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Comparing the bad run lists resulting from run-by-run algorithms: V2 and V3 for Au+Au at 9.2 GeV

Prepared by:

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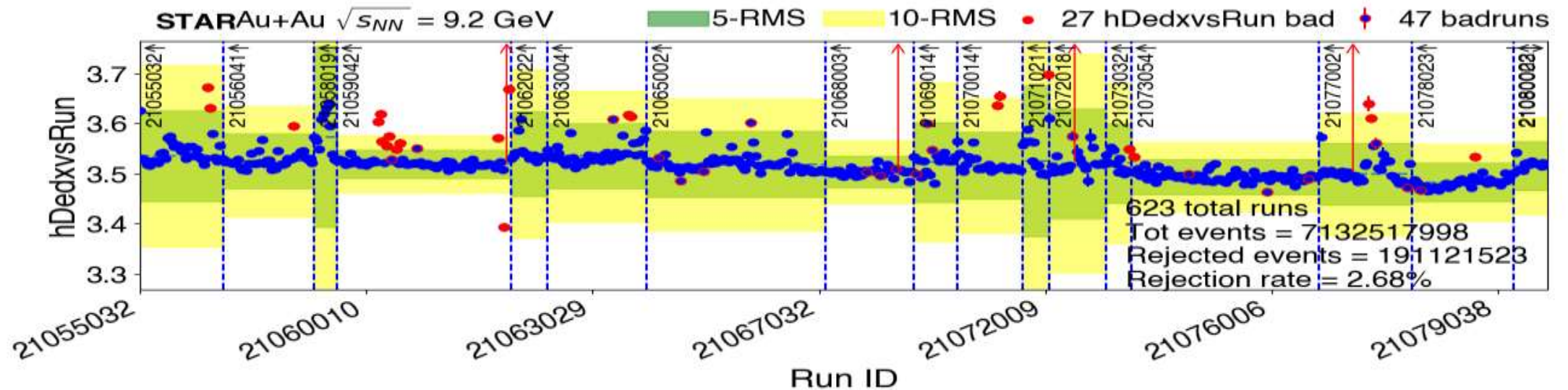
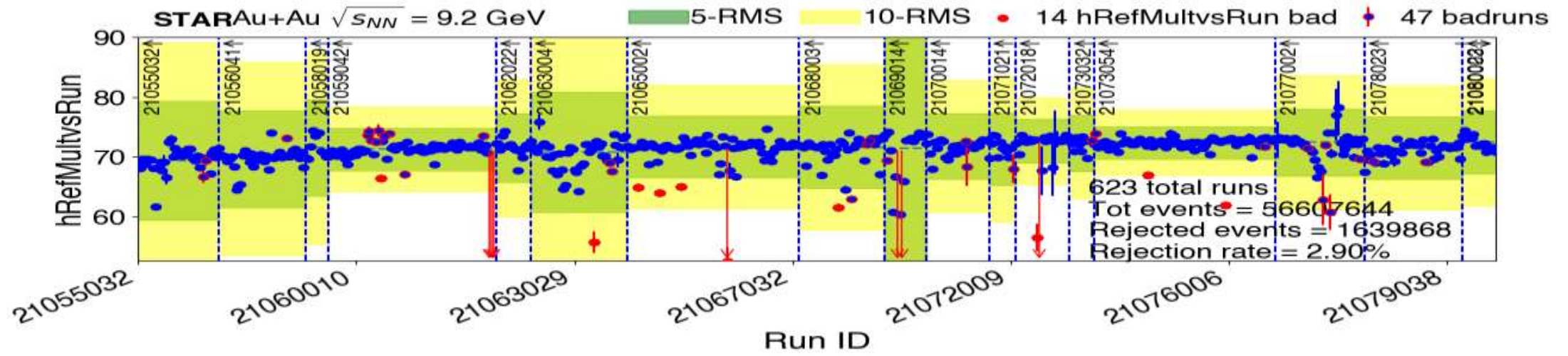
Department of Physics, Tanta University, Egypt

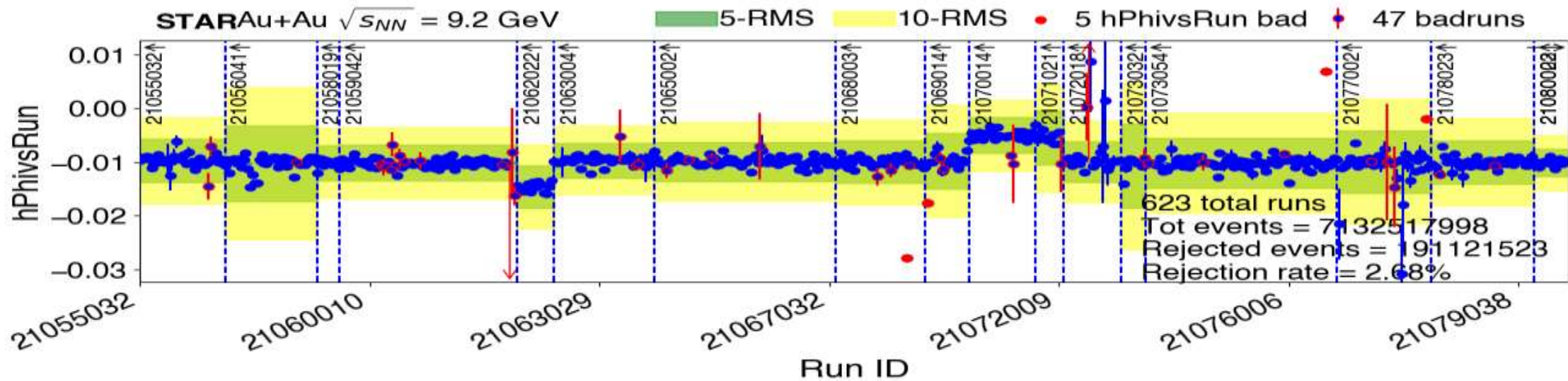
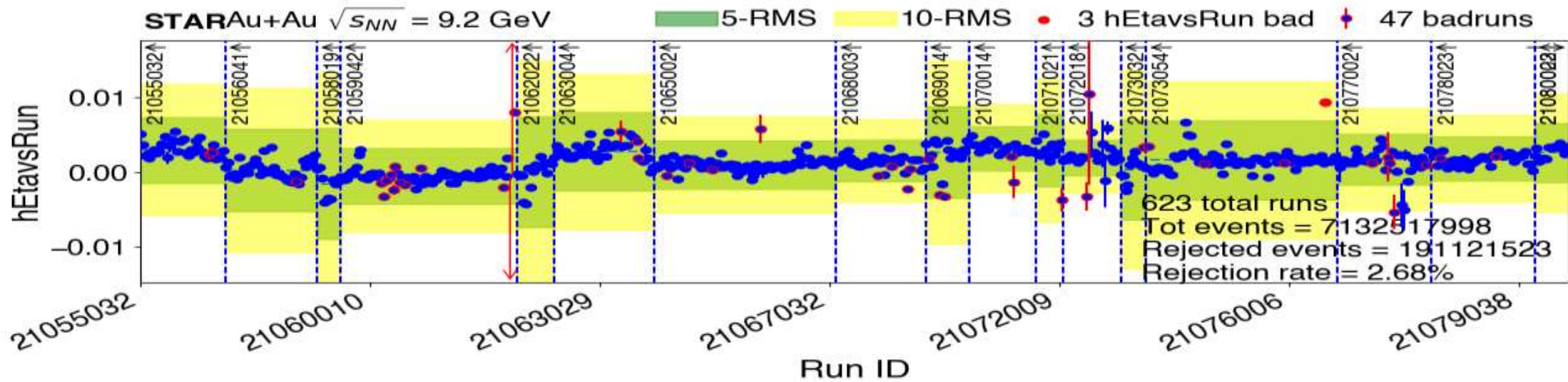
Variables used for the Run-by-Run V3 QA

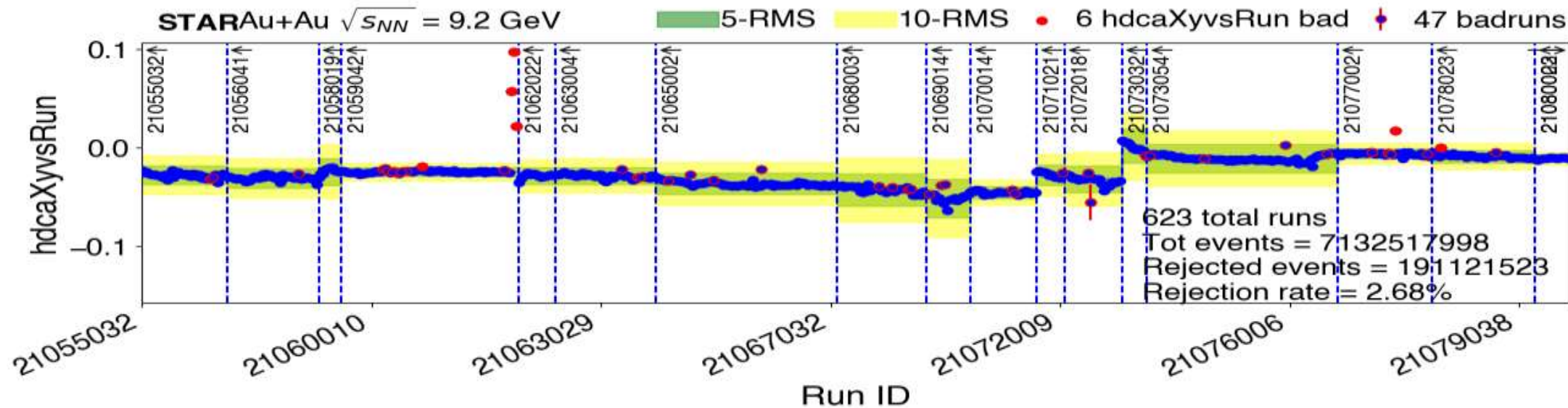
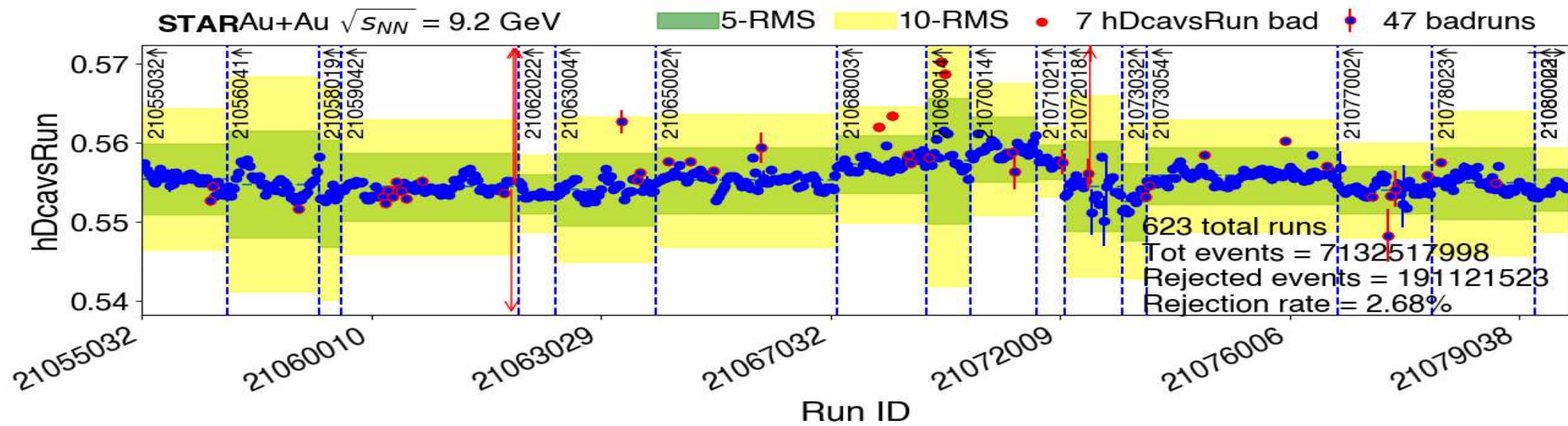
1. dE/dX
2. RefMult
3. Pseudorapidity (η)
4. Azimuthal Angle (ϕ)
5. Signed DCA_{xy}
6. RMS Signed DCA_{xy}

Legacy Mode - Dataset: Au+Au 9.2 GeV (b)

Command used: `python3 QA.py -i total-root-9p2b.root -v QA_variable.list -o badrun.list -e Au+Au -s 9.2 --legacy -m runnumber.list`







List of Bad Runs (9.2 GeV [b])

47 out of 623 runs marked as bad (Rejection Rate: 2.68%) [Calculated: 7.544%]

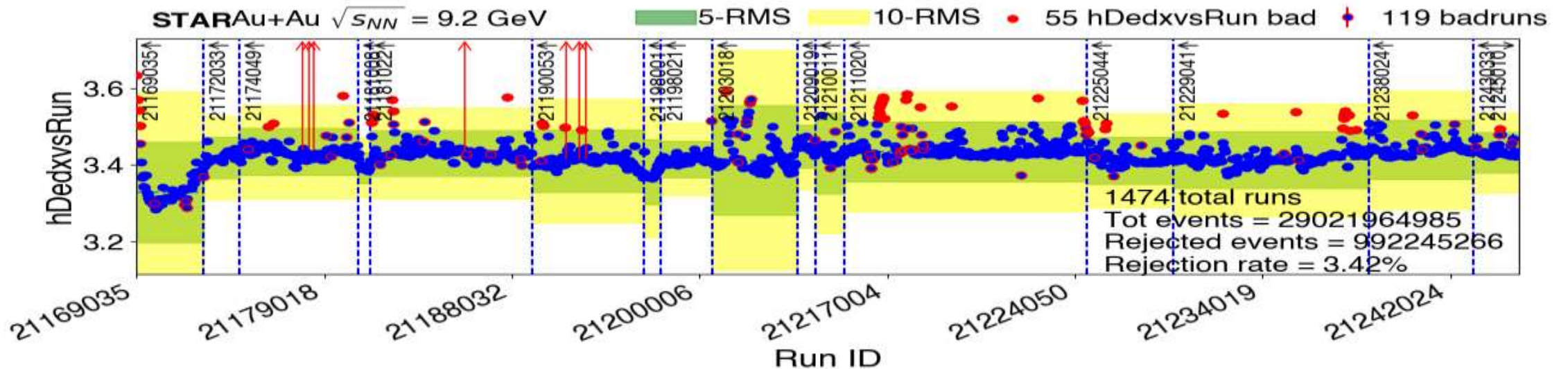
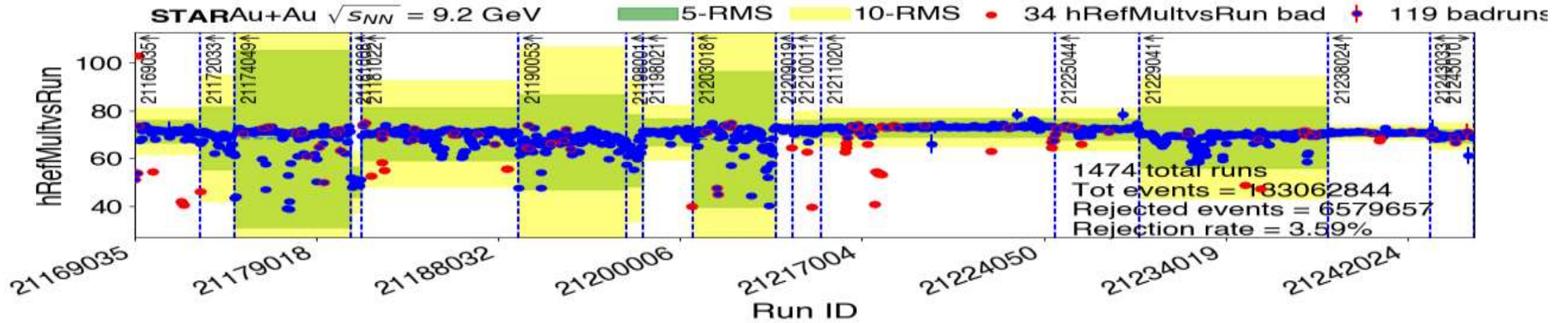
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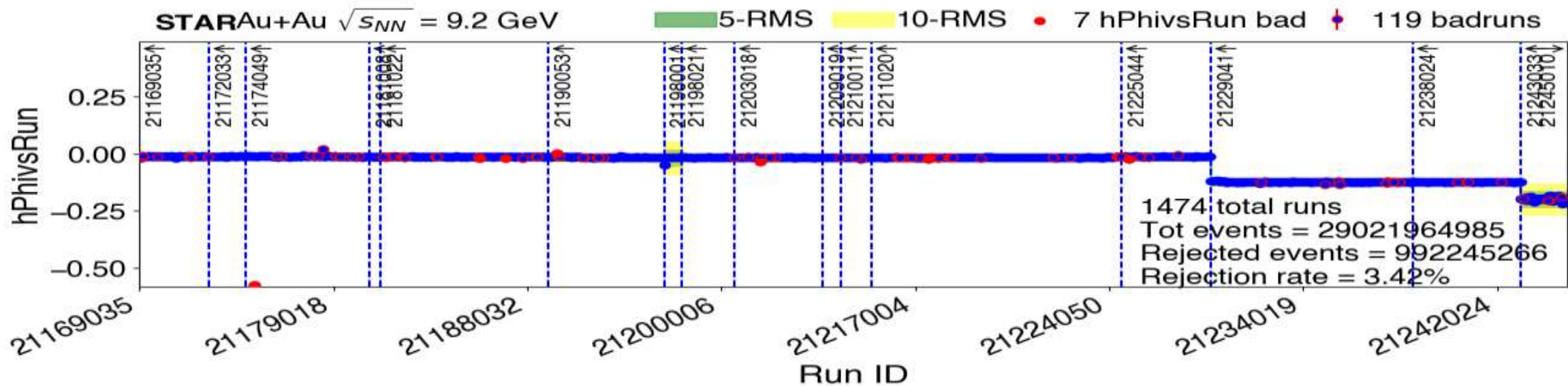
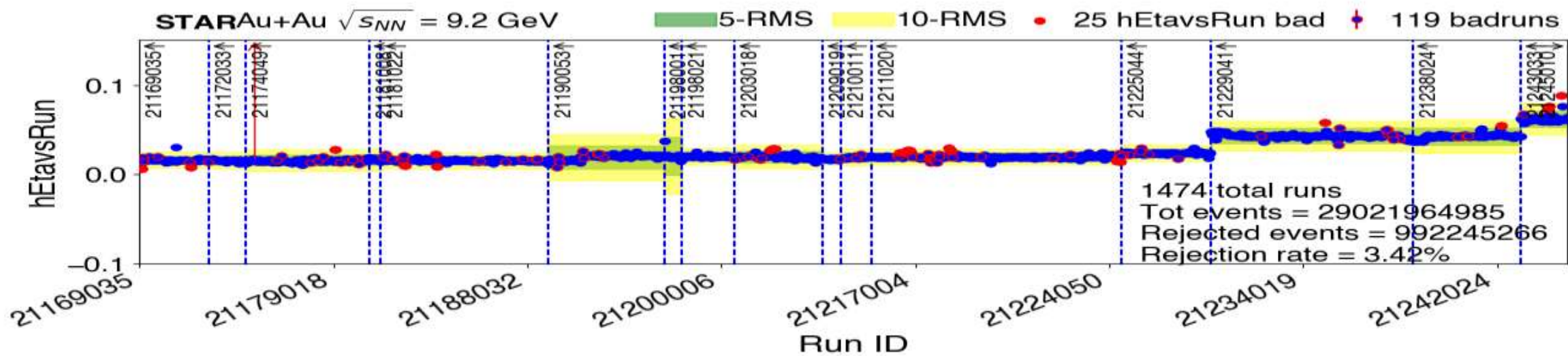
Executing run QA
