High Energy Analysis

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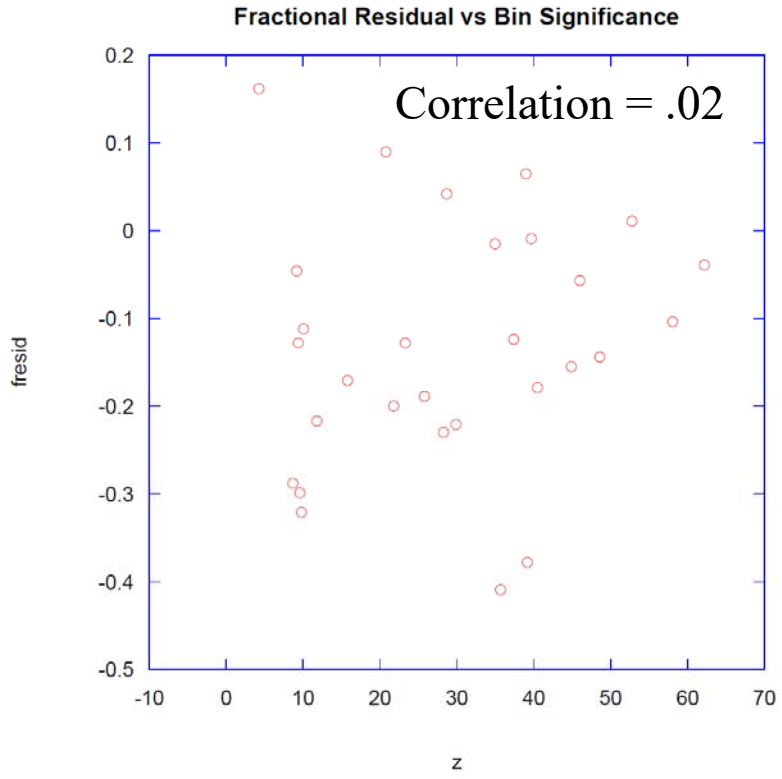
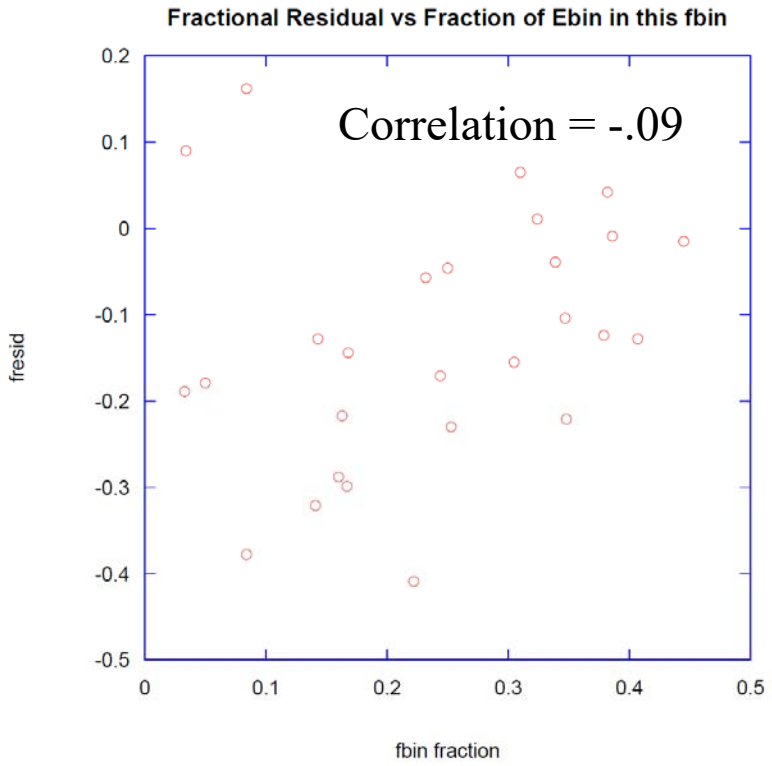
HAWC Meeting
Aug 10, 2018

