Results of a Global Search for New Physics at CDF

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on behalf of the CDF Collaboration

XLIIIth Rencontres de Moriond:

QCD and High-Energy Interactions

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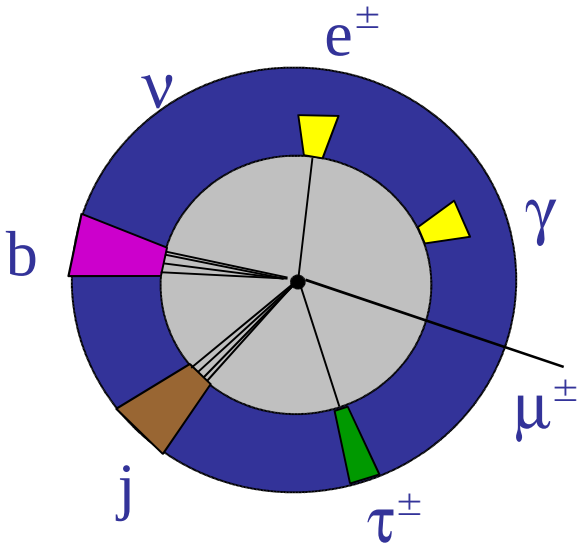
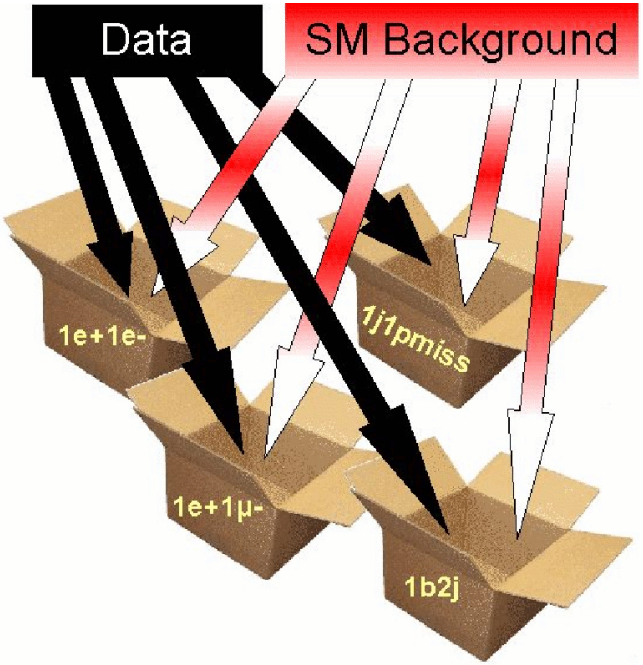
Overview of the CDF Global Search

- Motivation: perform model-independent global search of high-p_T data, to make sure we do not miss new physics in the Tevatron data
- Vista: study bulk features of high-p_T data
- Bump Hunter: search for resonances in invariant mass distributions
- Sleuth: search for significant excesses at high sum-p_T

Overview of Vista

- Identify physics objects
  - $e^{\pm}, \mu^{\pm}, \tau^{\pm}, \gamma, j, b, \not{E}_T$
  - require $p_T > 17$ GeV
- Select events
  - require high-p_T lepton, photon, jet triggers
- Partition events into ~400 exclusive final states
  - boxes created if populated by data





Overview of Vista (ctd.)

- Generate our implementation of Standard Model
  - primarily use Pythia and MadEvent
  - simulate detector with CDFSim
- Determine correction factors for true SM prediction
  - 44 used in total
  - theoretical k-factors for SM processes:
    - QCD multi-jet; W/Z+jets; (di)photon+jets
  - experimental efficiencies for object reconstruction and 'fake rates'
- Perform Vista global comparison; look for discrepancies in:
  - final state populations
  - shapes of kinematic variables