Execution with pen = 0.5
Execution with pen = 1
Execution with pen = 2
Execution with pen = 3
Execution with pen = 5
28 runs rejected when pen = 0.500000
Execution with pen = 9
37 runs rejected when pen = 1.000000
40 runs rejected when pen = 2.000000
47 runs rejected when pen = 3.000000
38 runs rejected when pen = 5.000000
33 runs rejected when pen = 9.000000
Stops at iteration 6 with pen = 3
    
```

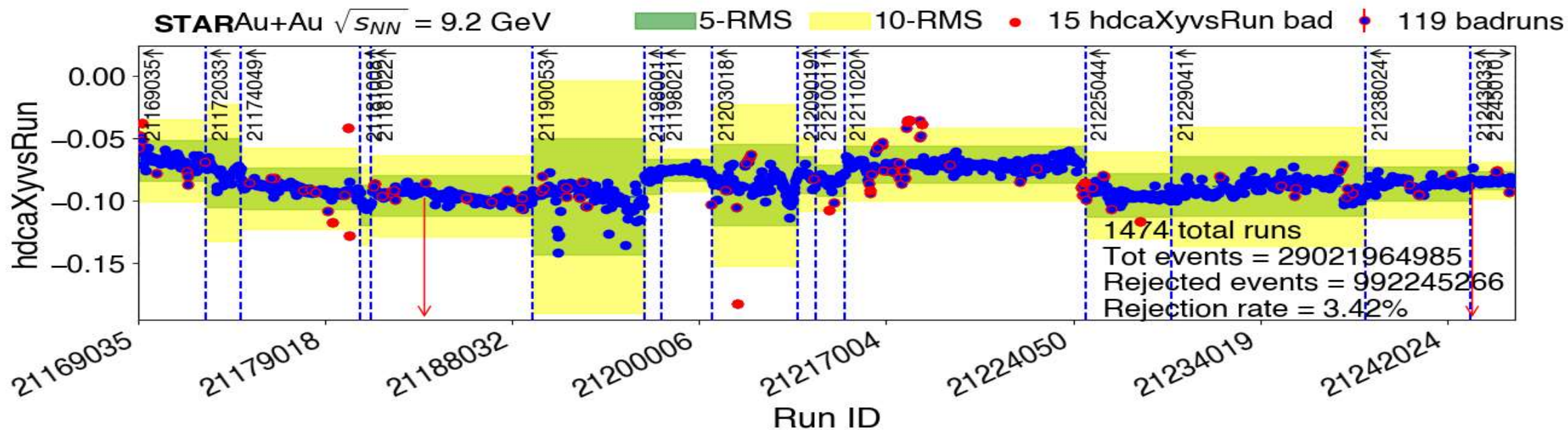
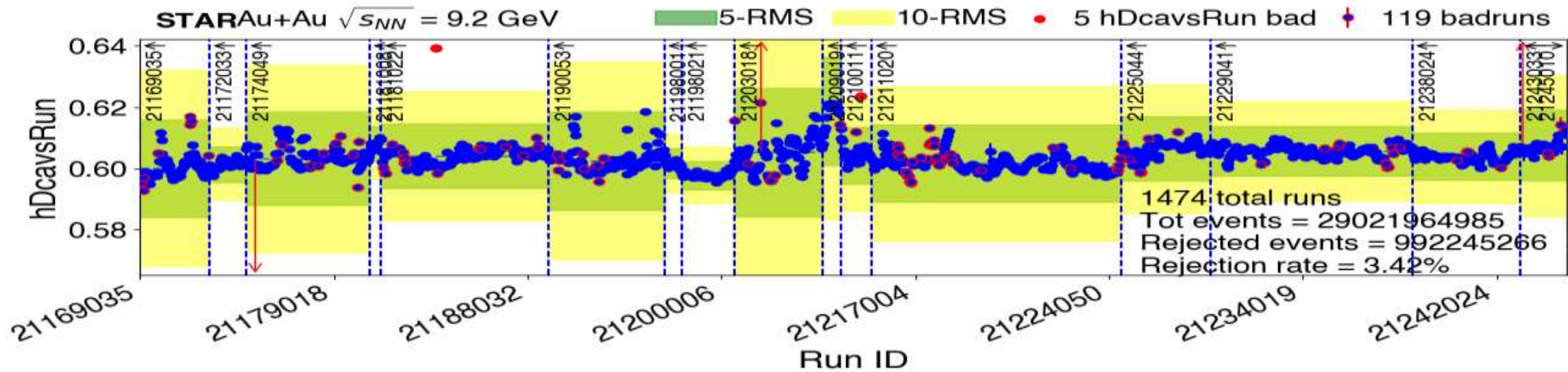
1	21056032 hDedxvsRun	21064004 hRefMultvsRun	21073007 hRefMultvsRun
2	21056033 hDedxvsRun	21064024 hDedxvsRun	21073008 hRefMultvsRun hDedxvsRun
3	21058006 hDedxvsRun	21064041 hDedxvsRun	21073053 hDedxvsRun
4	21060015 hDedxvsRun	21065009 hRefMultvsRun	21074021 hEtavsRun
5	21060016 hDedxvsRun	21065026 hRefMultvsRun	21074030 hRefMultvsRun
6	21060017 hDedxvsRun	21065042 hRefMultvsRun	21076004 hRefMultvsRun
7	21060020 hDedxvsRun	21066027 hRefMultvsRun hdcaXyvsRun hdcaXyvsRun	21076029 hEtavsRun hPhivsRun
8	21060021 hDedxvsRun	21068024 hRefMultvsRun	21077003 hDedxvsRun
9	21060022 hRefMultvsRun	21068027 hRefMultvsRun	21077024 hDedxvsRun
10	21060024 hDedxvsRun	21068030 hRefMultvsRun	21078006 hdcaXyvsRun hdcaXyvsRun
