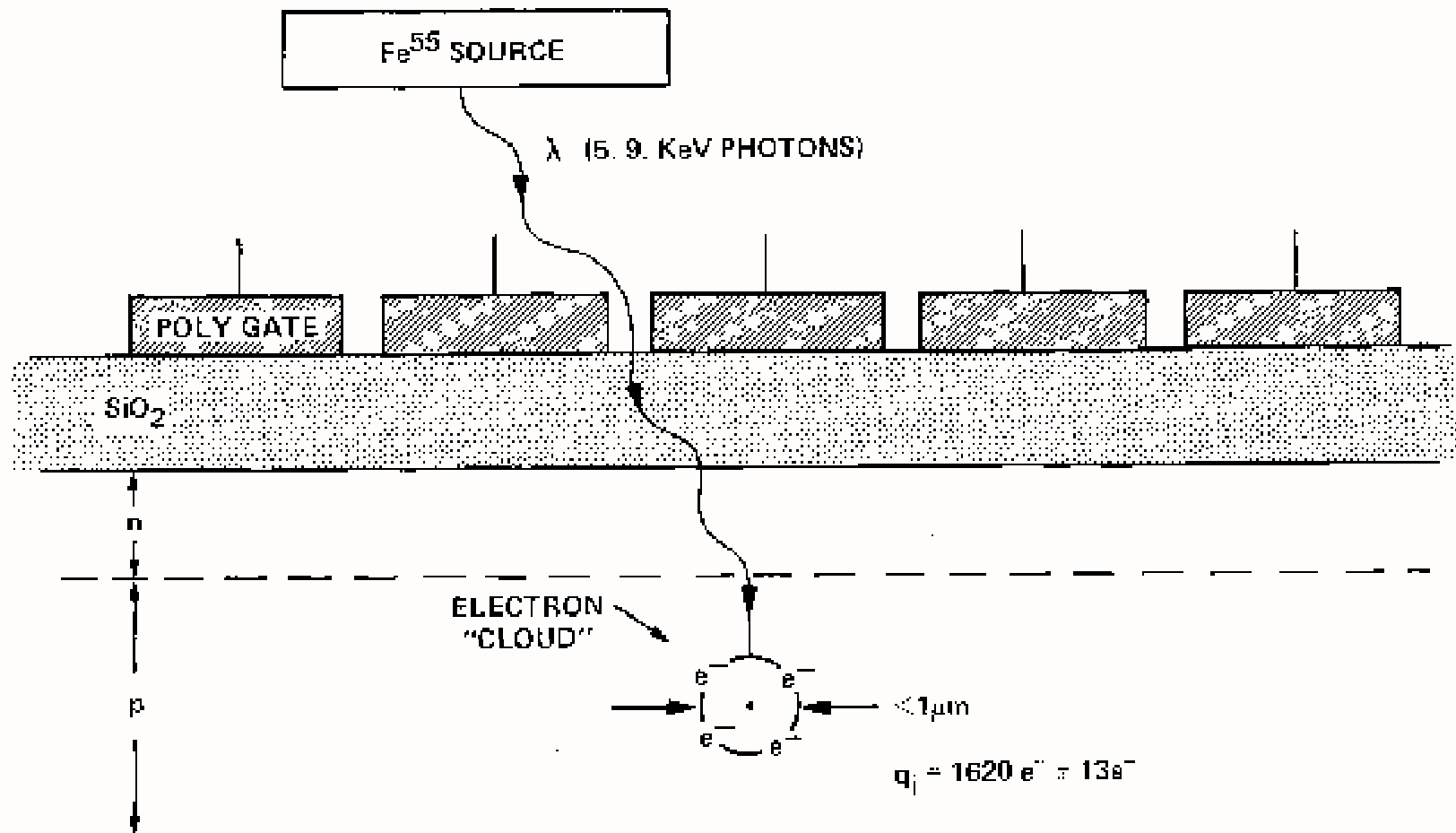
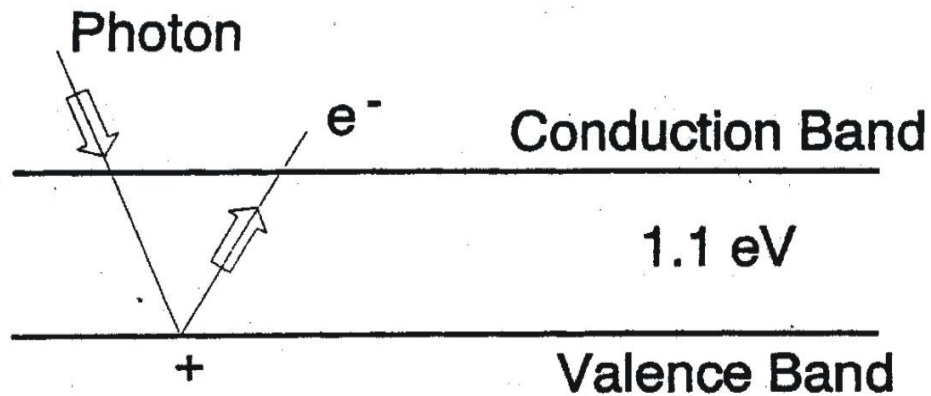