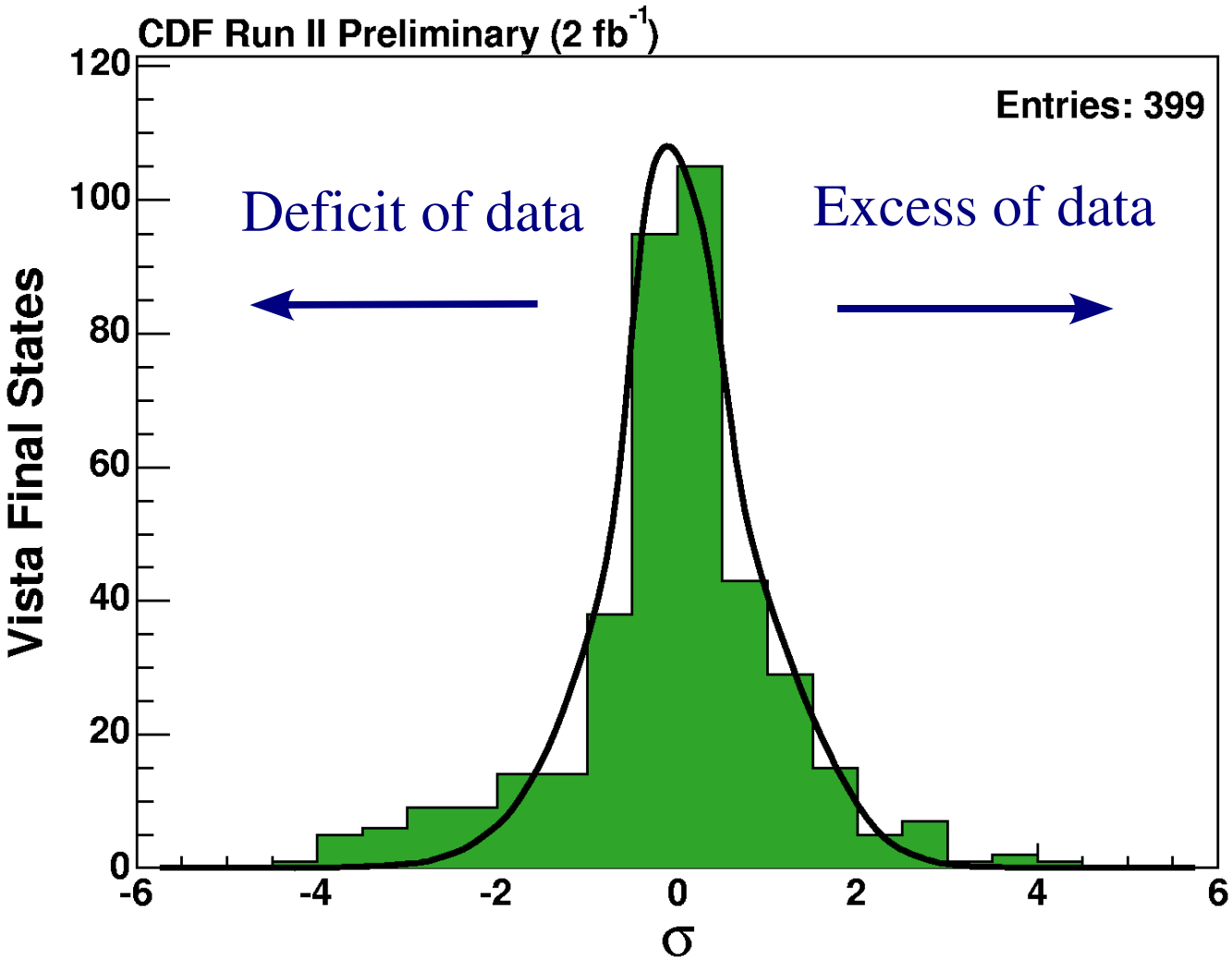
Vista Global Comparison

- 399 exclusive final states considered
- Data compared to SM events in each final state
- Statistical discrepancy accounts for trials factor

CDF Run II Preliminary ($2.0\ \text{fb}^{-1}$)
The calculation of σ accounts for the trials factor