11	21060027 hDedxvsRun	21069005 hPhivsRun	21078020 hPhivsRun
12	21060034 hdcaXyvsRun hdcaXyvsRun	21069006 hDedxvsRun	21078029 hdcaXyvsRun hdcaXyvsRun
13	21062010 hDedxvsRun	21069038 hRefMultvsRun	21079027 hDedxvsRun
14	21062015 hRefMultvsRun hEtavsRun hPhivsRun hDedxvsRun hdcaXyvsRun hdcaXyvsRun	21069042 hRefMultvsRun	
15	21062020 hRefMultvsRun hEtavsRun hDedxvsRun hdcaXyvsRun hdcaXyvsRun	21071003 hDedxvsRun	
16	21062021 hRefMultvsRun hDedxvsRun hdcaXyvsRun hdcaXyvsRun	21072016 hDedxvsRun	

Legacy Mode - Dataset: Au+Au 9.2 GeV (c)

Command used: `python3 QA.py -i total-root-9p2c.root -v QA_variable.list -o badrun.list -e Au+Au -s 9.2 --legacy -m runnumber.list`







List of Bad Runs (9.2 GeV [c])

119 out of 1474 runs marked as bad (Rejection Rate: 3.42%) [Calculated: 8.07%]

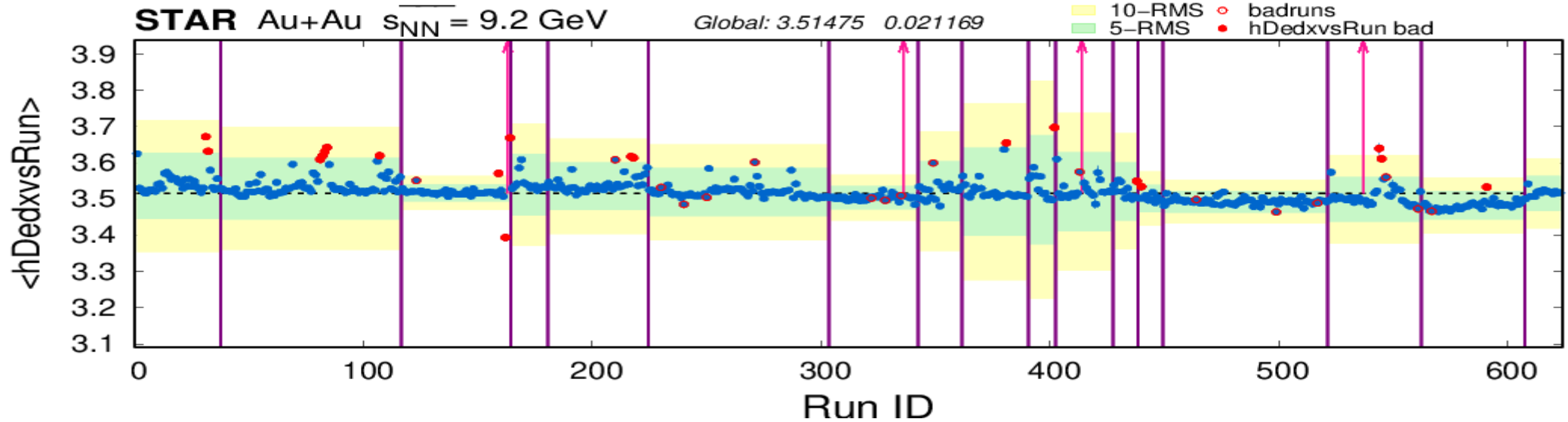
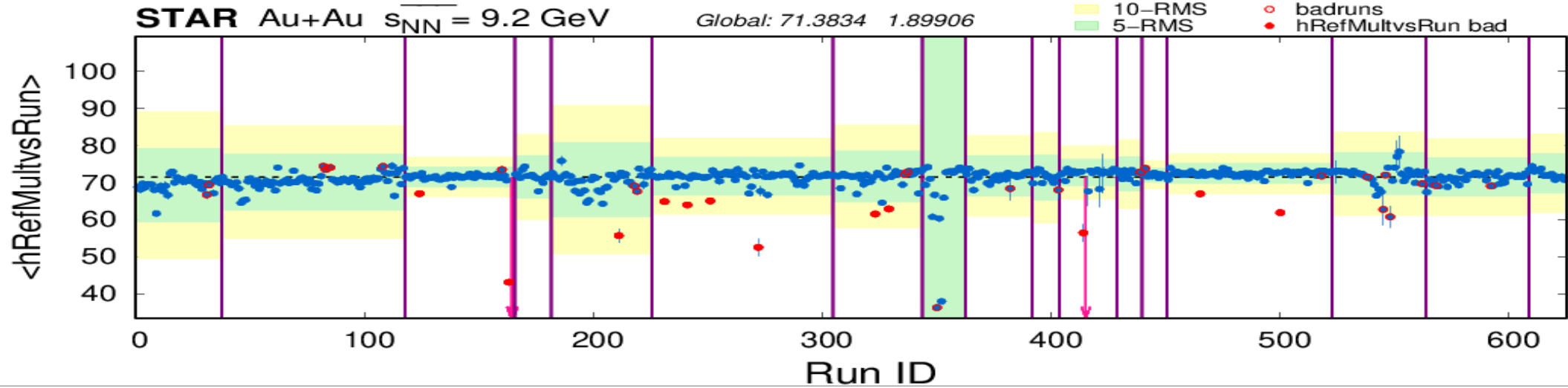
```

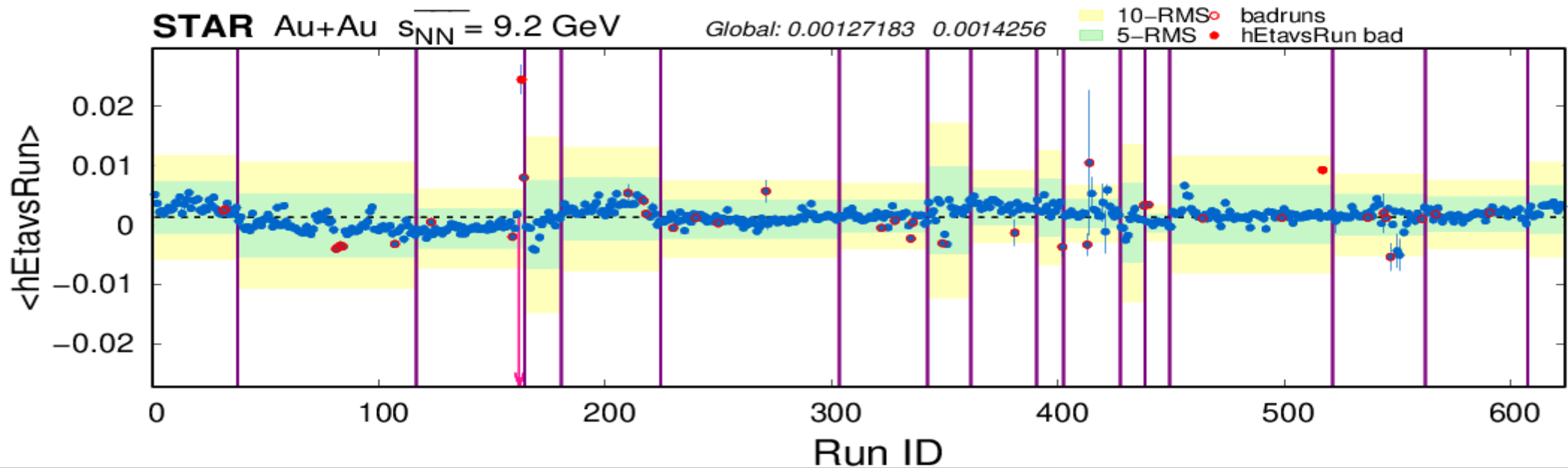
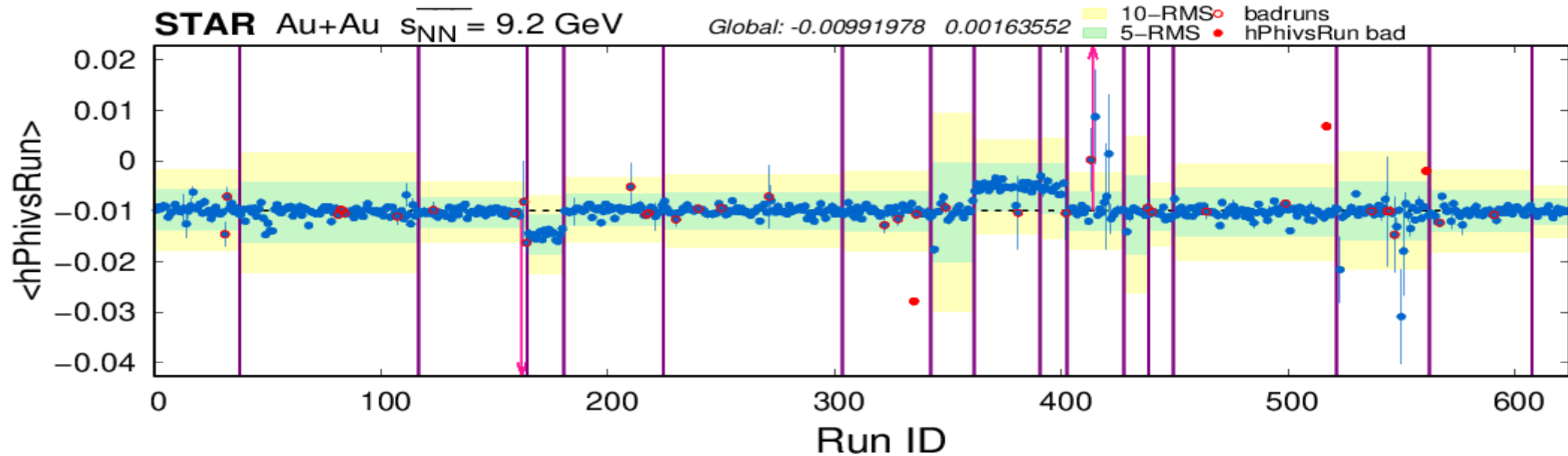
Executing run QA
Execution with pen = 0.5
Execution with pen = 1
Execution with pen = 2
Execution with pen = 3
Execution with pen = 5
80 runs rejected when pen = 0.500000
Execution with pen = 9