Photo-electric Effect



- $4000 \text{ \AA} < \lambda < 10,000 \text{ \AA}$, $e^- = 1$
- $1 \text{ \AA} < \lambda < 1000 \text{ \AA}$, $e^- = eV / 3.65 \text{ eV/e-}$

X-RAY STANDARD

Iron-55

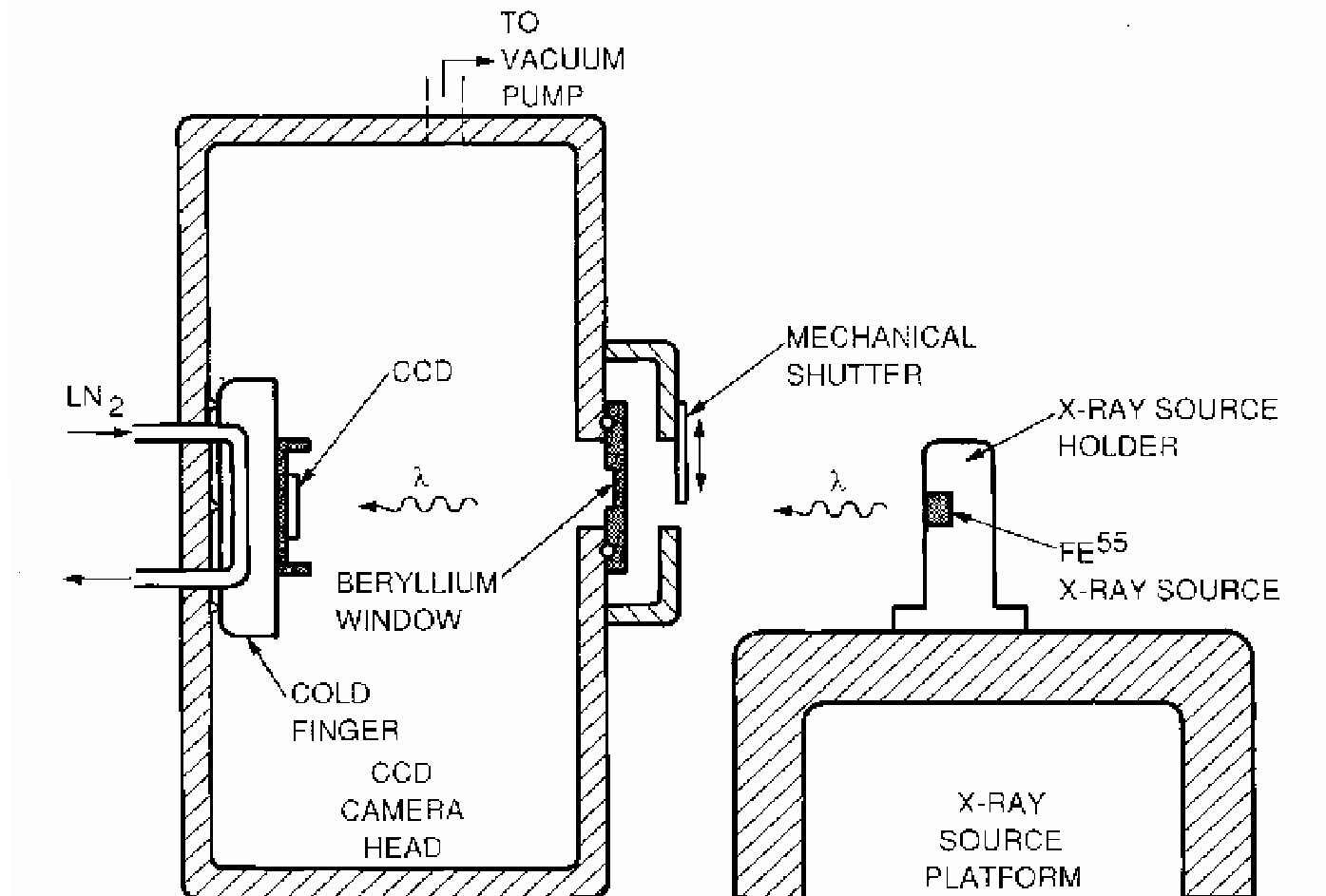
Mn X-ray Emitter

1617 e-/x-ray

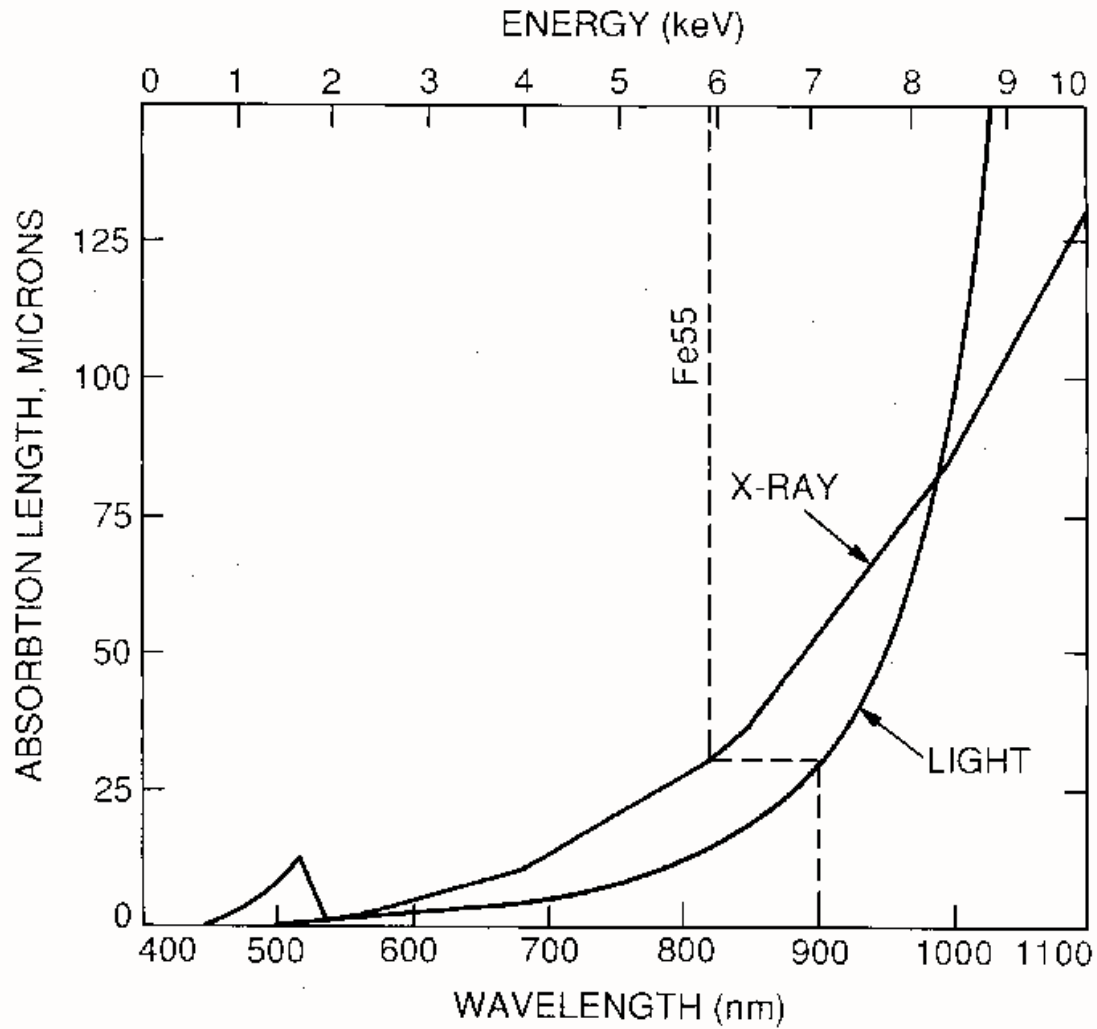
13 e- rms (Fano Noise)