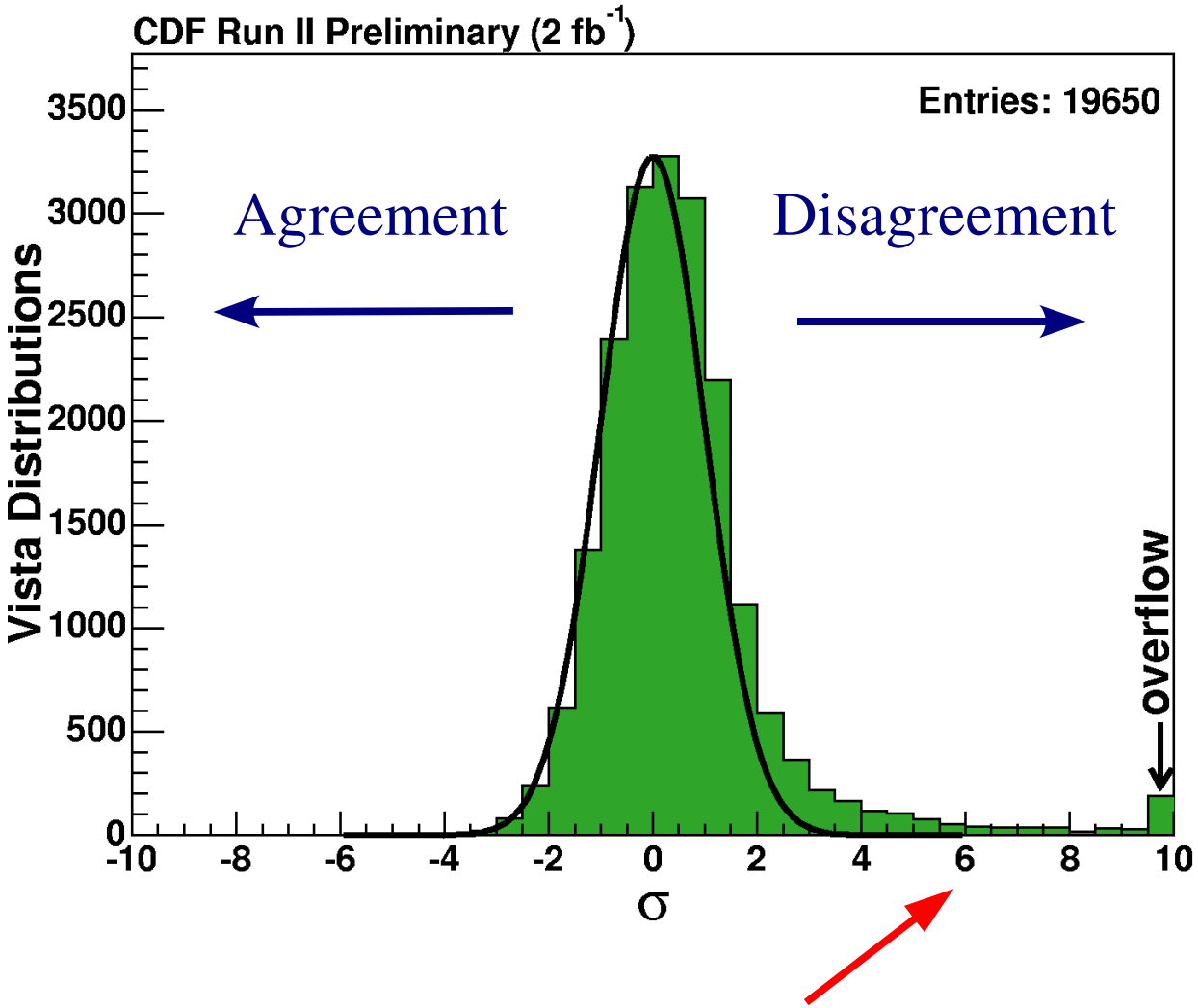
Final State	Data	Background	σ
$be^{\pm}\not{p}$	690	817.7 ± 9.2	−2.7
$\gamma\tau^{\pm}$	1371	1217.6 ± 13.3	+2.2
$\mu^{\pm}\tau^{\pm}$	63	35.2 ± 2.8	+1.7
b2j$\not{p}$ high-Σp_T	255	327.2 ± 8.9	−1.7
2j$\tau^{\pm}$ low-Σp_T	574	670.3 ± 8.6	−1.5
3j$\tau^{\pm}$ low-Σp_T	148	199.8 ± 5.2	−1.4
$e^{\pm}\not{p}\tau^{\pm}$	36	17.2 ± 1.7	+1.4
2j$\tau^{\pm}\tau^{\mp}$	33	62.1 ± 4.3	−1.3
$e^{\pm}$j	741710	764832 ± 6447.2	−1.3
j2$\tau^{\pm}$	105	150.8 ± 6.3	−1.2
$e^{\pm}$2j	256946	249148 ± 2201.5	+1.2
2bj low-Σp_T	279	352.5 ± 11.9	−1.1
j$\tau^{\pm}$ low-Σp_T	1385	1525.8 ± 15	−1.1
2b2j low-Σp_T	108	153.5 ± 6.8	−1
b$\mu^{\pm}\not{p}$	528	613.5 ± 8.7	−0.9
$\mu^{\pm}\gamma\not{p}$	523	611 ± 12.1	−0.8
2bγ	108	70.5 ± 7.9	+0.1
8j	14	13.1 ± 4.4	0
7j	103	97.8 ± 12.2	0
6j	653	659.7 ± 37.3	0
5j	3157	3178.7 ± 67.1	0
4j high-Σp_T	88546	89096.6 ± 935.2	0
4j low-Σp_T	14872	14809.6 ± 186.3	0
4j2γ	46	46.4 ± 3.9	0
4j$\tau^{\pm}$ high-Σp_T	29	26.6 ± 1.7	0
4j$\tau^{\pm}$ low-Σp_T	43	63.1 ± 3.3	0
4j$\not{p}$ high-Σp_T	1064	1012 ± 62.9	0
4j$\gamma\tau^{\pm}$	19	10.8 ± 2	0
4j$\gamma\not{p}$	62	104.2 ± 22.4	0
4jγ	7962	8271.2 ± 245.1	0
4j$\mu^{\pm}\not{p}$	574	590.5 ± 13.6	0
4j$\mu^{\pm}\mu^{\mp}$	38	48.4 ± 6.2	0
4j$\mu^{\pm}$	1363	1350.1 ± 37.7	0
3j high-Σp_T	159926	159143 ± 1061.9	0
3j low-Σp_T	62681	64213.1 ± 496	0
3j2γ	151	177.5 ± 7.1	0
3j$\tau^{\pm}$ high-Σp_T	68	76.9 ± 3	0
3j$\not{p}$ high-Σp_T	1706	1899.4 ± 77.6	0
3j$\not{p}$ low-Σp_T	42	36.2 ± 5.7	0
3j$\gamma\tau^{\pm}$	39	37.8 ± 3.6	0
3j$\gamma\not{p}$	204	249.8 ± 24.4	0
3jγ	24639	24899.4 ± 372.4	0
3j$\mu^{\pm}\not{p}$	2884	2971.5 ± 52.1	0