96 runs rejected when pen = 1.000000
101 runs rejected when pen = 2.000000
98 runs rejected when pen = 3.000000
119 runs rejected when pen = 5.000000
117 runs rejected when pen = 9.000000
Stops at iteration 5 with pen = 5
Writing bad runs to badrunlist-c.list
Writing break points to breakpt.txt
    
```

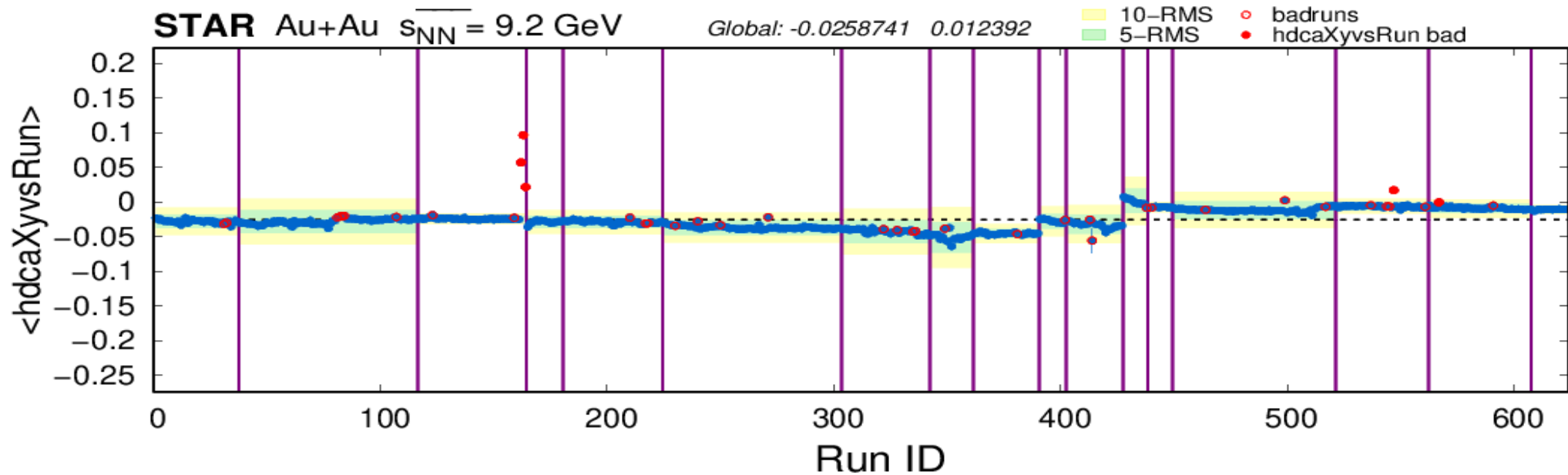
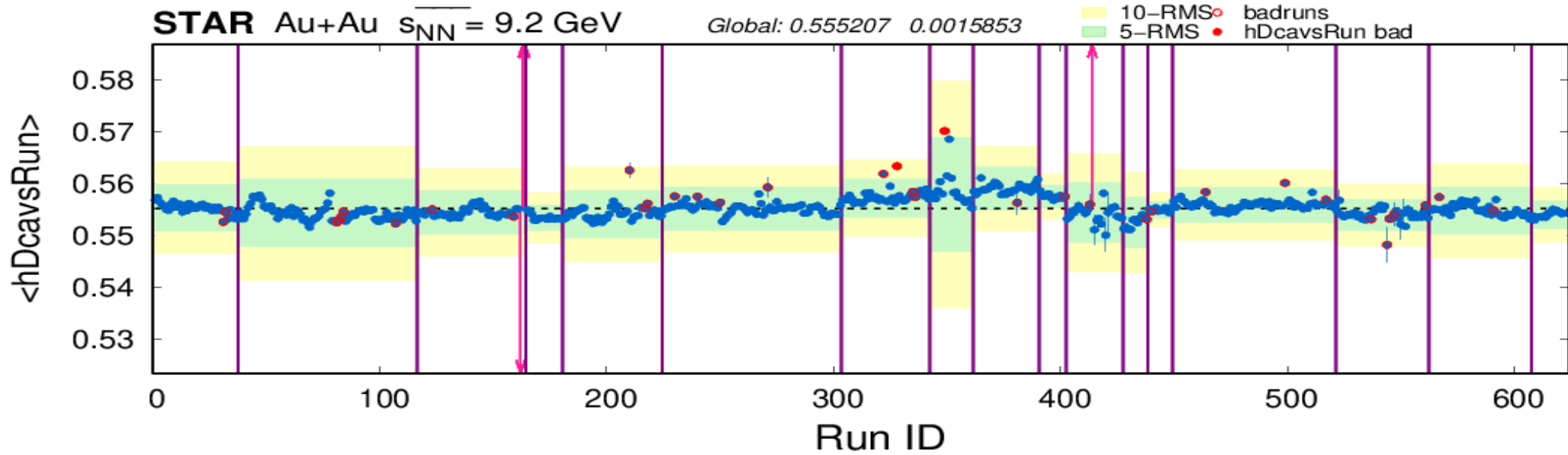
1	21169035 hDedxvsRun	21184026 hEtavsRun	21213013 hDedxvsRun	21225040 hDedxvsRun
2	21169036 hDedxvsRun	21186026 hDedxvsRun	21213014 hDedxvsRun	21225041 hDedxvsRun
3	21169037 hEtavsRun hDedxvsRun	21186027 hPhivsRun	21213016 hEtavsRun hDedxvsRun	21225042 hEtavsRun
4	21169038 hDedxvsRun hdcaXyvsRun	21187032 hPhivsRun	21213017 hEtavsRun hDedxvsRun	21225043 hdcaXyvsRun
5	21169039 hRefMultvsRun	21188027 hDedxvsRun	21213018 hEtavsRun hDedxvsRun	21225045 hDedxvsRun
6	21170018 hRefMultvsRun	21189039 hRefMultvsRun	21213019 hDedxvsRun	21226003 hPhivsRun
7	21171031 hRefMultvsRun	21189040 hRefMultvsRun	21213020 hDedxvsRun	21227008 hDedxvsRun
8	21171032 hRefMultvsRun	21191008 hPhivsRun	21217001 hDedxvsRun	21227021 hRefMultvsRun
9	21171033 hRefMultvsRun hEtavsRun	21191009 hDedxvsRun	21217010 hRefMultvsRun	21228020 hdcaXyvsRun