Electron Cloud Diameter < 1 micron

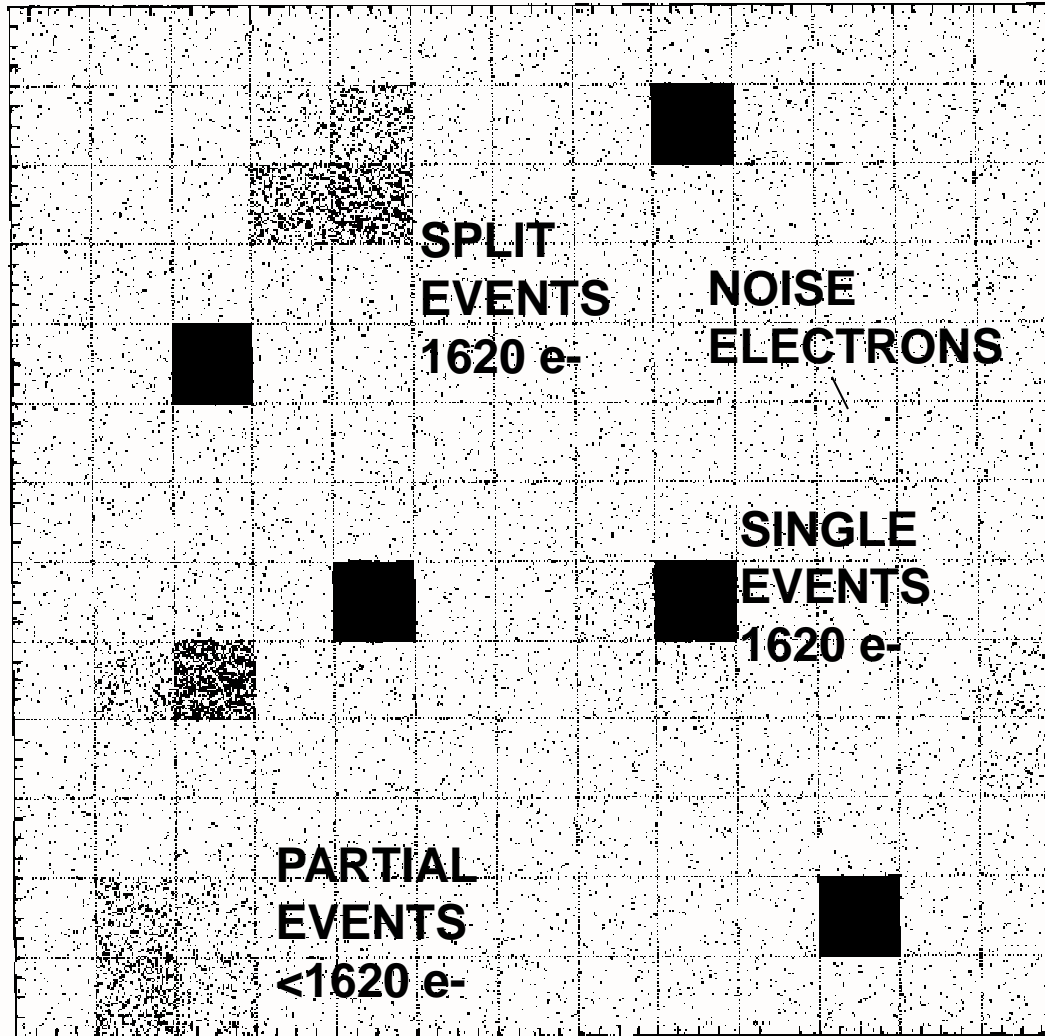
X-RAY FLAT FIELD SET UP



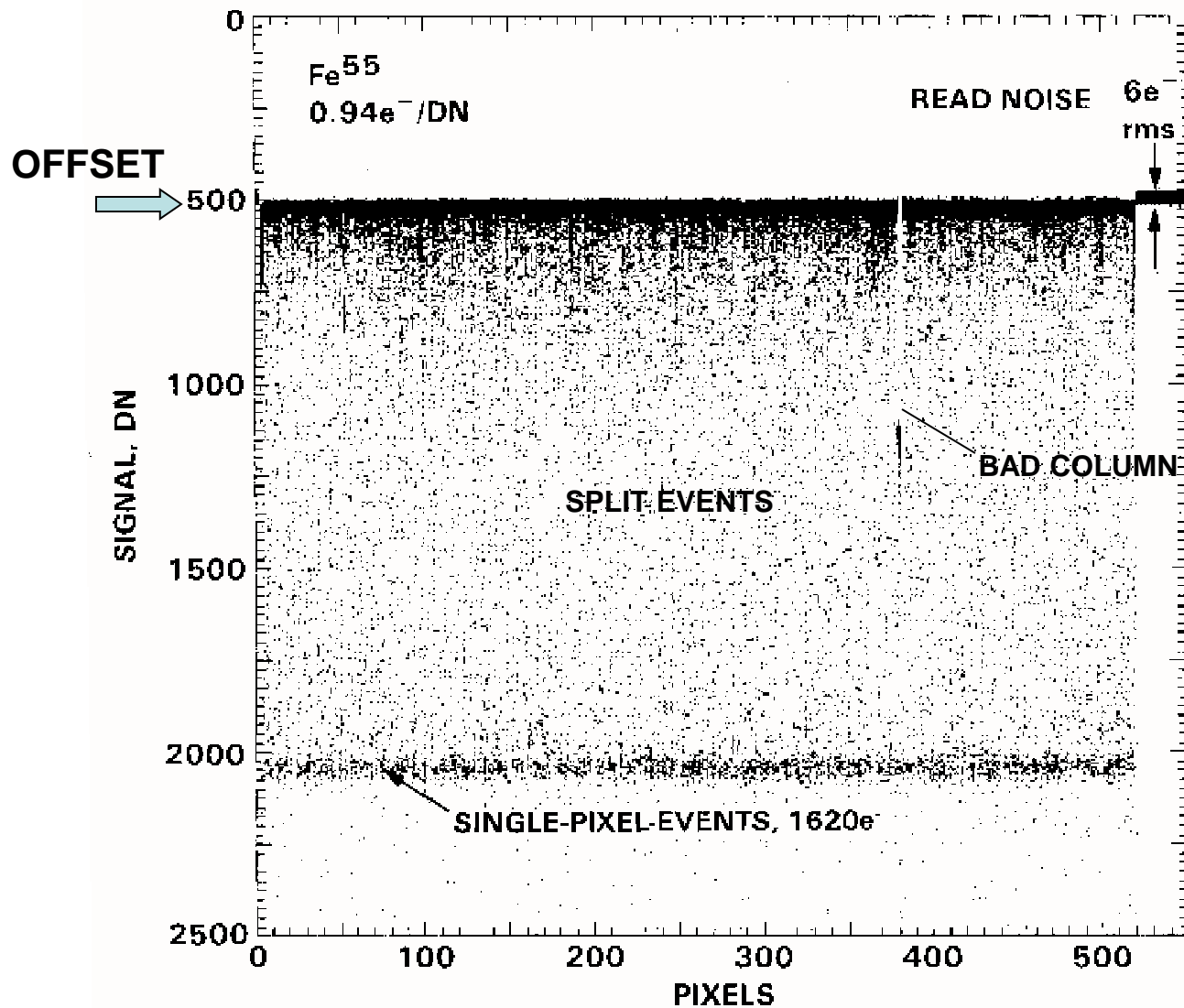
X-RAY ABSORPTION LENGTH



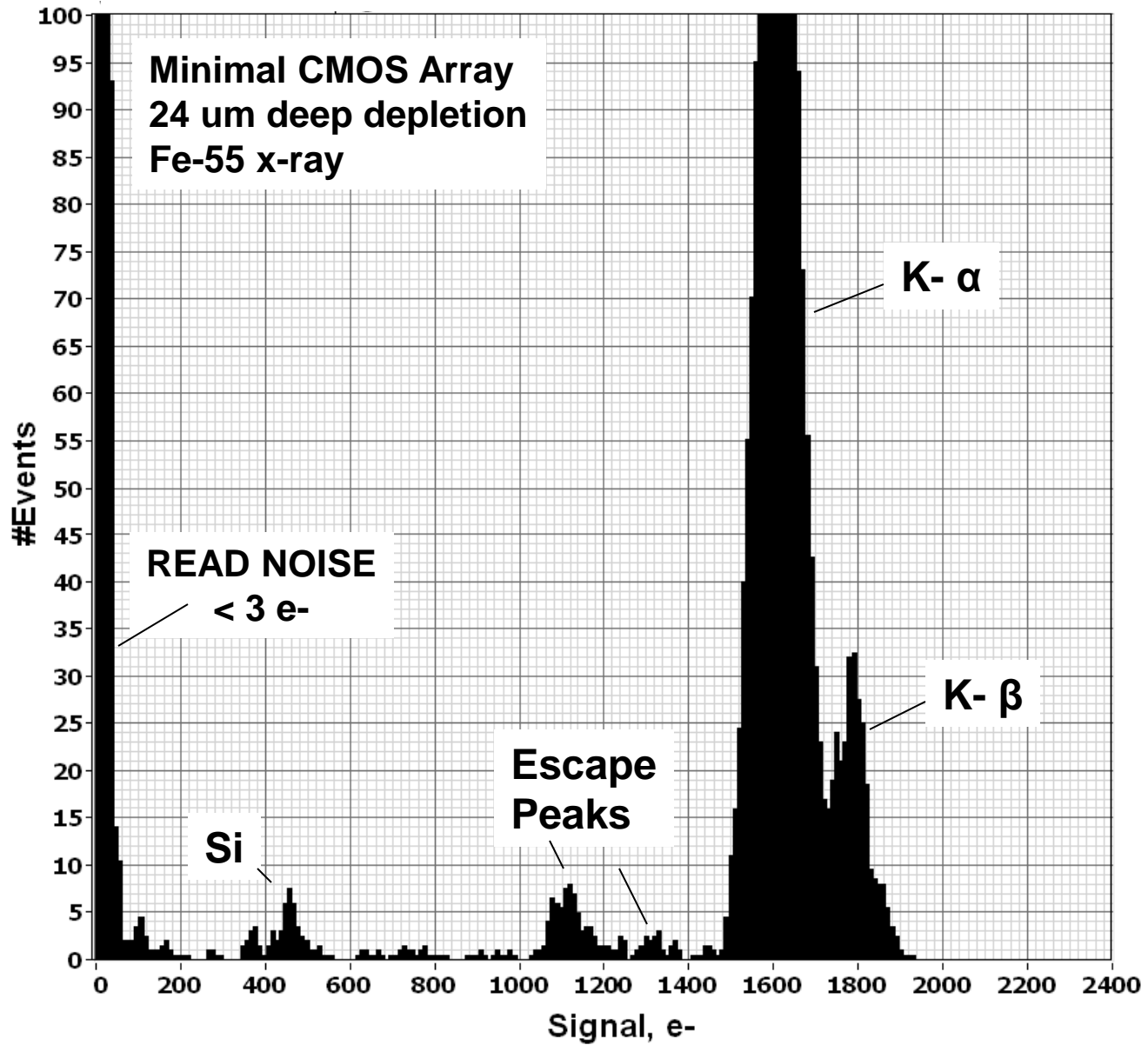
X-RAY EVENT IMAGE

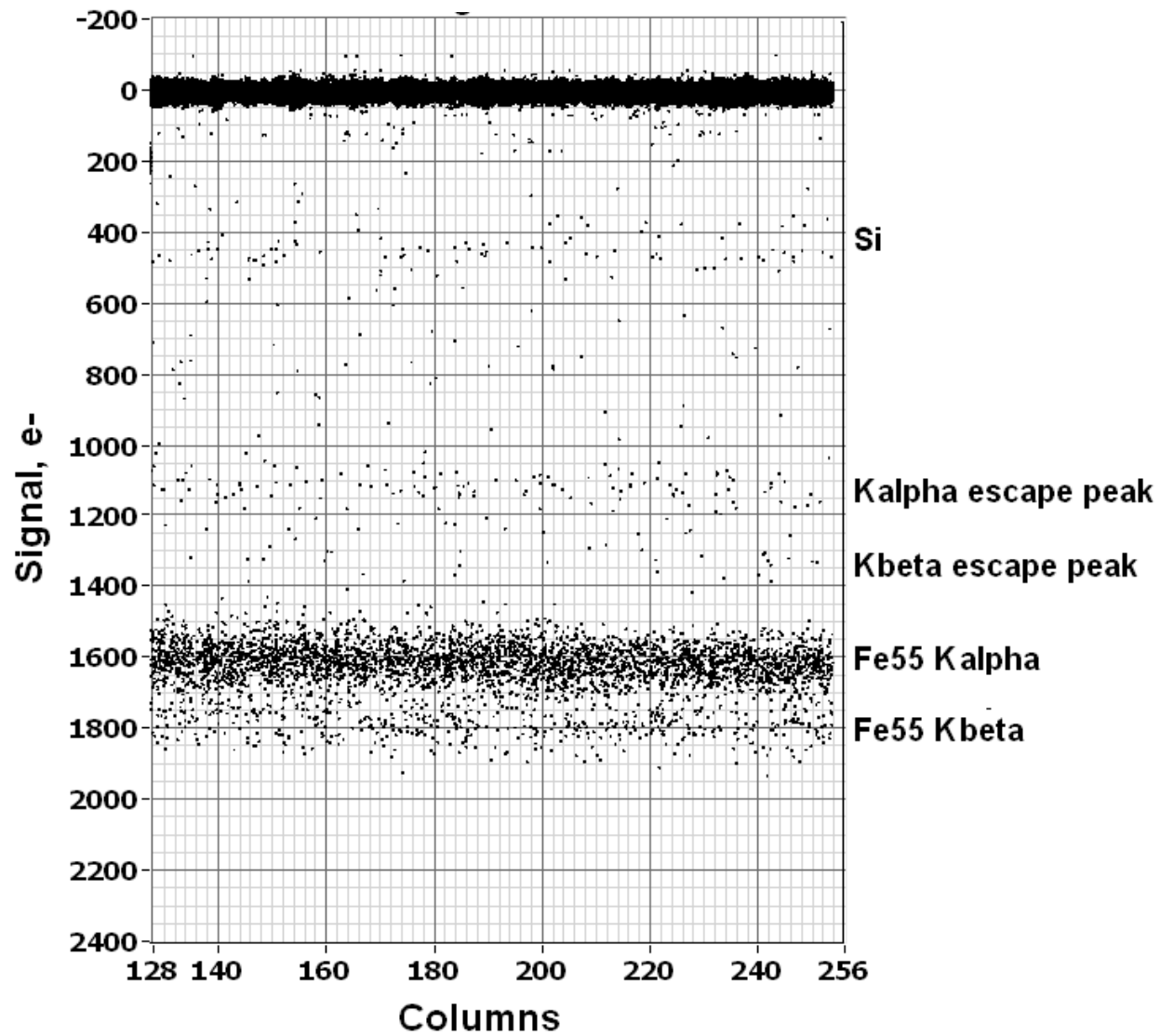


X-RAY EVENT ROW STACKING



X-RAY HISTOGRAM

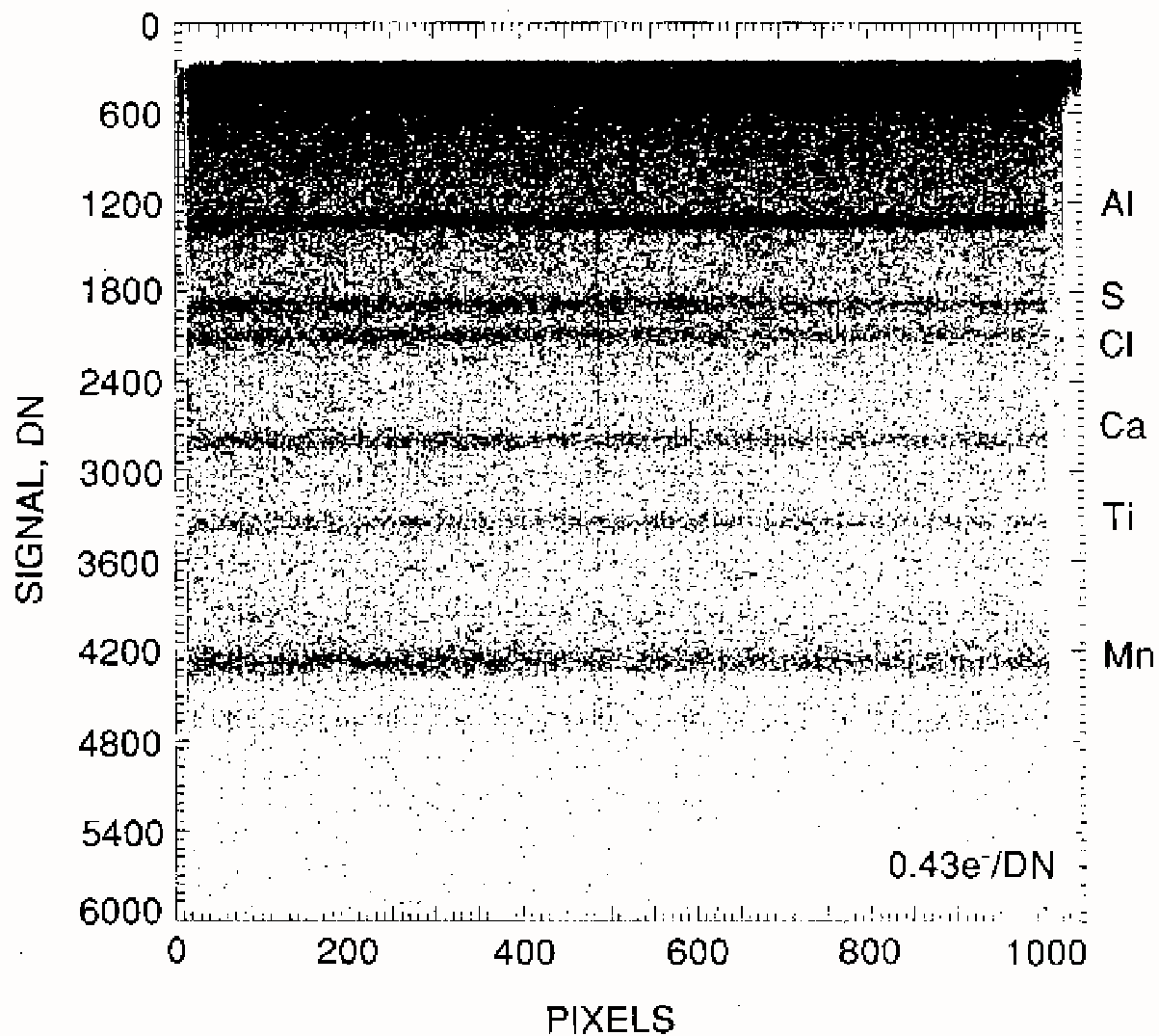




PRIMARY X-RAY LINES