3j$\mu^{\pm}\gamma\not{p}$	10	3.6 ± 1.9	0
3j$\mu^{\pm}\gamma$	15	7.9 ± 2.9	0
3j$\mu^{\pm}\mu^{\mp}$	175	177.8 ± 16.2	0
3j$\mu^{\pm}$	5032	4989.5 ± 108.9	0
3b2j	23	28.9 ± 4.7	0
3bj	82	82.6 ± 5.7	0
3b	67	85.6 ± 7.7	0
2$\tau^{\pm}$	498	512.7 ± 14.2	0
2$\gamma\not{p}$	128	107.2 ± 6.9	0
2γ	5548	5562.8 ± 40.5	0
2j high-Σp_T	190773	190842 ± 781.2	0
2j low-Σp_T	165984	162530 ± 1581	0
2j2$\tau^{\pm}$	22	40.6 ± 3.2	0
2j2$\gamma\not{p}$	11	8 ± 2.4	0
2j2γ	580	581 ± 13.7	0
2j$\tau^{\pm}$ high-Σp_T	96	114.6 ± 3.3	0
2j$\not{p}$ high-Σp_T	87	80.9 ± 6.8	0
2j$\not{p}$ low-Σp_T	114	79.5 ± 100.8	0
2j$\not{p}\tau^{\pm}$	18	13.2 ± 2.2	0
2j$\gamma\tau^{\pm}$	142	144.6 ± 5.7	0
2j$\gamma\not{p}$	908	980.3 ± 63.7	0
2jγ	71364	73021.4 ± 595.9	0
2j$\mu^{\pm}\tau^{\mp}$	16	19.3 ± 2.2	0
2j$\mu^{\pm}\not{p}$	17927	18340.6 ± 201.9	0
2j$\mu^{\pm}\gamma\not{p}$	31	27.7 ± 7.7	0
2j$\mu^{\pm}\gamma$	57	58.2 ± 13	0
2j$\mu^{\pm}\mu^{\mp}\not{p}$	11	7.8 ± 2.7	0
2j$\mu^{\pm}\mu^{\mp}$	956	924.9 ± 61.2	0
2j$\mu^{\pm}$	22461	23111.4 ± 366.6	0
2$e^{\pm}$j	14	13.8 ± 2.3	0
2$e^{\pm}e^{\mp}$	20	17.5 ± 1.7	0
2$e^{\pm}$	32	49.2 ± 3.4	0
2b high-Σp_T	666	689 ± 9.4	0
2b low-Σp_T	323	313.2 ± 10.3	0
2b3j low-Σp_T	53	57.4 ± 6.5	0
2b2j high-Σp_T	718	803.3 ± 12.7	0
2b2j$\not{p}$ high-Σp_T	15	21.8 ± 2.8	0
2b2jγ	32	39.7 ± 6.2	0
2b2j$\mu^{\pm}\not{p}$	14	17.3 ± 1.9	0
2b2j$\mu^{\pm}$	22	21.8 ± 2	0
2b$\mu^{\pm}\not{p}$	11	14.4 ± 2.1	0
2bj high-Σp_T	891	967.1 ± 13.2	0
2bj$\not{p}$ high-Σp_T	25	31.3 ± 3.1	0
2bjγ	71	54.5 ± 7.1	0
2bj$\mu^{\pm}\not{p}$	12	10.7 ± 1.9	0
2b$e^{\pm}$2j$\not{p}$	30	27.3 ± 2.2	0
2b$e^{\pm}$2j	72	66.5 ± 2.9	0
2b$e^{\pm}\not{p}$	22	19.1 ± 2.2	0
2b$e^{\pm}$j$\not{p}$	19	19.4 ± 2.2	0