Bad pulls not confined to unimportant bins

fresid = photons/fit -1





As Brenda said, MC psf too narrow for upper bins

	Theta_opt		3*Theta_opt	
Fbin,Emin	Photons	Significance	Photons	Significance
7,32	20	13	29	6
8,32	19	16	58	16
9,32	42	46	106	38
9,56	18	22	37	15
9,100	7	10	13	6

photons increase more than expected

Sam: closer to x1.5 for double Gaussian than 1.4 = 1/.72 for single G

x 1.7 to > 2 while fit increase by 1.7 to 2

Significance drops at 3*opt (opt is between 1 & 3)

1	fbin	ehat bin	flo	fhi	elo	ehi	evts	fit	bkg	photons	phot/fit	z	fresid	photfit	bkg ratio	phot ratio	zratio	it phot rati	dfresid	phofit ratio
2	1	2	0.067	0.105	0	0.25	1273848	1273563	1267887	5961.2	1.05	5.3	0.050	5676.1	8.98	1.73	0.58	1.10	0.097	1.57
3	2	2	0.105	0.162	0	0.25	535934	536050	526010.9	9923.1	0.99	13.7	-0.012	10039.1	9.06	1.77	0.59	1.13	0.117	1.56
4	3	2	0.162	0.247	0	0.25	115333	114527.9	108324.3	7008.7	1.13	21.3	0.130	6203.6	9.02	1.64	0.55	1.06	0.065	1.55
5	4	2	0.247	0.356	0	0.25	5379	5286.817	4604.736	774.3	1.14	11.4	0.135	682.1	9.02	1.65	0.55	1.04	0.045	1.58
6	1	3	0.067	0.105	0.25	0.5	332854	334164.4	333230.8	-376.8	-0.40	-0.7	-1.404	933.6	9.04	-1.50	-0.50	-0.96	-0.824	1.57
7	2	3	0.105	0.162	0.25	0.5	143993	144682.4	142227.9	1765.1	0.72	4.7	-0.281	2454.5	8.99	1.61	0.54	1.01	0.007	1.59
8	3	3	0.162	0.247	0.25	0.5	73532	73080	68251.97	5280.0	1.09	20.2	0.094	4828.0	8.95	1.73	0.58	1.11	0.109	1.56
9	4	3	0.247	0.356	0.25	0.5	19582	19193.25	15796.26	3785.7	1.11	30.1	0.114	3397.0	8.89	1.70	0.57	1.10	0.103	1.54
10	5	3	0.356	0.485	0.25	0.5	1076	1175.65	725.2083	350.8	0.78	13.0	-0.221	450.4	9.40	1.55	0.50	0.96	-0.033	1.61
11	6	3	0.485	0.618	0.25	0.5	14	6.993681	5.548095	8.5	5.85	3.6	4.847	1.4	8.57	1.94	0.66	1.26	1.190	1.55
12	2	4	0.105	0.162	0.5	0.75	35526	35542.53	35179.41	346.6	0.95	1.8	-0.046	363.1	8.97	1.28	0.43	0.82	-0.208	1.55
13	3	4	0.162	0.247	0.5	0.75	20623	20648.27	19544.08	1078.9	0.98	7.7	-0.023	1104.2	9.09	2.37	0.79	1.44	0.298	1.64
14	4	4	0.247	0.356	0.5	0.75	11249	11029.86	8998.965	2250.0	1.11	23.7	0.108	2030.9	9.11	1.80	0.60	1.12	0.117	1.61
15	5	4	0.356	0.485	0.5	0.75	4792	4568.85	2775.539	2016.5	1.12	38.3	0.124	1793.3	8.95	1.84	0.61	1.17	0.164	1.57
16	6	4	0.485	0.618	0.5	0.75	446	499.1918	157.0291	289.0	0.84	23.1	-0.155	342.2	9.73	1.77	0.57	1.03	0.023	1.73
17	3	5	0.162	0.247	0.75	1	6153	6169.645	6004.978	148.0	0.90	1.9	-0.101	164.7	8.95	4.45	1.49	2.87	0.586	1.55
18	4	5	0.247	0.356	0.75	1	3610	3649.005	3169.269	440.7	0.92	7.8	-0.081	479.7	8.94	1.98	0.66	1.17	0.135	1.69