10	21172032 hRefMultvsRun	21191039 hDedxvsRun	21217020 hPhivsRun	21233002 hDedxvsRun
11	21175009 hEtavsRun hPhivsRun hDcavsRun	21193008 hDedxvsRun	21218001 hRefMultvsRun	21235015 hRefMultvsRun hEtavsRun
12	21176015 hDedxvsRun	21193009 hDedxvsRun	21218002 hRefMultvsRun	21235033 hDedxvsRun
13	21176024 hDedxvsRun	21193027 hDedxvsRun	21218003 hRefMultvsRun	21235035 hRefMultvsRun
14	21177032 hDedxvsRun	21193029 hDedxvsRun	21218004 hRefMultvsRun	21237011 hDedxvsRun
15	21178013 hDedxvsRun	21194002 hDedxvsRun	21218005 hRefMultvsRun	21237012 hDedxvsRun
16	21179001 hDedxvsRun	21203017 hRefMultvsRun	21218006 hRefMultvsRun	21237013 hDedxvsRun
17	21179020 hEtavsRun	21205002 hDedxvsRun	21218007 hRefMultvsRun hDedxvsRun	21237014 hDedxvsRun
18	21179026 hdcaXyvsRun	21205020 hPhivsRun	21218013 hDedxvsRun	21237032 hDedxvsRun
19	21180008 hDedxvsRun	21205023 hDcavsRun hdcaXyvsRun	21218014 hRefMultvsRun	21237033 hDedxvsRun
20	21180025 hdcaXyvsRun	21206002 hEtavsRun	21218015 hdcaXyvsRun	21238004 hDedxvsRun
21	21180027 hdcaXyvsRun	21206005 hEtavsRun	21218016 hdcaXyvsRun	21241005 hDedxvsRun
22	21181024 hDedxvsRun	21206007 hEtavsRun	21218017 hdcaXyvsRun	21241015 hRefMultvsRun
