

Data Challenge2

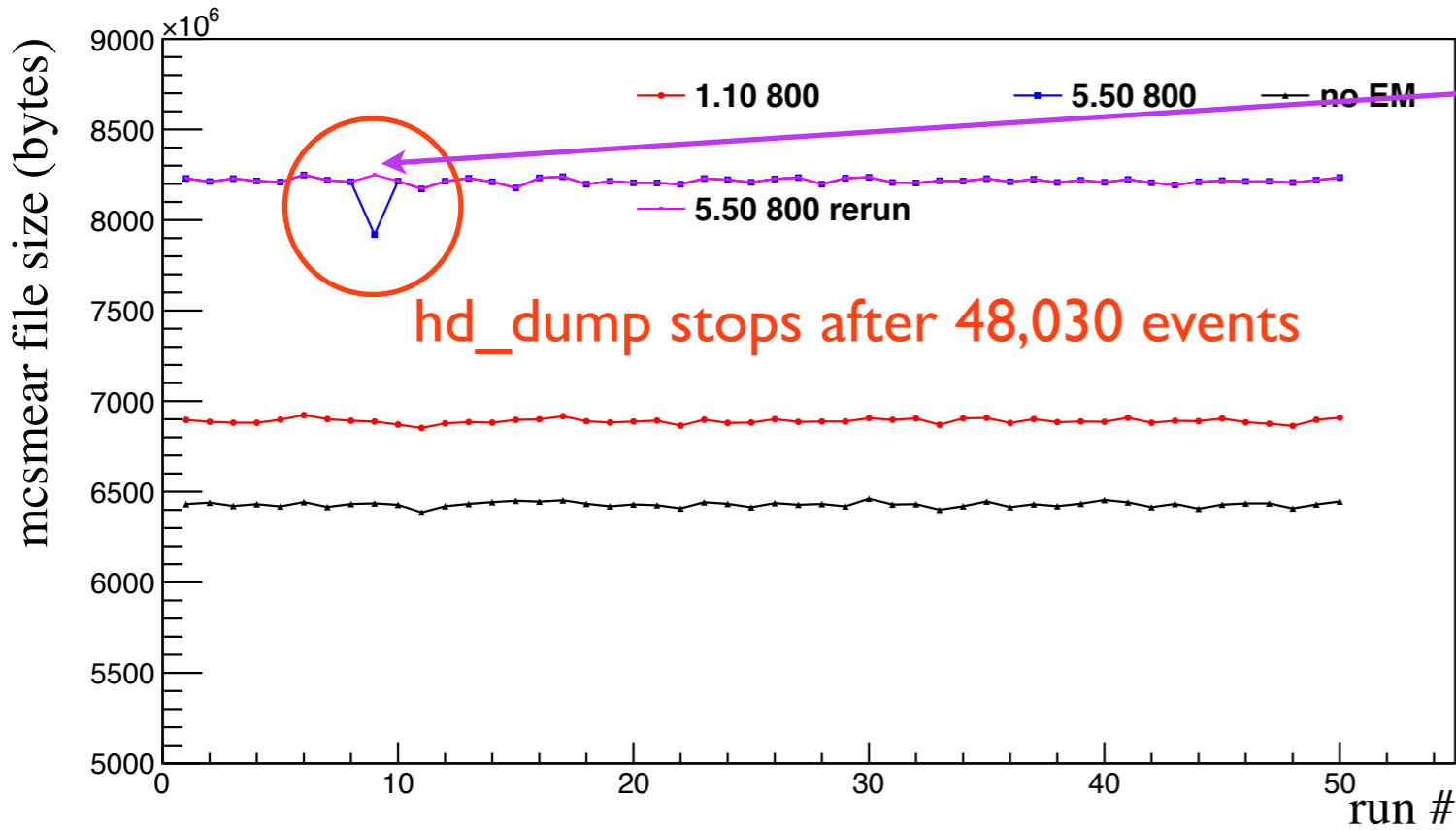
Efforts at IU

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Using:
jana_0.7.lpl
hdds-dc-2.l
sim-recon-dc-2.7

