Vertex and Decay Search Efficiency Study - 1

- First study uses code of Komatsu locate vertex / decay
- No reference to SFT information, emulsion information only, for now
- Can check code for holes, bugs, etc for easy, perfect events
- Can inbed information in real m-files to check for backgrounds

Generated 8-charged track vertex in LEPTO $\rightarrow$ m-file format
and could turn ON / OFF kink in any one track, at a setable decay length.

Result Summary:

- Vertex always recognized
- Decay recognized for $0.015 < \theta_{dec} < 0.200$ rad (but 200μm cut is is a serious inefficiency for decay lengths > 2mm)
- Background is not a serious problem if the 1^{ry} vertex is found

File 3096_12697.all 1,7×10^5 tracks in file

											DZ	IP	Theta	Chi2	Chi2	Stat
171	31749	2	191	24433	1	-0.2725	0.0576	-0.2876	-0.1111	-259.4	65.8	868.	868.	4.5	0.1625	0.3841	99.9999	200
251	18523	6	211	28326	3	-0.3196	0.0742	-0.3531	0.1627	-706.8	308.7	2300.	2300.	4.0	0.0869	1.4241	0.8300	200
251	18523	6	191	22183	3	-0.3196	0.0742	-0.2076	0.2481	-25.6	149.6	161.	161.	1.3	0.1969	1.4241	0.5106	200
251	18523	6	231	21048	3	-0.3196	0.0742	-0.2811	0.3885	-24.1	148.9	154.	154.	2.4	0.2894	1.4241	1.3201	200
171	799	2	231	21150	4	0.1281	0.0787	-0.2537	0.1940	-2.5	207.3	467.	467.	2.2	0.3877	0.1902	0.5171	200
171	19128	2	231	20521	5	-0.1431	0.1196	-0.1119	0.3033	22.1	166.2	925.	925.	2.1	0.1775	0.6011	1.1390	200
171	19128	2	191	7102	1	-0.1431	0.1196	0.3834	-0.1152	122.8	87.5	240.	240.	7.5	0.5549	0.6011	99.9999	200
171	19128	2	191	789	1	-0.1431	0.1196	0.0880	0.1912	39.6	150.0	816.	816.	6.3	0.2378	0.6011	99.9999	200
171	19128	2	211	23207	1	-0.1431	0.1196	-0.1099	0.1248	-717.3	784.0	6099.	6099.	1.7	0.0329	0.6011	99.9999	200
171	23372	2	211	23213	1	-0.2293	0.1392	-0.1576	0.1277	-44.6	182.5	1004.	1004.	1.2	0.0691	0.3777	99.9999	200
211	28326	3	251	18550	4	-0.3531	0.1627	-0.1526	0.2057	-360.3	152.1	1323.	1323.	3.3	0.1913	0.8300	1.4074	200
171	23845	2	211	28806	1	-0.2298	0.1854	-0.3215	-0.0681	-159.9	-33.8	740.	740.	5.6	0.2579	0.9324	99.9999	200
171	18759	2	251	35745	2	-0.0345	0.1931	-0.0139	0.0321	-9.4	23.1	719.	719.	1.1	0.1599	1.6308	0.0001	200
171	18759	2	251	37459	6	-0.0345	0.1931	-0.0030	-0.0110	-2.6	-6.4	566.	566.	1.9	0.2041	1.6308	0.0000	200
171	18759	2	251	35585	6	-0.0345	0.1931	-0.0092	-0.0009	-5.1	-0.4	597.	597.	0.9	0.1932	1.6308	0.0000	200
171	18759	2	251	36324	6	-0.0345	0.1931	-0.0165	0.0325	-10.4	23.6	722.	722.	3.0	0.1592	1.6308	0.0000	200
171	18759	2	251	36411	6	-0.0345	0.1931	-0.0107	0.0574	-11.2	48.3	848.	848.	4.2	0.1354	1.6308	0.0000	200
171	23781	2	211	24220	1	-0.1665	0.1824	-0.2206	-0.1305	-118.3	79.0	414.	414.	1.1	0.3092	1.0850	99.9999	121
211	22852	4	231	253	1	-0.1686	0.2395	0.3418	0.0677	47.5	81.8	258.	258.	1.1	0.5182	0.3508	99.9999	121
191	22183	3	231	21048	3	-0.2076	0.2481	-0.2811	0.3885	-23.6	146.7	148.	148.	0.1	0.1367	0.5106	1.3201	121
191	21745	3	211	23570	1	-0.1080	0.2875	-0.1241	0.0252	-67.6	-149.0	51.	51.	6.4	0.2539	0.1184	99.9999	121
191	21745	3	211	23207	1	-0.1080	0.2875	-0.1099	0.1248	-177.4	164.7	1143.	1143.	9.9	0.1550	0.1184	99.9999	121
251	36058	6	251	18189	5	0.1122	-0.1539	-0.3335	0.1718	10.1	-15.9	97.	97.	2.5	0.5335	0.0000	3.3922	200
251	36058	6	251	18009	3	0.1122	-0.1539	-0.1188	0.2474	30.4	-44.0	281.	281.	2.6	0.4541	0.0000	0.8975	200
211	36281	4	251	35745	2	0.0328	0.0787	-0.0139	0.0321	-41.8	96.2	3001.	3001.	0.0	0.0658	0.0000	0.0001	121
211	36281	4	231	22398	2	0.0328	0.0787	-0.3566	0.2538	-137.7	-134.3	62.	62.	1.7	0.4018	0.0000	2.2403	121
251	35368	6	251	18009	3	0.0239	-0.0178	-0.1188	0.2474	10.8	-7.5	433.	433.	1.1	0.2945	0.0000	0.8975	121
251	36411	6	251	18009	3	-0.0107	0.0574	-0.1188	0.2474	-7.3	33.8	596.	596.	1.9	0.2120	0.0000	0.8975	121
211	29998	2	231	22133	1	-0.3778	-0.1074	-0.3216	-0.0870	-1014.0	-397.1	3077.	3077.	5.5	0.0529	1.9563	99.9999	121
231	21110	3	231	22398	2	-0.3635	0.2486	-0.3566	0.2538	-10081.8	6945.1	27950.	27950.	1.7	0.0086	0.6799	2.2403	200

*** Short, Long Small, Long Large parent

STATUS:

LONG SMALL : 1

SHORT : 2

LONG LARGE PARENT : 3

			PH			Chi2/ndf	Chi2(99)	Flight	Impact	Min. kink	Status
251	18523	6	130032	-0.3196	0.0742	1.4241	1.8850	750.	139.7907	0.1864	2
251	18524	5	130030	-0.2891	0.1424	4.1130	1.8850	750.	13.0723	0.0174	1
251	18189	5	130013	-0.3335	0.1718	3.3922	1.8850	750.	5.3841	0.0072	1
251	18210	3	150059	-0.3359	0.1337	0.1481	2.1930	750.	190.3761	0.2538	2

Parent q > 0.200

Daughter q > 0.200

Vee (not kink)