23	21181025 hDedxvsRun	21206008 hEtavsRun	21219007 hEtavsRun hDedxvsRun	21241016 hRefMultvsRun
24	21181026 hDedxvsRun	21210009 hRefMultvsRun	21219008 hEtavsRun	21242028 hEtavsRun
25	21181033 hRefMultvsRun	21211004 hRefMultvsRun hdcaXyvsRun	21219009 hEtavsRun	21243038 hDcavsRun hdcaXyvsRun
26	21182021 hRefMultvsRun	21211009 hRefMultvsRun hDcavsRun	21219010 hdcaXyvsRun	21244023 hEtavsRun
27	21182037 hDedxvsRun	21213004 hRefMultvsRun	21220015 hDedxvsRun	21244024 hEtavsRun hDedxvsRun
28	21182038 hDedxvsRun	21213005 hRefMultvsRun	21222026 hRefMultvsRun	21245003 hEtavsRun
29	21182041 hRefMultvsRun hEtavsRun	21213006 hRefMultvsRun hdcaXyvsRun	21223030 hDedxvsRun	
30	21184025 hEtavsRun hDcavsRun hdcaXyvsRun	21213007 hEtavsRun	21225035 hRefMultvsRun hEtavsRun hDedxvsRun	

Using Run-By-Run V2 -Dataset: Au+Au 9.2 GeV (b)

Command used: `bash runbyrun-v2.sh total-root-9p2b.root QA_variable.list Au+Au 9.2`







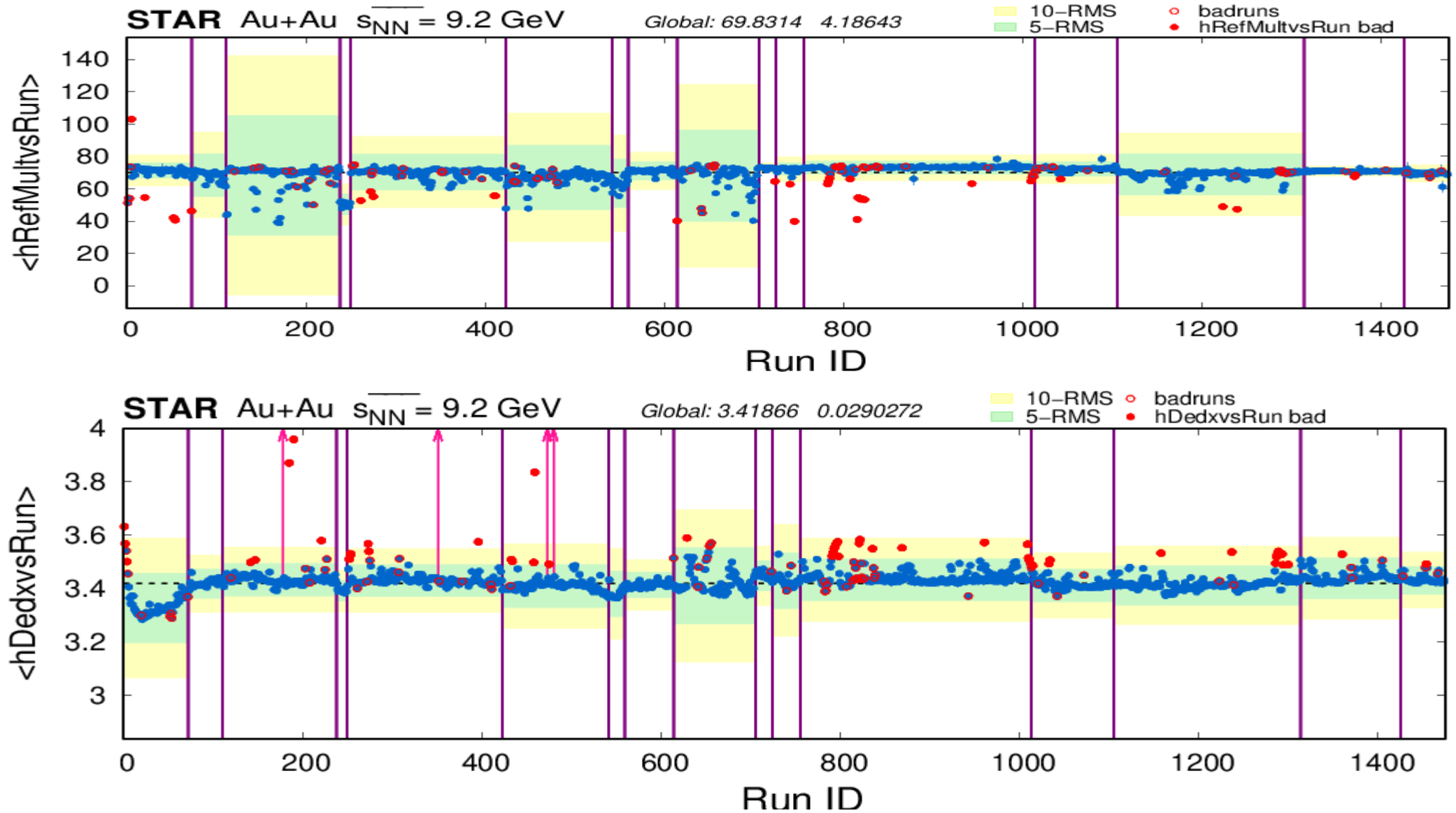
List of Bad Runs (9.2 GeV [b])

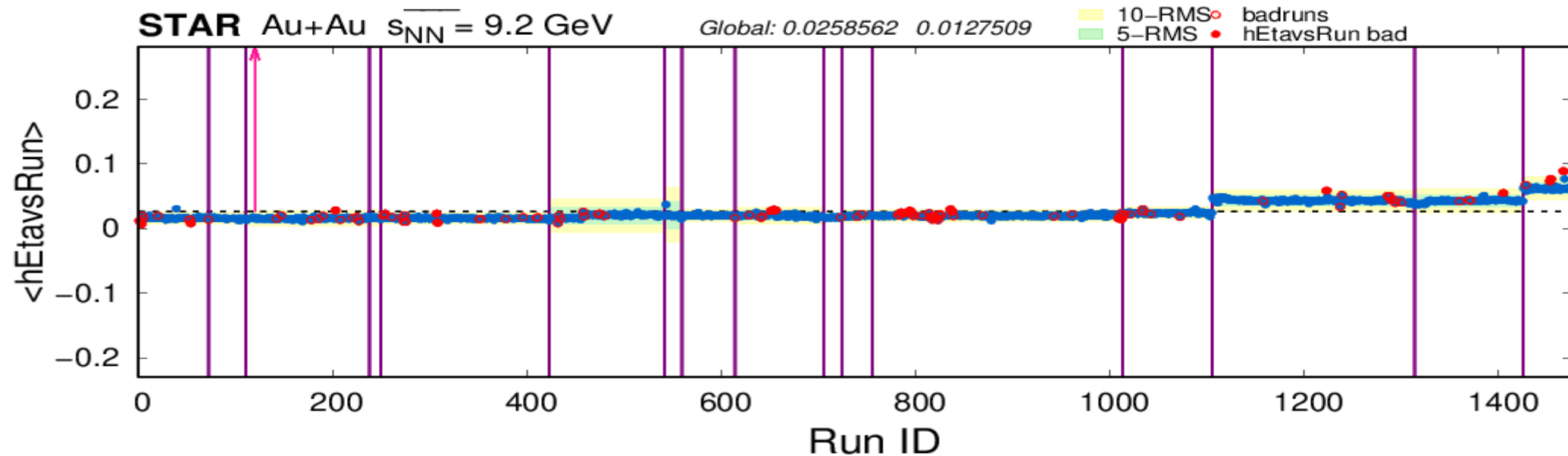
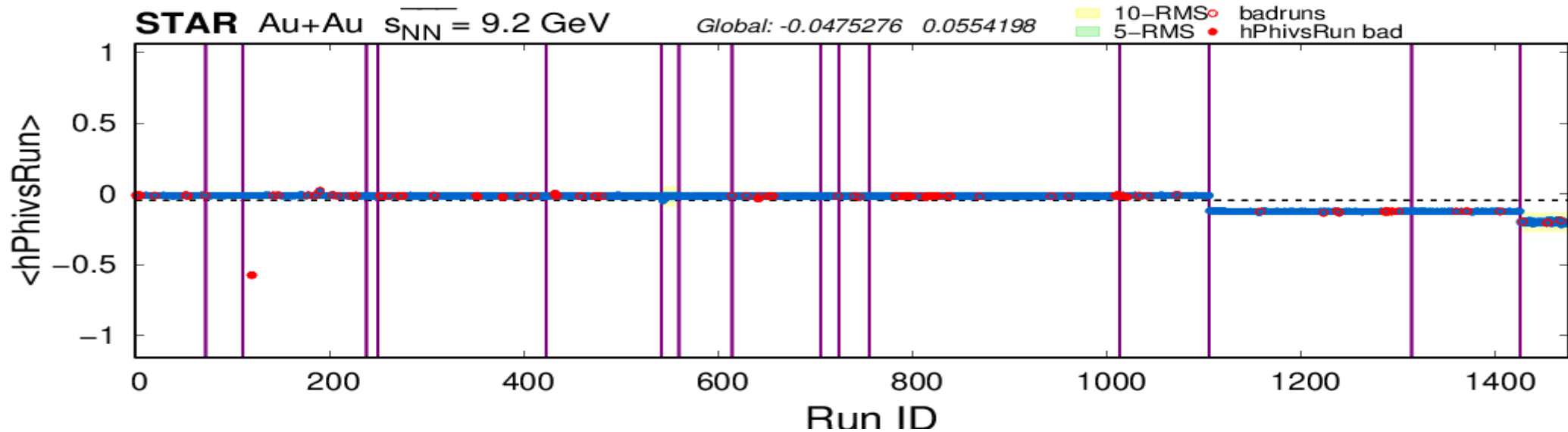
40 out of 623 runs marked as bad (6.42%)

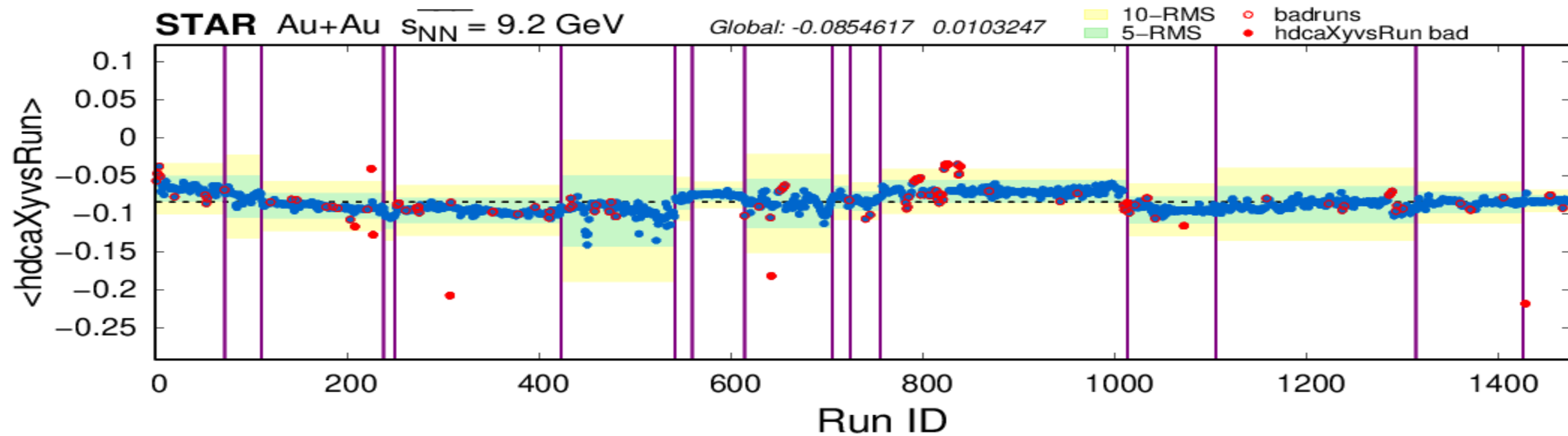
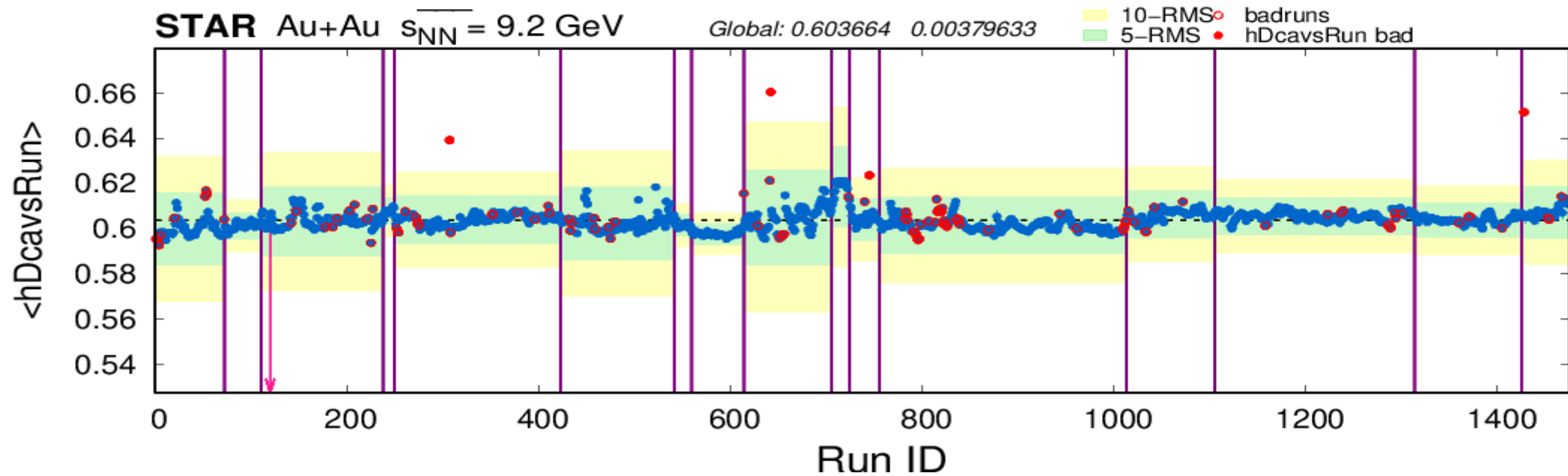