Ran 50 files of 50k events each for runs 9001-9003

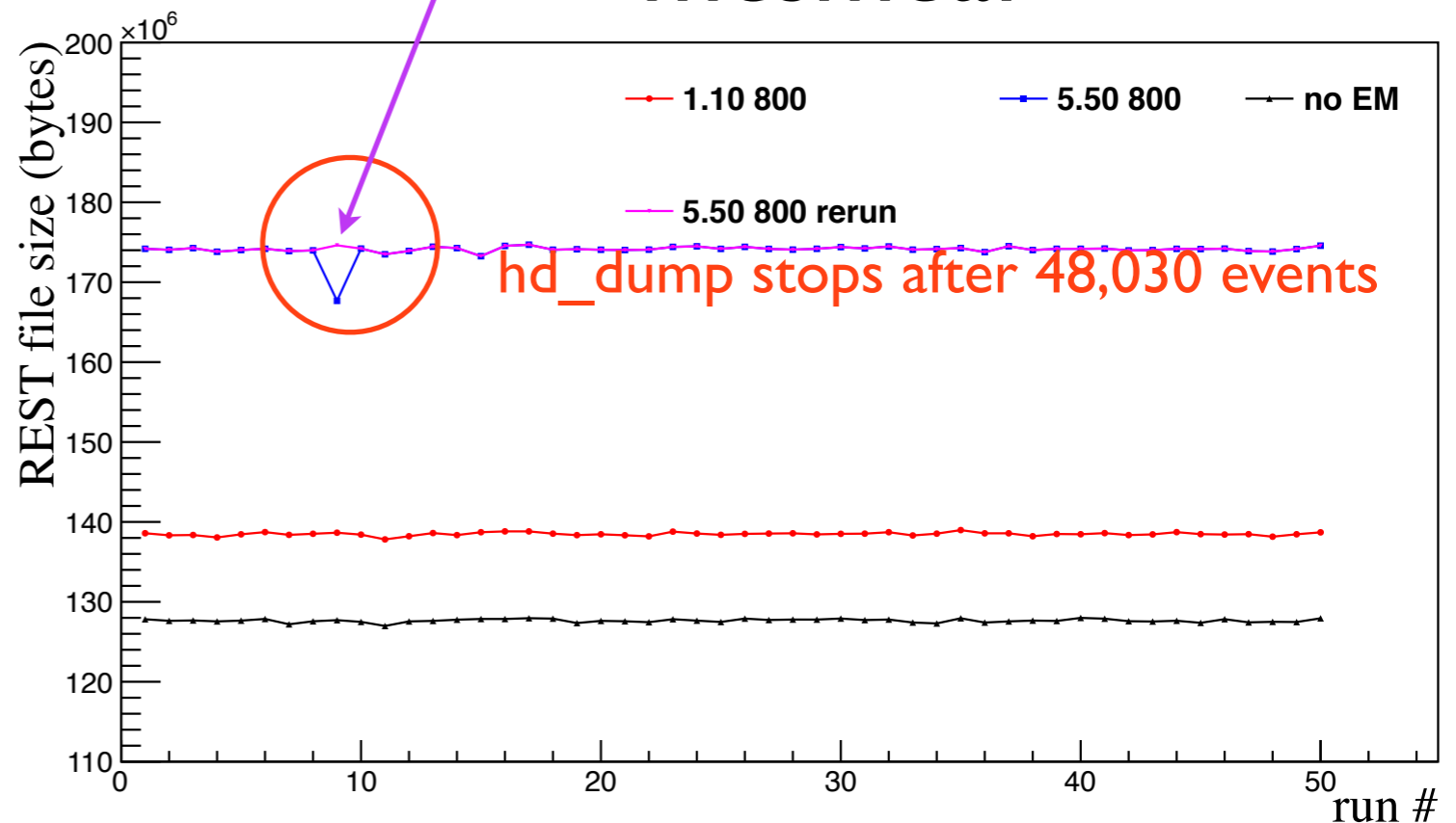
Output File Sizes



REST

re-running gives file size consistent with others

mcsmeas



Bad File Log (hdgeant)

**** Normal exit from Hall D GEANT ****

Warning in savehits: unsaved hit information found from sensitive volume FDA2, hit discarded.
Warning in savehits: unsaved hit information found from sensitive volume FDA3, hit discarded.
Warning from beamgen: freq= 9.00398125E-04 is greater than freqMaximum= 8.99999985E-04
Warning from beamgen: freq= 9.00863495E-04 is greater than freqMaximum= 8.99999985E-04
**** GTRIGI: IEVENT= 45000 IDEVT= 45000 Random Seeds = 1280480601 1896593181
**** GTRIGI: IEVENT= 46000 IDEVT= 46000 Random Seeds = 1685311968 519568416
Warning from beamgen: freq= 9.00857907E-04 is greater than freqMaximum= 8.99999985E-04
Warning from beamgen: freq= 9.00632876E-04 is greater than freqMaximum= 8.99999985E-04
Warning in savehits: unsaved hit information found from sensitive volume FDA2, hit discarded.
Warning from beamgen: freq= 9.00360174E-04 is greater than freqMaximum= 8.99999985E-04
**** GTRIGI: IEVENT= 47000 IDEVT= 47000 Random Seeds = 1063389567 223037805
Warning in savehits: unsaved hit information found from sensitive volume FDA1, hit discarded.
Warning in savehits: unsaved hit information found from sensitive volume FDA1, hit discarded.
**** GTRIGI: IEVENT= 48000 IDEVT= 48000 Random Seeds = 1419302526 1323413939
**** THE JOB STOPS NOW BECAUSE THE TIME LEFT IS LESS THAN 1.000 SECONDS ****

GELH_LAST: GELHAD event summary
nevtot = 48031
nevhad = 48031 1.0000000
nevout = 48031
ninthad = 1975376374

I **** NUMBER OF EVENTS PROCESSED = 48031
**** RANDOM NUMBER GENERATOR AFTER LAST COMPLETE EVENT 2146901043 239819312
**** TIME TO PROCESS ONE EVENT IS = 6.2456 SECONDS

MZEND. Usage statistics for 2 dynamic stores.

Map of store 0 /GCBANK/

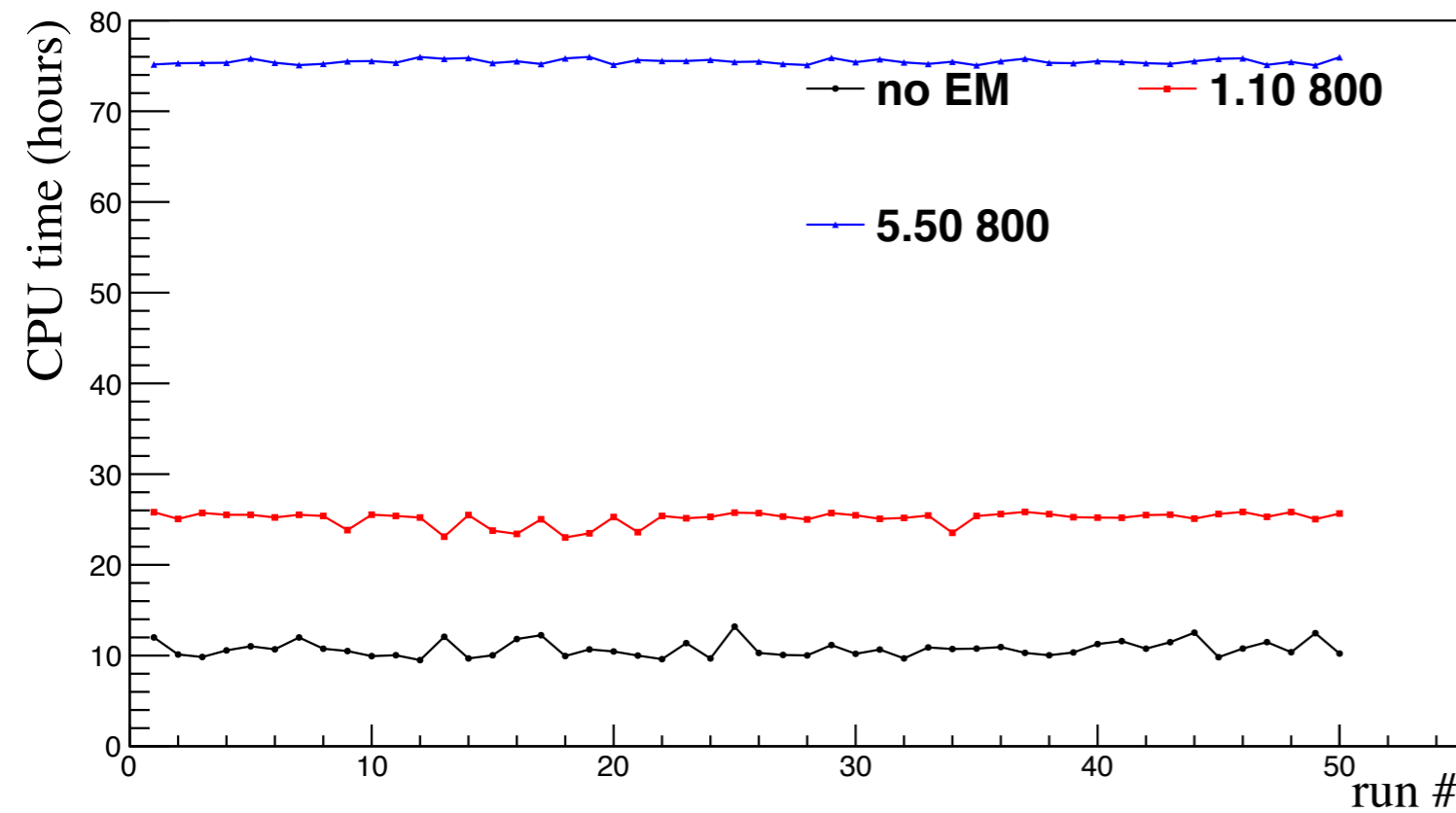
Division	Kind		Max-size	Number of times		Garb-coll.				
	Mode	Position		used	allowed	Wiped	user	auto	Pushd	Redcd
1 QDIV1	0	1	5203	0	4999968	0	0	0	0	0
2 QDIV2	1	1	4122307	4116940	4999968	48031	0	999999	0	0
19 system	1	8	4196482	68180	4999968	0	0	0	0	0
20 Constant	1	2	4999968	791266	4000000	0	0	117	140	0