19	5	5	0.356	0.485	0.75	1	2971	2785.534	1780.057	1190.9	1.18	28.2	0.184	1005.5	9.30	2.30	0.75	1.35	0.309	1.70
20	6	5	0.485	0.618	0.75	1	1500	1426.642	588.0948	911.9	1.09	37.6	0.087	838.5	8.86	1.93	0.65	1.21	0.191	1.59
21	7	5	0.618	0.74	0.75	1	291	355.3218	72.94198	218.1	0.77	25.5	-0.228	282.4	8.56	1.90	0.65	1.24	0.150	1.54
22	8	5	0.74	0.84	0.75	1	13	22.63636	1.250694	11.7	0.55	10.5	-0.451	21.4	9.35	4.10	1.34	2.50	0.330	1.64
23	5	6	0.356	0.485	1	1.25	811	828.0724	617.6552	193.3	0.92	7.8	-0.081	210.4	8.94	2.42	0.81	1.31	0.218	1.85
24	6	6	0.485	0.618	1	1.25	730	653.859	270.2708	459.7	1.20	28.0	0.198	383.6	8.77	2.77	0.93	1.54	0.420	1.80
25	7	6	0.618	0.74	1	1.25	445	375.806	93.90516	351.1	1.25	36.2	0.245	281.9	8.95	2.41	0.81	1.47	0.400	1.64
26	8	6	0.74	0.84	1	1.25	169	173.9189	24.2855	144.7	0.97	29.4	-0.033	149.6	8.91	1.80	0.60	1.13	0.111	1.60
27	9	6	0.84	1.01	1	1.25	11	21.33866	0.507095	10.5	0.50	14.7	-0.496	20.8	8.90	1.77	0.59	1.05	0.025	1.68
28	6	7	0.485	0.618	1.25	1.5	147	127.3834	68.42098	78.6	1.33	9.5	0.333	59.0	8.84	2.99	1.01	1.53	0.461	1.96
29	7	7	0.618	0.74	1.25	1.5	261	191.6806	57.06069	203.9	1.51	27.0	0.515	134.6	9.56	2.91	0.94	1.45	0.473	2.00
30	8	7	0.74	0.84	1.25	1.5	146	141.4805	27.12669	118.9	1.04	22.8	0.040	114.4	10.12	2.57	0.81	1.35	0.269	1.90
31	9	7	0.84	1.01	1.25	1.5	95	123.8165	11.07385	83.9	0.74	25.2	-0.256	112.7	8.53	2.06	0.71	1.26	0.153	1.64
32	7	8	0.618	0.74	1.5	1.75	51	44.59013	21.71599	29.3	1.28	6.3	0.280	22.9	8.97	1.50	0.50	0.71	-0.520	2.10
33	8	8	0.74	0.84	1.5	1.75	72	60.34408	14.05811	57.9	1.25	15.5	0.252	46.3	10.10	3.11	0.98	1.51	0.423	2.06
34	9	8	0.84	1.01	1.5	1.75	114	91.4581	7.882491	106.1	1.27	37.8	0.270	83.6	9.40	2.52	0.82	1.35	0.327	1.87
35	8	9	0.74	0.84	1.75	2	0	5.545813	1.940503	-1.9	-0.54	-1.4	-1.538	3.6	8.94	8.94	2.99	4.74	-0.425	1.886
36	9	9	0.84	1.01	1.75	2	43	47.24763	6.089119	36.9	0.90	15.0	-0.103	41.2	8.66	2.02	0.69	1.12	0.097	1.80
37	9	10	0.84	1.01	2	2.25	17	17.65369	4.300947	12.7	0.95	6.1	-0.049	13.4	10.10	1.93	0.61	1.07	0.063	1.80
38	9	11	0.84	1.01	2.25	2.5	2	3.049204	0.951626	1.0	1.1	1.1	-0.500	2.1	8.93	-9.84	-3.29	-11.18	0.60	1.89

Is fit ratio best indicator of long psf tail?
What causes long tail in data but not in MC?
Double evts? Curvature?

What causes drop in TS (2d to 1d)?

Candidates:

combine 2d bins w/ different s/b

merge bins with different psf

Answer: both

	Significance
2d	182
2d summed to 1d	101
1d	127
2d 3 * theta_opt	123