- Expressed in form of run index, instead of real run ID.

1	30 hDedxvsRun	330 hRefMultvsRun hDcavsRun
2	31 hDedxvsRun	337 hPhivsRun
3	82 hDedxvsRun	338 hDedxvsRun
4	83 hDedxvsRun	351 hDcavsRun
5	84 hDedxvsRun	383 hDedxvsRun
6	85 hDedxvsRun	404 hDedxvsRun
7	108 hDedxvsRun	416 hRefMultvsRun
8	125 hRefMultvsRun	417 hRefMultvsRun hDedxvsRun
9	161 hDedxvsRun	442 hDedxvsRun
10	164 hRefMultvsRun hEtavsRun hPhivsRun hDcavsRun hDedxvsRun hdcaXyvsRun	444 hDedxvsRun
11	165 hRefMultvsRun hEtavsRun hDcavsRun hDedxvsRun hdcaXyvsRun	468 hRefMultvsRun
12	166 hRefMultvsRun hDcavsRun hDedxvsRun hdcaXyvsRun	503 hRefMultvsRun
13	212 hRefMultvsRun	521 hEtavsRun hPhivsRun
14	219 hDedxvsRun	541 hDedxvsRun
15	220 hDedxvsRun	548 hDedxvsRun
16	232 hRefMultvsRun	549 hDedxvsRun
17	242 hRefMultvsRun	551 hdcaXyvsRun
18	252 hRefMultvsRun	565 hPhivsRun
19	273 hRefMultvsRun	571 hdcaXyvsRun
20	324 hRefMultvsRun	596 hDedxvsRun

Using Run-By-Run V2 -Dataset: Au+Au 9.2 GeV (c)







List of Bad Runs (9.2 GeV [c])

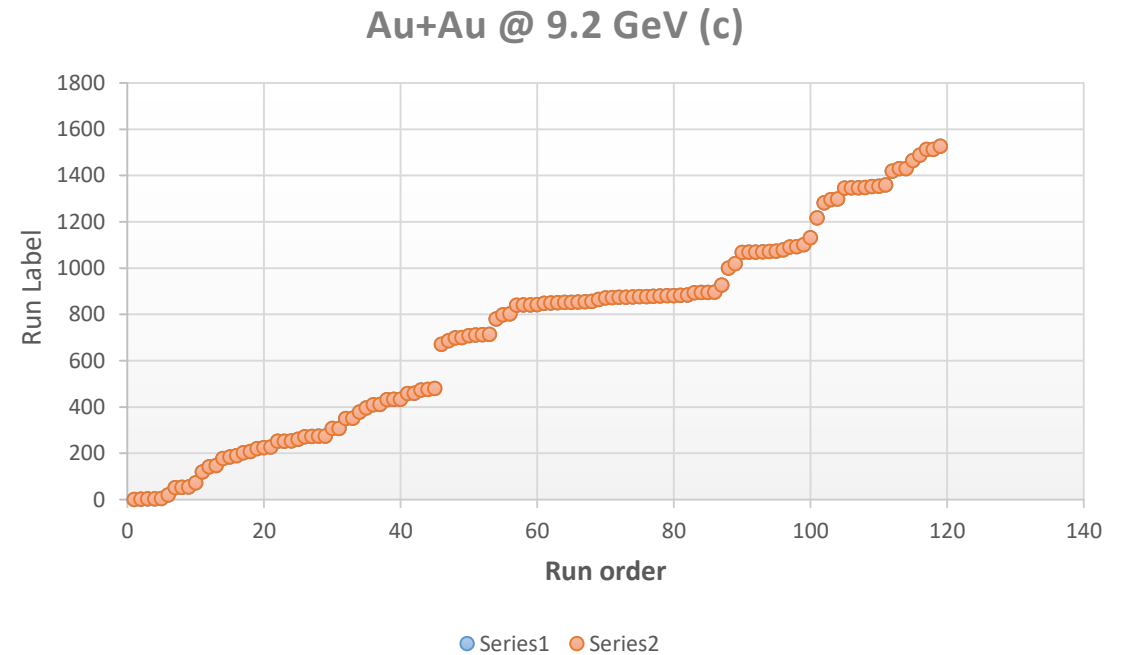
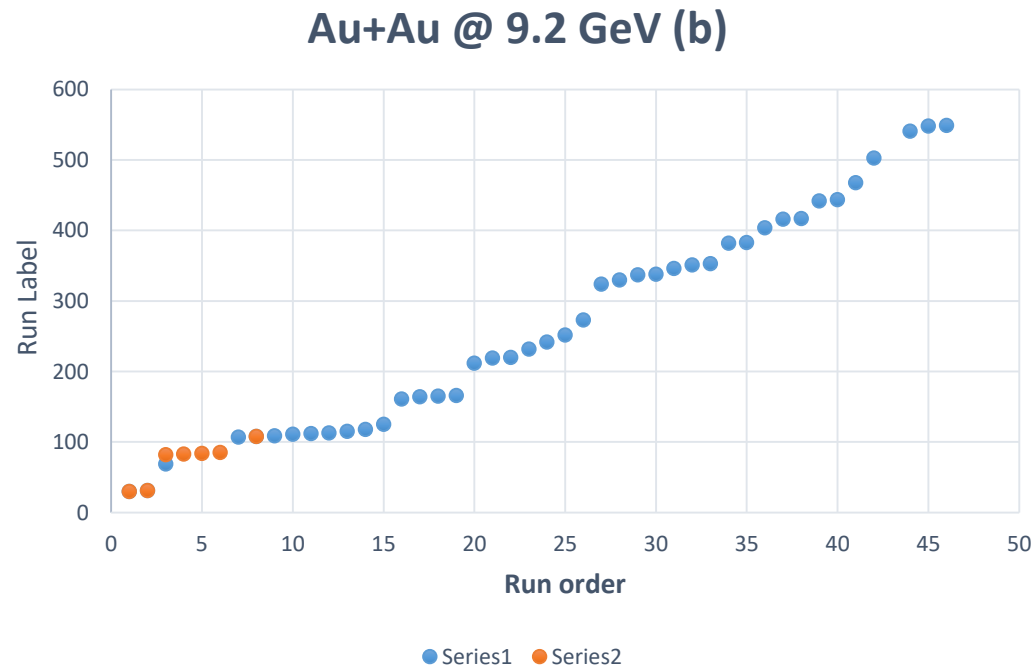
119 out of 1474 runs marked as bad (8.07%)

- Expressed in form of run index, instead of real run ID.