Atomic#	Element	Lines K α (KeV)	Signal K α (e-)	Lines K β (KeV)	Signal K β (e-)
4	Be	0.109	29,863		
5	B	0.183	30,137		
6	C	0.277	75,890		
7	N	0.393	107,671		
8	O	0.525	143,836		
9	F	0.677	185,479		
10	Ne	0.848	232,329	0.858	225,068
11	Na	1.041	285,205	1.071	293,425
12	Mg	1.253	343,288	1.302	356,712
13	Al	1.487	407,397	1.557	426,575
14	Si	1.740	476,712	1.806	494,795
15	P	2.014	551,781	2.139	586,027
16	S	2.306	632,329	2.464	675,068
17	Cl	2.622	718,356	2.816	771,507
18	Ar	2.956	810,411	3.190	873,973
19	K	3.314	907,945	3.590	983,562
20	Ca	3.692	1011,507	4.013	1099,452
21	Sc	4.090	1120,548	4.461	1222,192
22	Ti	4.511	1235,890	4.932	1351,233
23	V	4.952	1356,732	5.427	1486,849
24	Cr	5.415	1483,562	5.947	1629,315
25	Mn	5.890	1613,699	6.490	1778,162
26	Fe	6.494	1779,178	7.058	1933,699
27	Co	6.930	1898,630	7.649	2095,616
28	Ni	7.478	2048,767	8.265	2264,381
29	Cu	8.048	2204,932	8.905	2439,726
30	Zn	8.639	2366,849	9.572	2622,466
31	Ga	9.252	2534,795	10.271	2813,973
32	Ge	9.887	2708,767	10.985	3009,041
33	As	10.544	2888,767	11.727	3212,877
34	Se	11.222	3074,591	12.496	3423,562
35	Br	11.924	3266,849	13.292	3641,644
36	Kr	12.650	3465,753	14.113	3866,575
37	Rb	13.396	3670,137	15.000	4109,485
38	Sr	14.166	3881,096	15.833	4337,500
39	Y	14.958	4098,082	16.737	4585,479
40	Zr	15.770	4320,548	17.667	4838,904
41	Nb	16.615	4552,055	18.623	5102,197
42	Mo	17.479	4788,767	19.608	5372,055
43	Tc	18.367	5032,055	20.619	5649,041
44	Ru	19.279	5281,918	21.656	5933,151
45	Rh	20.216	5538,630	22.723	6225,479

X-RAY FLUORESCENCE



CADMIUM – 109 X-RAY SOURCE