Map of store 1 /PAWC/

Division	Kind		Max-size	Number of times		Garb-coll.				
	Mode	Position		used	allowed	Wiped	user	auto	Pushd	Redcd
1 QDIV1	0	1	2	0	4999585	0	0	0	0	0
2 QDIV2	1	1	4998185	1100	4999585	0	0	0	0	0
19 system	1	8	4998585	111	4999585	0	0	0	0	0
20 HIGZ	0	4	4998585	0	5000000	0	0	0	0	0

RZEND. called for RZFILE

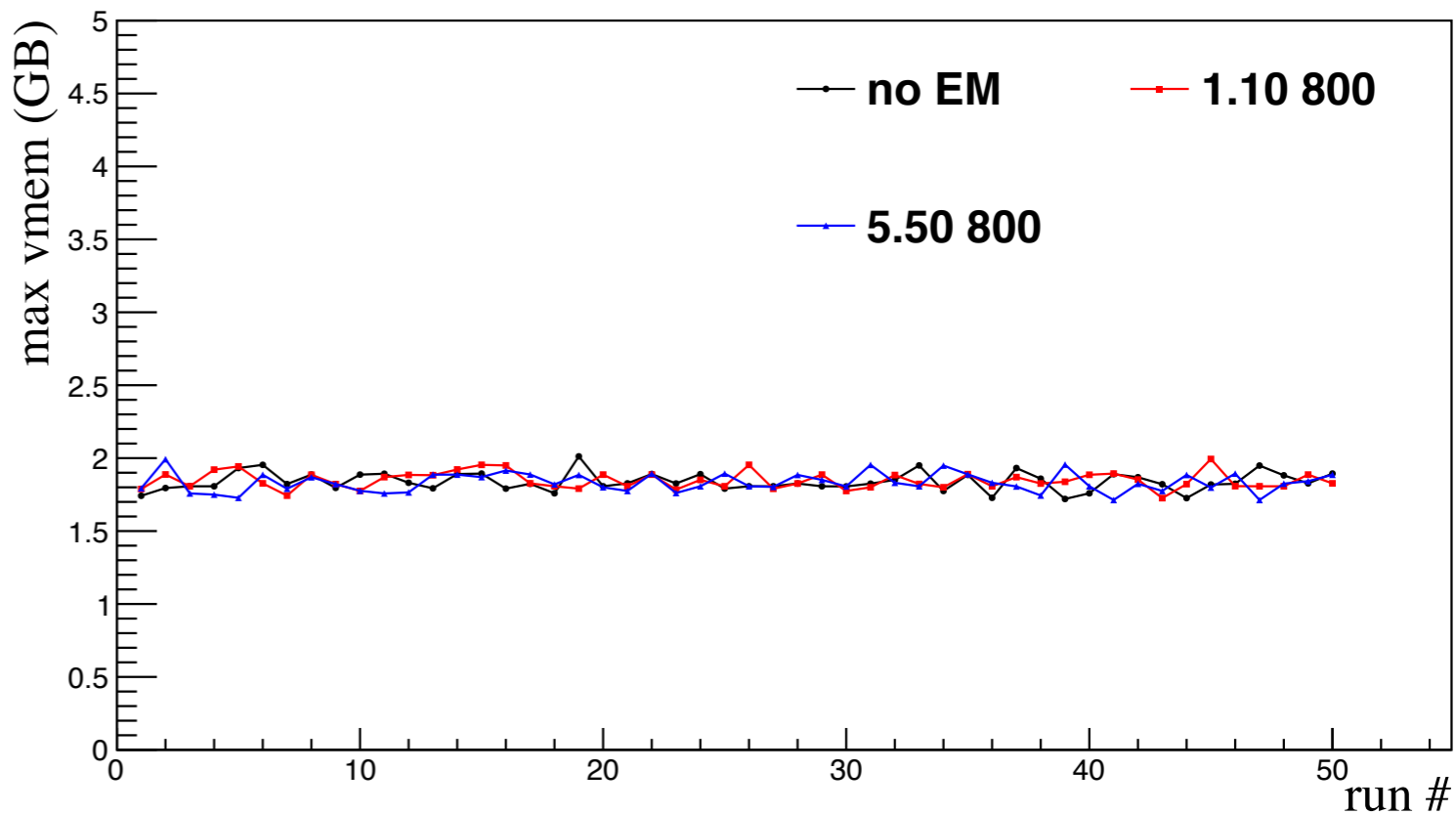
Run Info



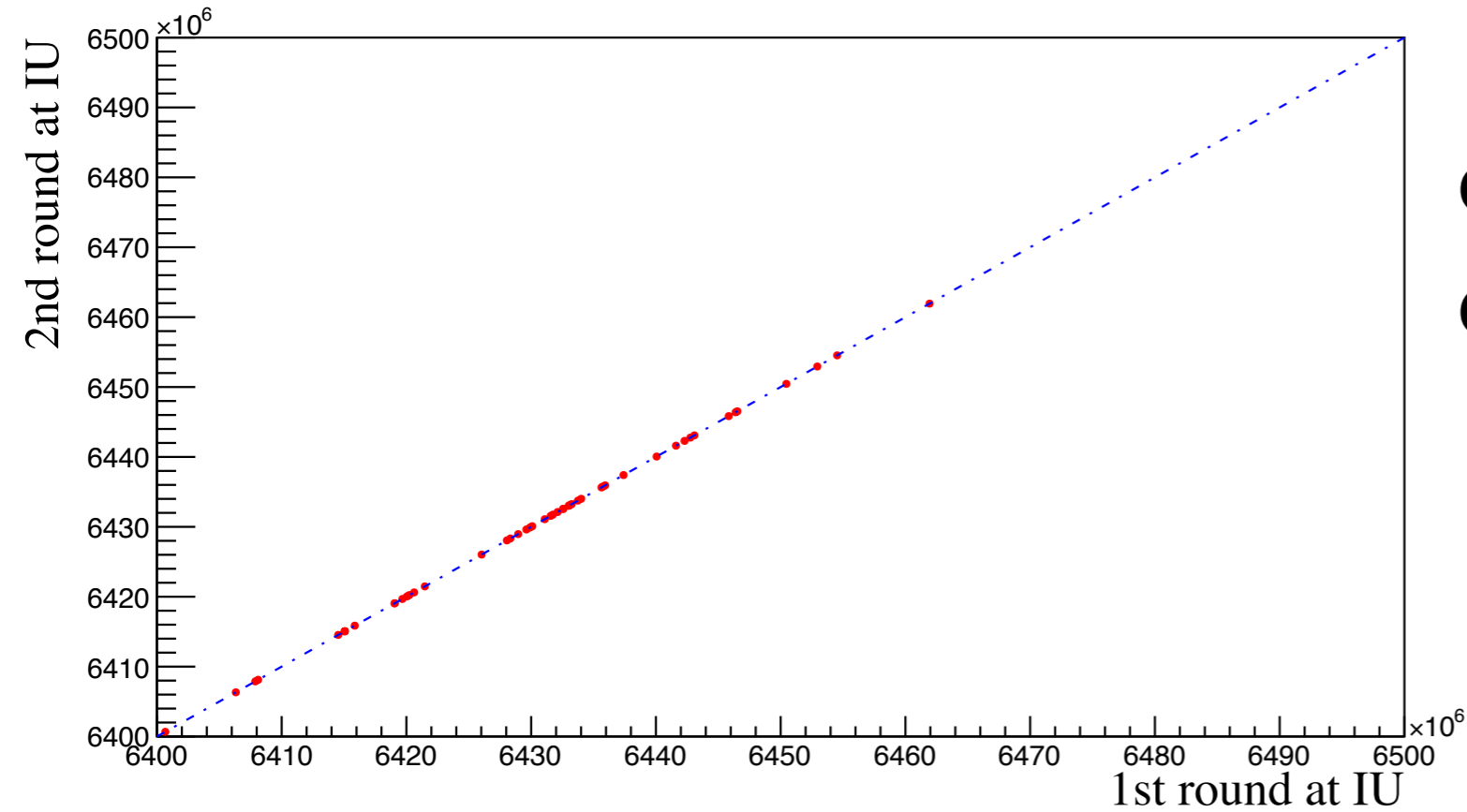
← 3 days

CPU time

max vmem



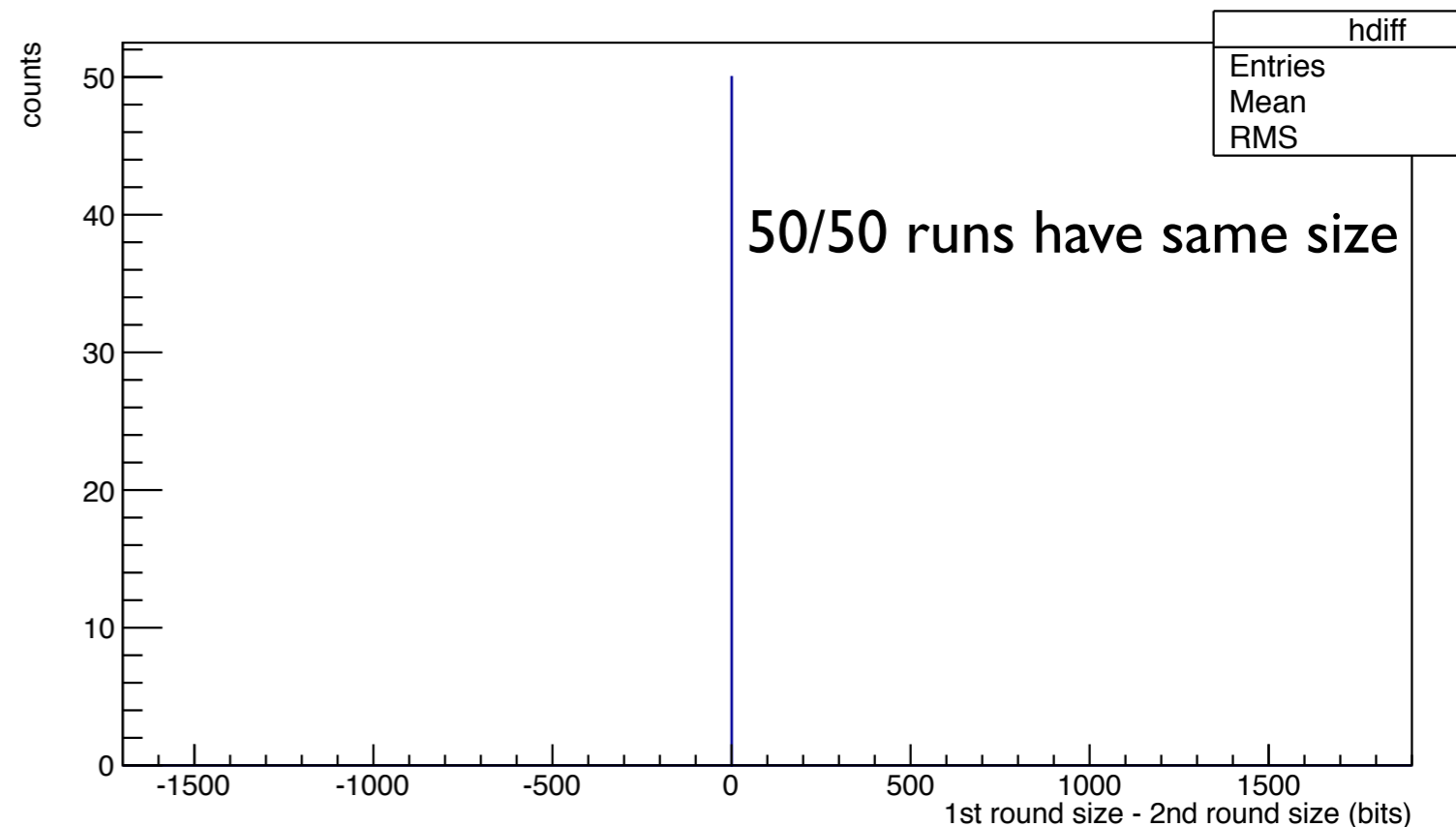
File Size Correlation (mcsmeear)