2b$e^{\pm}$j	63	63 ± 3.4	0
2b$e^{\pm}$	96	92.1 ± 4.1	0
$\tau^{\pm}\tau^{\mp}$	856	872.5 ± 19	0
$\gamma\not{p}$	3793	3770.7 ± 127.3	0
$\mu^{\pm}\tau^{\mp}$	381	440.9 ± 7.3	0
$\mu^{\pm}\not{p}\tau^{\mp}$	60	75.7 ± 3.4	0
$\mu^{\pm}\not{p}\tau^{\pm}$	15	12 ± 2	0
$\mu^{\pm}\not{p}$	734290	734296 ± 4897.8	0
$\mu^{\pm}\gamma$	475	469.8 ± 12.5	0
$\mu^{\pm}\mu^{\mp}\not{p}$	169	198.5 ± 8.2	0
$\mu^{\pm}\mu^{\mp}\gamma$	83	60 ± 3.1	0
$\mu^{\pm}\mu^{\mp}$	25283	25178.5 ± 86.5	0
j2$\gamma\not{p}$	36	30.4 ± 4.2	0
j2γ	1822	1813.2 ± 27.4	0
j$\tau^{\pm}$ high-Σp_T	52	56.2 ± 2.5	0
j$\tau^{\pm}\tau^{\mp}$	203	252.2 ± 8.7	0
j$\not{p}$ high-Σp_T	4432	4431.7 ± 45.2	0
j$\gamma\tau^{\pm}$	526	476 ± 9.3	0
j$\gamma\not{p}$	1882	1791.9 ± 72.3	0
jγ	103319	102124 ± 570.6	0
j$\mu^{\pm}\tau^{\mp}$	71	98 ± 3.9	0
j$\mu^{\pm}\tau^{\pm}$	15	12 ± 2	0
j$\mu^{\pm}\not{p}\tau^{\mp}$	26	30.8 ± 2.6	0
j$\mu^{\pm}\not{p}$	109081	108323 ± 707.7	0
j$\mu^{\pm}\gamma\not{p}$	171	171.1 ± 31	0
j$\mu^{\pm}\gamma$	152	190 ± 39.3	0
j$\mu^{\pm}\mu^{\mp}\not{p}$	32	32.2 ± 10.9	0
j$\mu^{\pm}\mu^{\mp}\gamma$	14	11.5 ± 2.6	0
j$\mu^{\pm}\mu^{\mp}$	4852	4271.2 ± 185.4	0
j$\mu^{\pm}$	77689	76987.5 ± 930.2	0
$e^{\pm}$4j$\not{p}$	903	830.6 ± 13.2	0
$e^{\pm}$4jγ	25	29.2 ± 3.6	0
$e^{\pm}$4j	15750	16740.4 ± 390.5	0
$e^{\pm}$3j$\tau^{\mp}$	15	21.1 ± 2.2	0
$e^{\pm}$3j$\not{p}$	4054	4077.2 ± 63.6	0
$e^{\pm}$3jγ	108	79.3 ± 5	0
$e^{\pm}$3j	60725	60409.3 ± 723.3	0
$e^{\pm}$2γ	41	34.2 ± 2.6	0
$e^{\pm}$2j$\tau^{\pm}$	37	47.2 ± 2.2	0
$e^{\pm}$2j$\tau^{\mp}$	109	95.9 ± 6.8	0
$e^{\pm}$2j$\not{p}$	25725	25403.1 ± 209.4	0
$e^{\pm}$2j$\gamma\not{p}$	30	31.8 ± 4.8	0