1	0 hDedxvsRun	351 hPhivsRun	848 hDedxvsRun	1070 hEtavsRun
2	1 hDedxvsRun	377 hPhivsRun	849 hDedxvsRun	1071 hdcaXyvsRun
3	2 hEtavsRun	395 hDedxvsRun	850 hEtavsRun hDedxvsRun	1073 hDedxvsRun
4	3 hDedxvsRun	409 hRefMultvsRun	851 hEtavsRun hDedxvsRun	1079 hPhivsRun
5	4 hRefMultvsRun	410 hRefMultvsRun	852 hEtavsRun hDedxvsRun	1091 hDedxvsRun
6	19 hRefMultvsRun	431 hPhivsRun	853 hDedxvsRun	1092 hDedxvsRun
7	51 hRefMultvsRun	432 hDedxvsRun	854 hDedxvsRun	1100 hRefMultvsRun
8	52 hRefMultvsRun	433 hDedxvsRun	855 hDedxvsRun	1131 hdcaXyvsRun
9	53 hRefMultvsRun hEtavsRun	458 hDedxvsRun	864 hRefMultvsRun	1217 hDedxvsRun
10	71 hRefMultvsRun	459 hDedxvsRun	871 hPhivsRun	1282 hRefMultvsRun hEtavsRun
11	119 hEtavsRun hPhivsRun hDcavsRun	473 hDedxvsRun	872 hRefMultvsRun	1296 hDedxvsRun
12	141 hDedxvsRun	475 hDedxvsRun	873 hRefMultvsRun	1298 hRefMultvsRun
13	146 hDedxvsRun	480 hDedxvsRun	874 hRefMultvsRun	1345 hDedxvsRun
14	177 hDedxvsRun	671 hRefMultvsRun	875 hRefMultvsRun	1346 hDedxvsRun
15	184 hDedxvsRun	686 hDedxvsRun	876 hRefMultvsRun	1347 hDedxvsRun
16	189 hDedxvsRun	698 hPhivsRun	877 hRefMultvsRun	1348 hDedxvsRun
17	202 hEtavsRun	699 hDcavsRun hdcaXyvsRun	878 hRefMultvsRun hDedxvsRun	1352 hDedxvsRun
18	207 hdcaXyvsRun	708 hEtavsRun	879 hDedxvsRun	1353 hDedxvsRun
19	220 hDedxvsRun	711 hEtavsRun	880 hRefMultvsRun	1359 hDedxvsRun
20	224 hdcaXyvsRun	712 hEtavsRun	881 hdcaXyvsRun	1419 hDedxvsRun
21	226 hdcaXyvsRun	713 hEtavsRun	882 hdcaXyvsRun	1429 hRefMultvsRun
22	251 hDedxvsRun	780 hRefMultvsRun	883 hdcaXyvsRun	1430 hRefMultvsRun
23	252 hDedxvsRun	797 hRefMultvsRun	893 hEtavsRun hDedxvsRun	1464 hEtavsRun
24	253 hDedxvsRun	802 hRefMultvsRun hDcavsRun	894 hEtavsRun	1487 hDcavsRun hdcaXyvsRun
25	260 hRefMultvsRun	839 hRefMultvsRun	895 hEtavsRun	1512 hEtavsRun
26	271 hRefMultvsRun	840 hRefMultvsRun	896 hdcaXyvsRun	1513 hEtavsRun hDedxvsRun
27	272 hDedxvsRun	841 hRefMultvsRun	926 hDedxvsRun	1526 hEtavsRun
28	273 hDedxvsRun	842 hEtavsRun	1000 hRefMultvsRun	
29	274 hRefMultvsRun		1019 hDedxvsRun	
30	306 hEtavsRun hDcavsRun hdcaXyvsRun		1067 hRefMultvsRun hEtavsRun hDedxvsRun	
31	307 hEtavsRun		1068 hDedxvsRun	
32	350 hDedxvsRun		1069 hDedxvsRun	

Conclusions

- A comparison is made between run-by-run algorithms versions 2 and 3 to check the difference in bad run lists of Au+Au 9.2 GeV datasets.
- For dataset-b: A slight difference by 7 bad runs –in total was found. While there were 13 labels were not identical.
- For dataset-c: There was no difference recorded between V2 and V3.



Back Up

Information about Run20 Au+Au @ 9.5 GeV (b and c)

	9.2 GeV (b)	9.2 GeV (c)
Trigger Setup Name	production_9p2GeV_2020b	production_9p2GeV_2020c
Trigger ID	780012, 780013, 780014, 780018 and 780020	780012, 780013, 780014, 780018 and 780020
Number of Events	729.04 M (minibias)	2074.61 M (minibias)
Stream Name	st_physics	st_physics
Library Tag	SL23a	SL23a
Production Tag	P23ia	P23ia
Run Id Range	21055032 - 21080027	21169035 - 21245010

Number	Run Label (V3)	Run Label (V2)	Number2	Run Label (V3)3	Run Label (V2)2	Number3	Run Label (V3)32	Run Label (V2)22
1	30	30	1	0	0	66	853	853
2	31	31	2	1	1	67	854	854
3	69	82	3	2	2	68	855	855
4		83	4	3	3	69	864	864
5		84	5	4	4	70	871	871
6		85	6	19	19	71	872	872
7	107		7	51	51	72	873	873
8	108	108	8	52	52	73	874	874
9	109		9	53	53	74	875	875
10	111		10	71	71	75	876	876
11	112		11	119	119	76	877	877
12	113		12	141	141	77	878	878
13	115		13	146	146	78	879	879
14	118		14	177	177	79	880	880
15	125	125	15	184	184	80	881	881
16	161	161	16	189	189	81	882	882
17	164	164	17	202	202	82	883	883
18	165	165	18	207	207	83	893	893
19	166	166	19	220	220	84	894	894
20	212	212	20	224	224	85	895	895
21	219	219	21	226	226	86	896	896
22	220	220	22	251	251	87	926	926
23	232	232	23	252	252	88	1000	1000
24	242	242	24	253	253	89	1019	1019
25	252	252	25	260	260	90	1067	1067
26	273	273	26	271	271	91	1068	1068
27	324	324	27	272	272	92	1069	1069
28	330	330	28	273	273	93	1070	1070
29	337	337	29	274	274	94	1071	1071
30	338	338	30	306	306	95	1073	1073
31	346		31	307	307	96	1079	1079
32	351	351	32	350	350	97	1091	1091
33	353		33	351	351	98	1092	1092
34	382		34	377	377	99	1100	1100
35	383	383	35	395	395	100	1131	1131
36	404	404	36	409	409	101	1217	1217
37	416	416	37	410	410	102	1282	1282
38	417	417	38	431	431	103	1296	1296
39	442	442	39	432	432	104	1298	1298
40	444	444	40	433	433	105	1345	1345
41	468	468	41	458	458	106	1346	1346
42	503	503	42	459	459	107	1347	1347
43		521	43	473	473	108	1348	1348
44	541	541	44	475	475	109	1352	1352
45	548	548	45	480	480	110	1353	1353
46	549	549	46	671	671	111	1359	1359
47	551	551	47	686	686	112	1419	1419
48	565	565	48	698	698	113	1429	1429
49	571	571	49	699	699	114	1430	1430
50	596	596	50	708	708	115	1464	1464
			51	711	711	116	1487	1487
			52	712	712	117	1512	1512
			53	713	713	118	1513	1513
			54	780	780	119	1526	1526
			55	797	797			
			56	802	802			
			57	839	839			
			58	840	840			
			59	841	841			
			60	842	842			
			61	848	848			
			62	849	849			
			63	850	850			
			64	851	851			
			65	852	852			