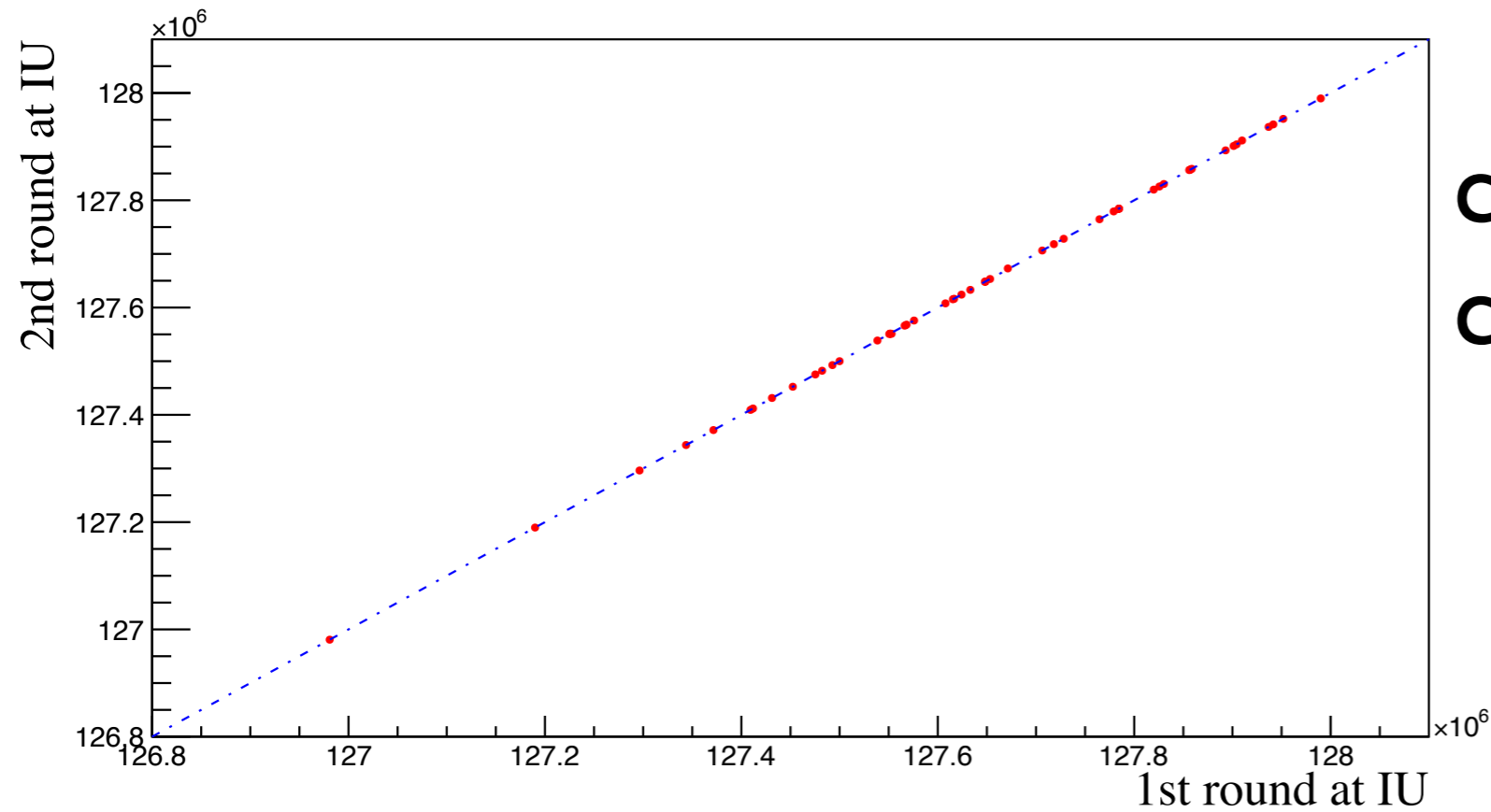
comparing same
condition runs at IU

difference between
same runs

mcsmeear output size is always
same when run with same
conditions

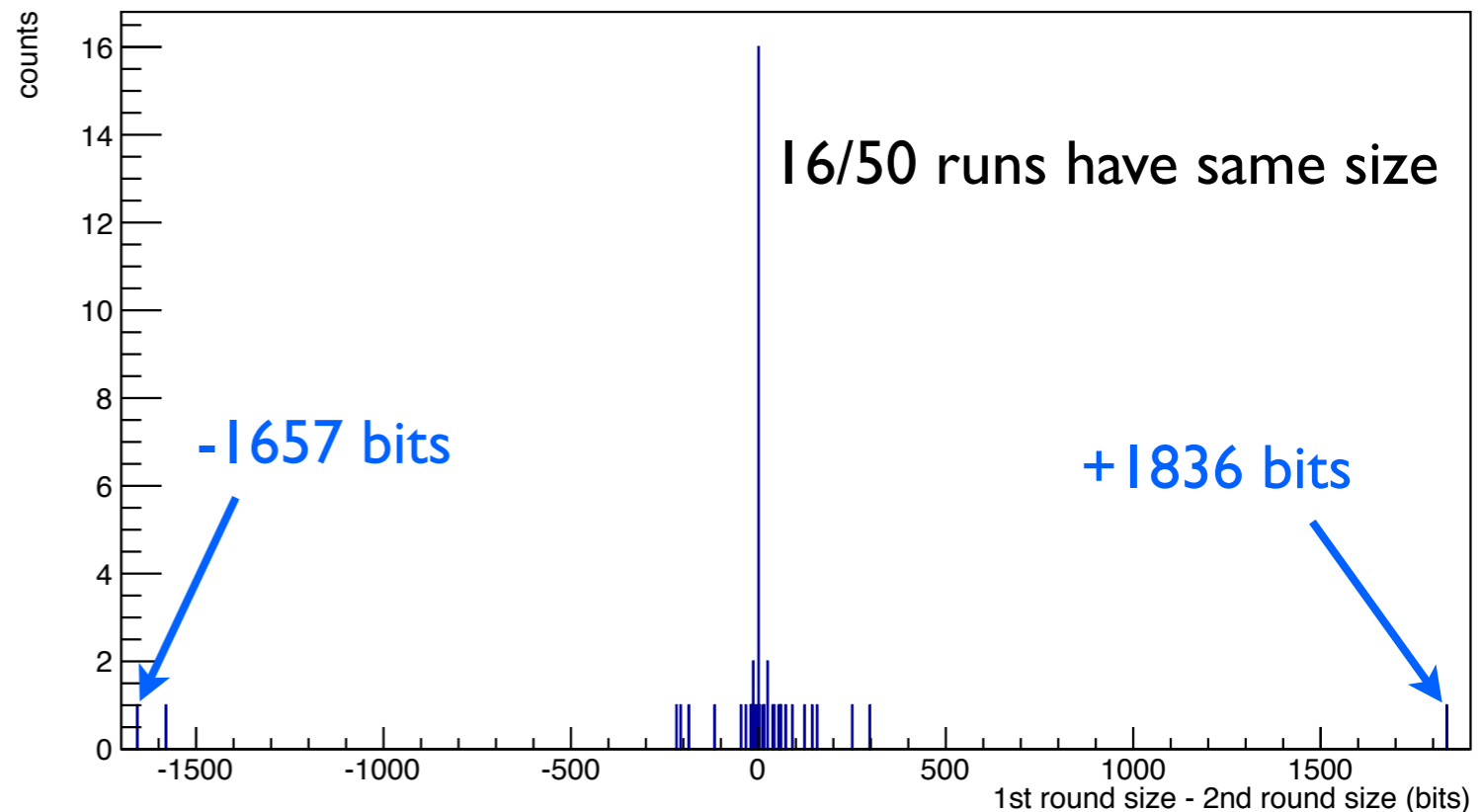