$e^{\pm}$2jγ	398	342.8 ± 15.7	0
$e^{\pm}$2j$\mu^{\mp}\not{p}$	22	14.8 ± 1.9	0
$e^{\pm}$2j$\mu^{\mp}$	23	15.8 ± 2	0
$e^{\pm}\tau^{\pm}$	437	387 ± 5.3	0
$e^{\pm}\tau^{\mp}$	1333	1266 ± 12.3	0
$e^{\pm}\not{p}\tau^{\mp}$	109	106.1 ± 2.7	0
$e^{\pm}\not{p}$	960826	956579 ± 3077.7	0
$e^{\pm}\gamma\not{p}$	497	496.8 ± 10.3	0
$e^{\pm}\gamma$	3578	3589.9 ± 24.1	0
$e^{\pm}\mu^{\pm}\not{p}$	31	29.9 ± 1.6	0
$e^{\pm}\mu^{\mp}\not{p}$	109	99.4 ± 2.4	0
$e^{\pm}\mu^{\pm}$	45	28.5 ± 1.8	0
$e^{\pm}\mu^{\mp}$	350	313 ± 5.4	0
$e^{\pm}$j2γ	13	16.1 ± 3.9	0
$e^{\pm}$j$\tau^{\mp}$	386	418 ± 18.9	0
$e^{\pm}$j$\tau^{\pm}$	160	162.8 ± 3.5	0
$e^{\pm}$j$\not{p}\tau^{\mp}$	48	44.6 ± 3.3	0
$e^{\pm}$j$\not{p}\tau^{\pm}$	11	8.3 ± 1.5	0
$e^{\pm}$j$\not{p}$	121431	121023 ± 747.6	0
$e^{\pm}$j$\gamma\not{p}$	159	192.6 ± 10.9	0
$e^{\pm}$jγ	1389	1368.9 ± 38.9	0
$e^{\pm}$j$\mu^{\mp}\not{p}$	42	33 ± 2.9	0
$e^{\pm}$j$\mu^{\pm}\not{p}$	16	9.2 ± 1.9	0
$e^{\pm}$j$\mu^{\mp}$	62	63.8 ± 3.2	0
$e^{\pm}$j$\mu^{\pm}$	13	8.2 ± 2	0
$e^{\pm}e^{\mp}$4j	148	159.1 ± 7	0
$e^{\pm}e^{\mp}$3j	717	743.6 ± 24.4	0
$e^{\pm}e^{\mp}$2j$\not{p}$	32	41.4 ± 5.6	0
$e^{\pm}e^{\mp}$2jγ	10	11.4 ± 2.9	0
$e^{\pm}e^{\mp}$2j	3638	3566.8 ± 72	0
$e^{\pm}e^{\mp}\tau^{\pm}$	18	16.1 ± 1.7	0
$e^{\pm}e^{\mp}\not{p}$	822	831.8 ± 13.6	0
$e^{\pm}e^{\mp}\gamma$	191	221.9 ± 5.1	0
$e^{\pm}e^{\mp}$j$\not{p}$	155	170.8 ± 12.4	0
$e^{\pm}e^{\mp}$jγ	48	45 ± 3.9	0
$e^{\pm}e^{\mp}$j	17903	18258.2 ± 204.4	0
$e^{\pm}e^{\mp}$	98901	99086.9 ± 147.8	0
b6j	51	42.3 ± 3.8	0
b5j	237	192.5 ± 7.1	0
b4j high-Σp_T	26	23.4 ± 2.6	0
b4j low-Σp_T	836	821.7 ± 15.9	0
b3j high-Σp_T	12081	12071 ± 84.1	0
b3j low-Σp_T	2974	2873 ± 31	0