File Size Correlation (REST)



comparing same
condition runs at IU

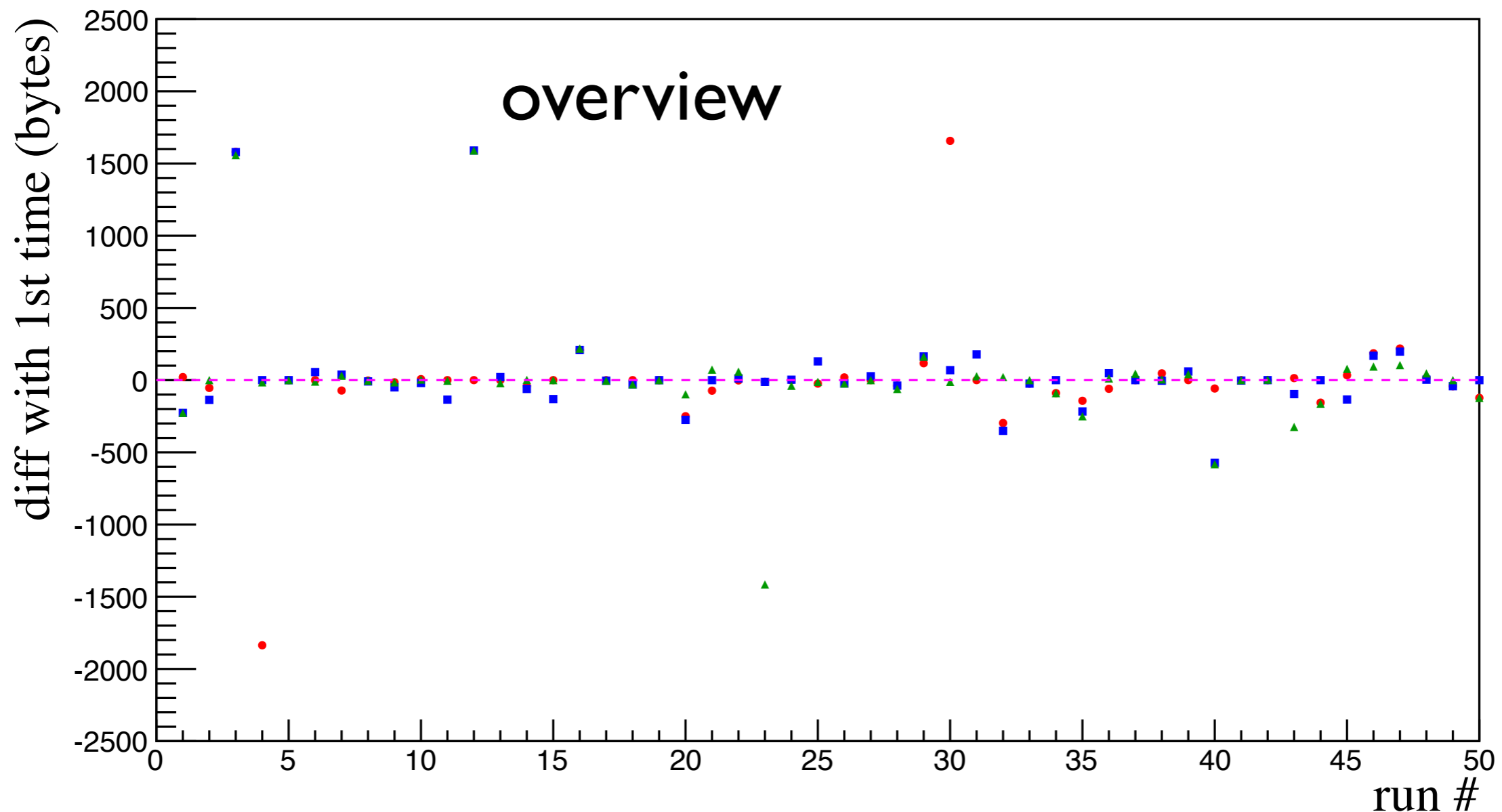
difference between
same runs



REST output size is same
when run with same
conditions only $\sim 1/3$ of the
time

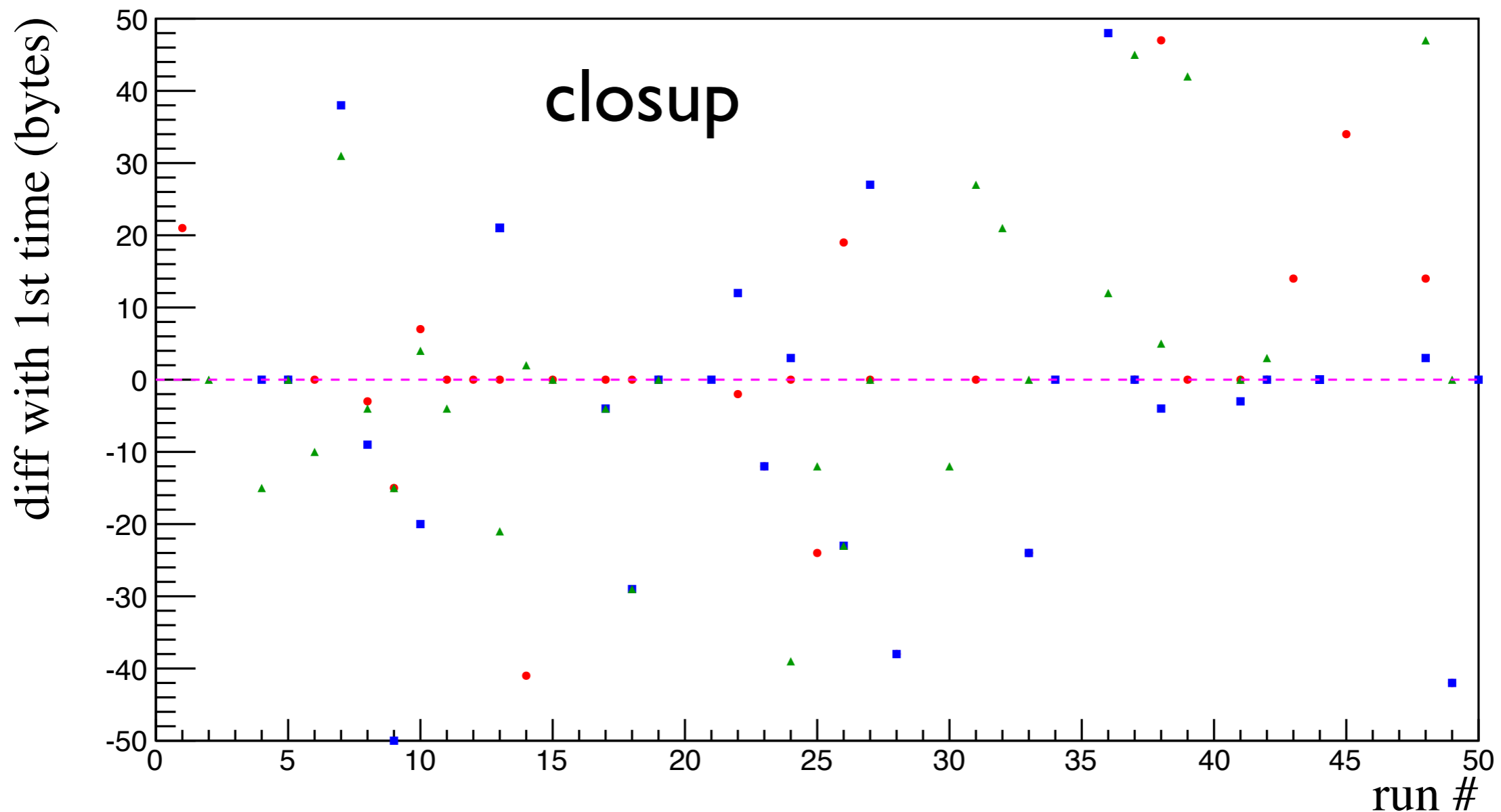
File Size Correlation at IU

- Running diff shows no difference for mcsmeas files (ran on 10/50)
- Same size runs have no output from diff → not a time stamp
- Re-run 50 files 3 times: # of files that match original set was 16, 8, 9 runs



File Size Correlation at IU

- Running diff shows no difference for mcsmeas files (ran on 10/50)
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hd_dump of Factories

- For files with different sizes, run hd_dump for each factory
- Total of 27 factories
- File 0 had different REST size, file 4 had same size

factory	difference for file 0	difference for file 4
DChargedTrackHypothesis	1 event out of 50k has different values	no difference
DSCHit	variable "sigma_t" has different random value	variable "sigma_t" has different random value
DTrackCandidate:THROWN	variable "id" has different memory address	variable "id" has different memory address
DTrackWireBased:THROWN	variable "id" has different memory address	variable "id" has different memory address

to do:

- Initialize sigma_t in DSCHit
- Either remove id in DTrackCandidate:THROWN and DTrackWireBased:THROWN, or set to usable value?

Single Different Event

Event: 18497
DChargedTrackHypothesis:

candidate:	PID:	Name:	q:	x(cm):	y(cm):	z(cm):	E(GeV):	t(ns):	p(GeV/c):	theta(deg):	phi(deg):	Track_ChiSq:	dEdx_ChiSq:	TOF_ChiSq:	PID_ChiSq:	PID_FOM:
1	12	K-	-1	0.0	-0.0	55.6	1.1505	-0.860	1.039	17.779	-160.899	9.372547	0.429587	6.042921	6.472508	0.039311
12	9	Pi-	-1	5.1	12.1	370.2	1.2305	3.980	1.223	8.348	-153.552	76.102051	0.000000	1.537626	1.537626	0.214972
2	14	Proton	+1	0.0	0.1	55.1	1.5813	1.601	1.273	36.128	146.383	15.414339	1.518972	76.057421	77.576393	0.000000
12	12	K-	-1	44.4	6.4	167.6	0.9614	0.929	0.825	14.531	127.863	145.900162	145.067180	24.871101	169.938281	0.000000
10	8	Pi+	+1	16.2	-10.3	169.4	0.6620	5.967	0.647	8.191	111.052	36.362240	13.606155	0.247119	13.853274	0.000981
3	8	Pi+	+1	-3.2	9.5	167.0	0.3831	4.654	0.357	138.486	20.084	34.808842	0.000000	0.062697	0.062697	0.802283
11	11	K+	+1	-1.9	-14.4	169.0	438.0531	8.209	438.053	11.576	43.827	406.045929	0.000000	0.899227	0.899227	0.342989
5	8	Pi+	+1	15.1	-1.1	168.8	0.1831	3.665	0.119	6.244	154.221	76.723747	0.000000	0.068434	0.068434	0.793631
4	14	Proton	+1	16.5	-1.1	167.5	0.9936	-22.253	0.327	14.132	86.462	45.510193	7.881221	26.358891	34.240112	0.000000
6	9	Pi-	-1	12.9	-0.1	168.1	0.1537	5.873	0.064	5.560	116.299	65.722733	0.000000	0.766794	0.766794	0.381211
10	11	K+	+1	23.8	-17.0	169.9	1.0239	3.718	0.897	9.693	149.504	77.719437	12.724923	0.950645	13.675568	0.001072
11	9	Pi-	-1	11.2	2.4	112.4	0.5750	1.248	0.558	2.097	-78.049	369.569000	213.498691	0.305922	213.804613	0.000000
8	14	Proton	+1	25.1	0.1	169.0	4.0851	-21.820	3.976	9.679	-173.114	34.359367	0.000000	25.577558	25.577558	0.000000
8	11	K+	+1	27.8	0.2	168.0	0.8458	-6.772	0.687	21.894	-171.657	3.641010	90.874563	4.168956	95.043519	0.000000
4	11	K+	+1	9.5	0.6	112.7	0.5359	-12.699	0.209	4.766	93.556	58.973076	0.000000	8.166760	8.166760	0.004267
2	8	Pi+	+1	0.1	0.1	55.0	1.3369	2.540	1.330	37.515	146.499	29.672113	3.685256	168.511781	172.197037	0.000000
5	11	K+	+1	1.8	25.1	105.1	8.7674	-1.345	8.754	42.847	-4.201	8.451011	0.000000	79.855899	79.855899	0.000000
2	11	K+	+1	1.0	4.6	57.1	0.7580	1.380	0.575	35.917	167.187	11.262355	0.000000	50.831648	50.831648	0.000000
1	9	Pi-	-1	0.0	-0.0	55.6	1.0485	-0.076	1.039	17.783	-160.901	10.099854	0.165060	1.136087	1.301148	0.521746
4	8	Pi+	+1	19.0	1.6	138.7	0.1792	0.491	0.112	20.368	94.944	22.950542	0.000000	0.154772	0.154772	0.694016