Vista Final State Summary



No final state exhibits a significant population discrepancy, after accounting for the trials factor

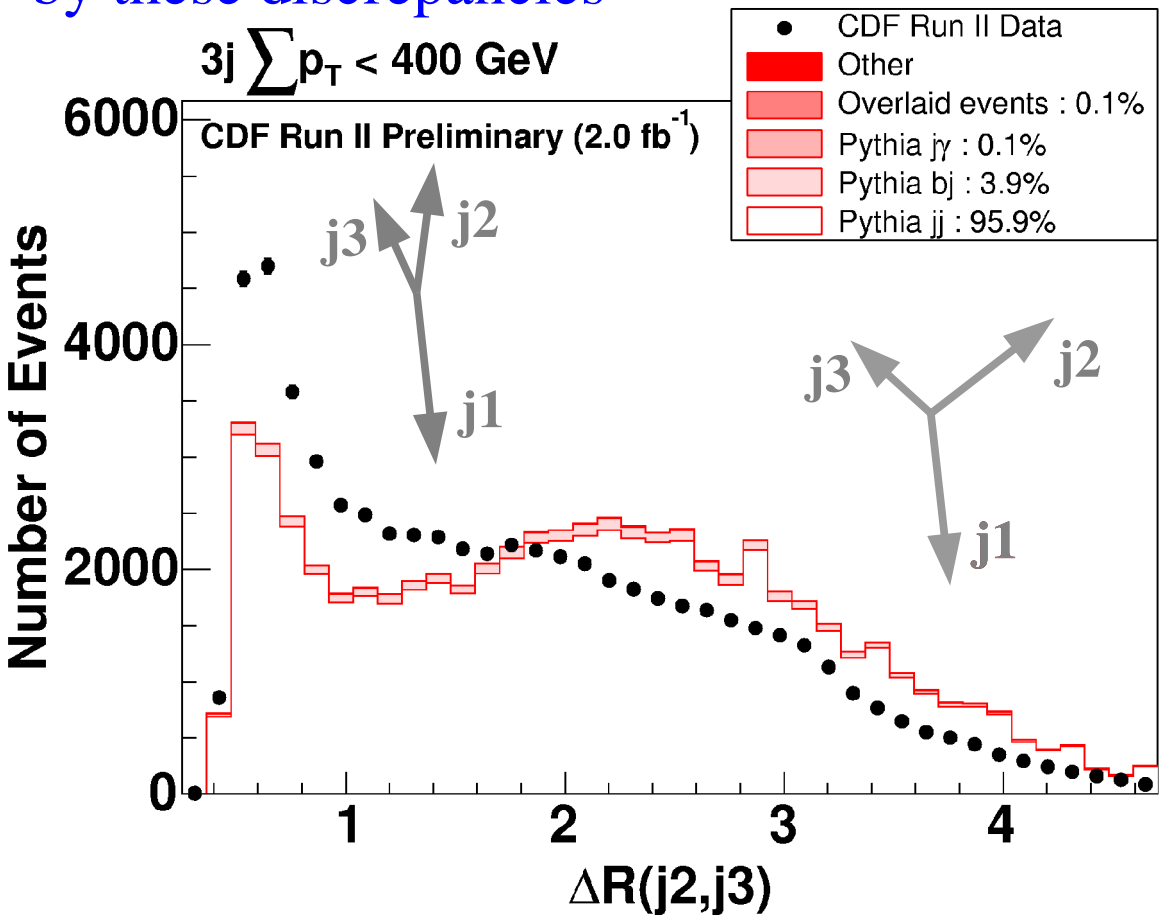
Vista Shapes Summary

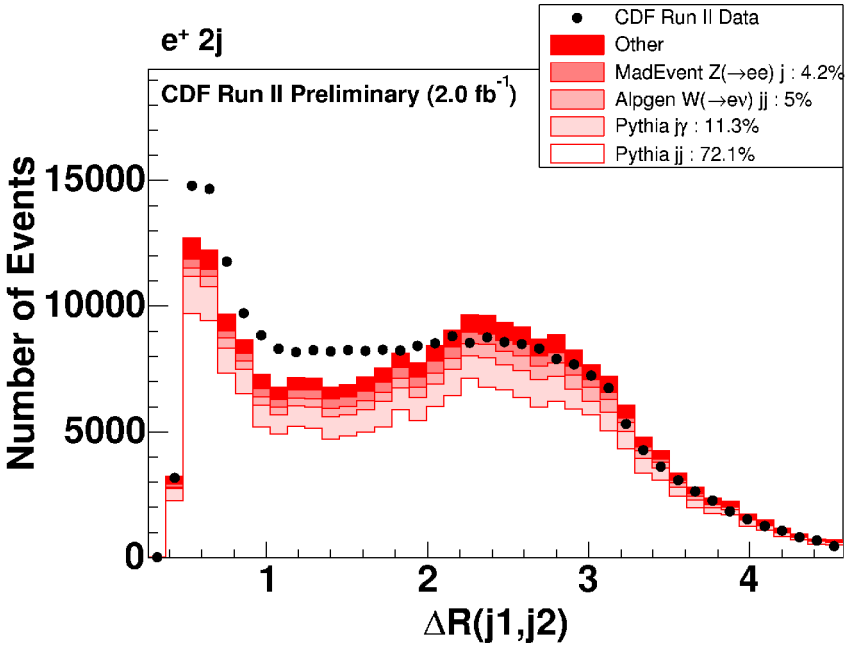


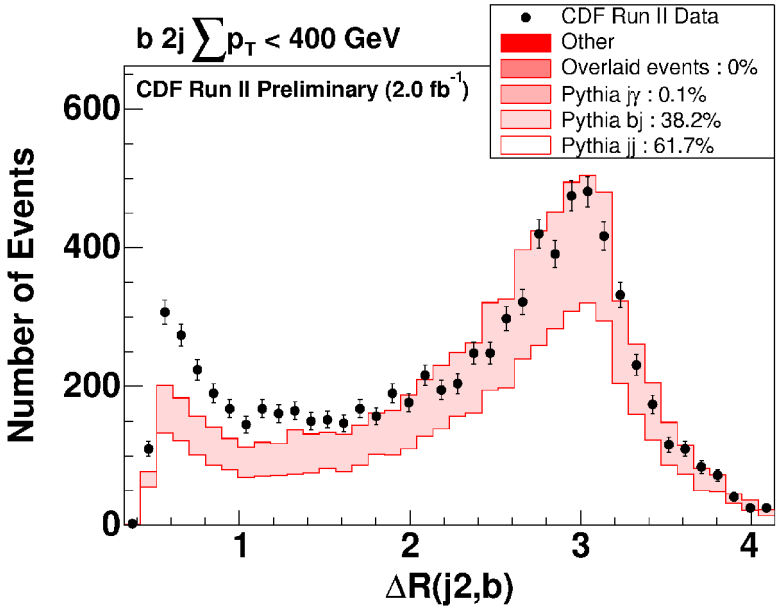
Interest is focused on these ~500 shapes which show significant discrepancy

Vista Shape Discrepancies