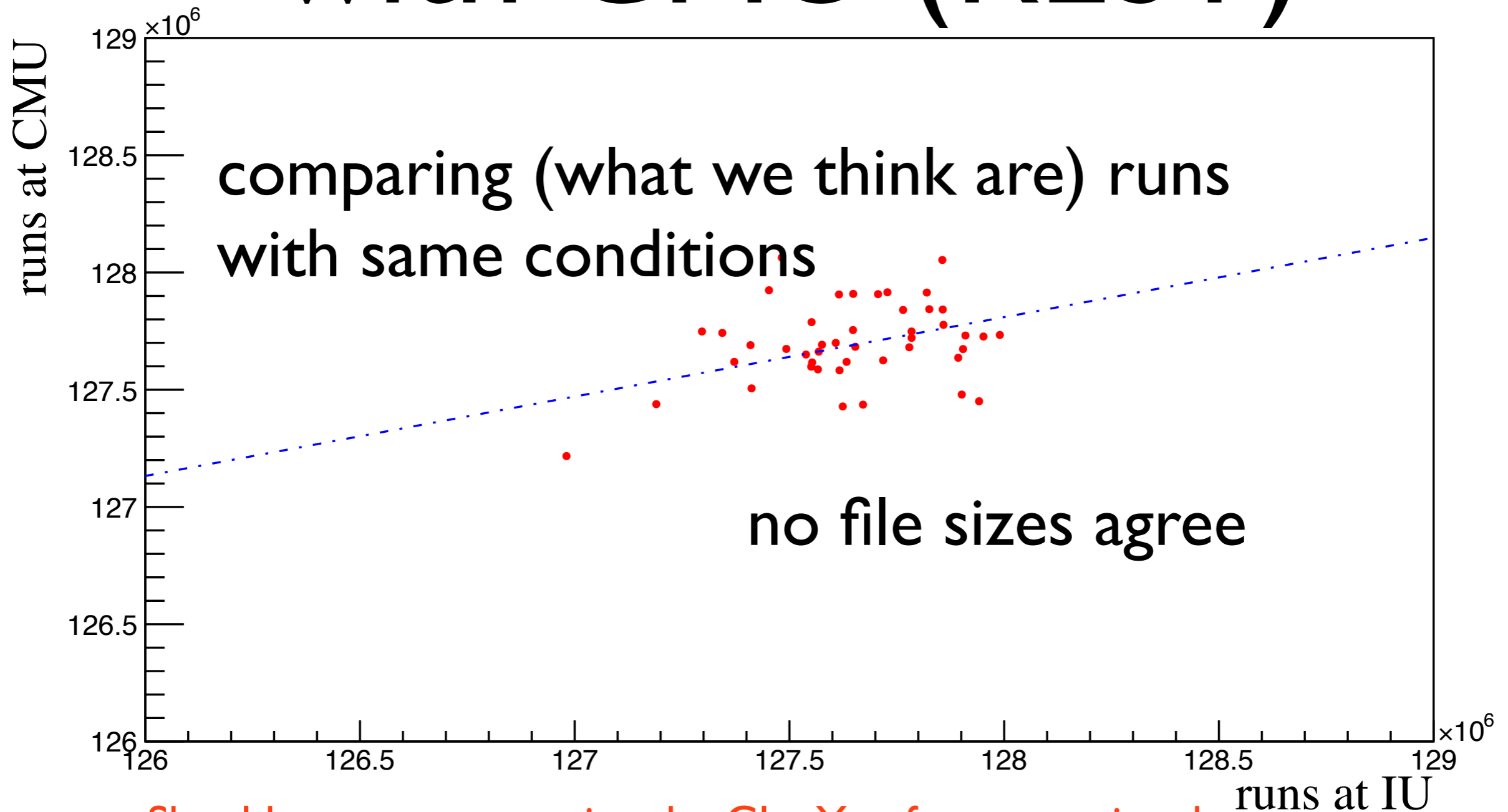
variables that can be different

Event: 18497
DChargedTrackHypothesis:

candidate:	PID:	Name:	q:	x(cm):	y(cm):	z(cm):	E(GeV):	t(ns):	p(GeV/c):	theta(deg):	phi(deg):	Track_ChiSq:	dEdx_ChiSq:	TOF_ChiSq:	PID_ChiSq:	PID_FOM:
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2	8	Pi+	+1	0.1	0.1	55.0	1.3369	2.540	1.330	37.515	146.499	29.672113	3.685256	168.511781	172.197037	0.000000
5	11	K+	+1	1.8	25.1	105.1	8.7674	-1.345	8.754	42.847	-4.201	8.451011	0.000000	79.855899	79.855899	0.000000
2	11	K+	+1	1.0	4.6	57.1	0.7580	1.380	0.575	35.917	167.187	11.262355	0.000000	50.831648	50.831648	0.000000
1	9	Pi-	-1	0.0	-0.0	55.6	1.0485	-0.076	1.039	17.783	-160.901	10.099854	0.165060	1.136087	1.301148	0.521746
4	8	Pi+	+1	19.0	1.6	138.7	0.1792	0.491	0.112	20.368	94.944	22.950542	0.000000	0.154772	0.154772	0.694016

20/50 files have this tiny difference for one or two lines

File Size Correlation with CMU (REST)



- Should we expect running the GlueX software to give the exact same results when run in different environments?
- If the physics content is the same, should the file sizes be the same?