- Most shape discrepancies caused by difficulty in modelling soft jet emission
- No claim for new physics is motivated by these discrepancies







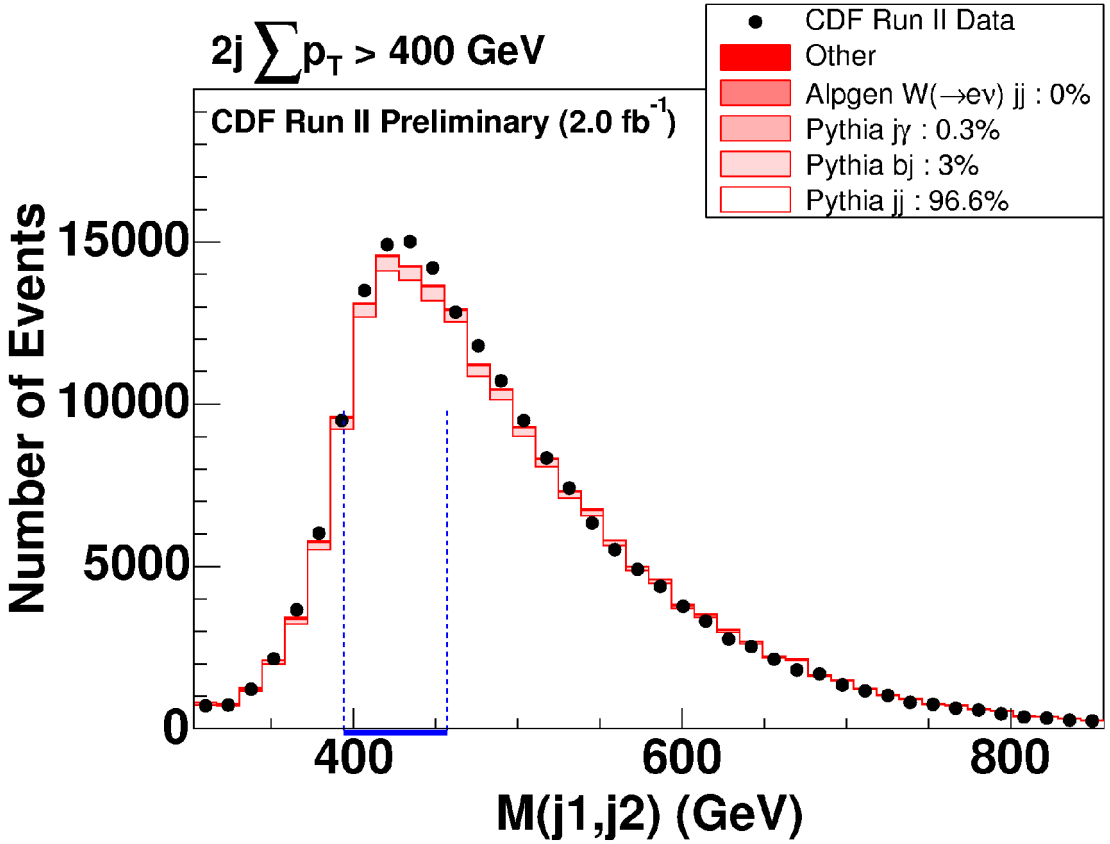
Bump Hunter

- Search for narrow resonances in invariant masses
- For each Vista final state, scan all mass distributions, compare to SM background
- Define a search window of $2\Delta M$ (ΔM = expected detector mass resolution)
- Scan in overlapping steps

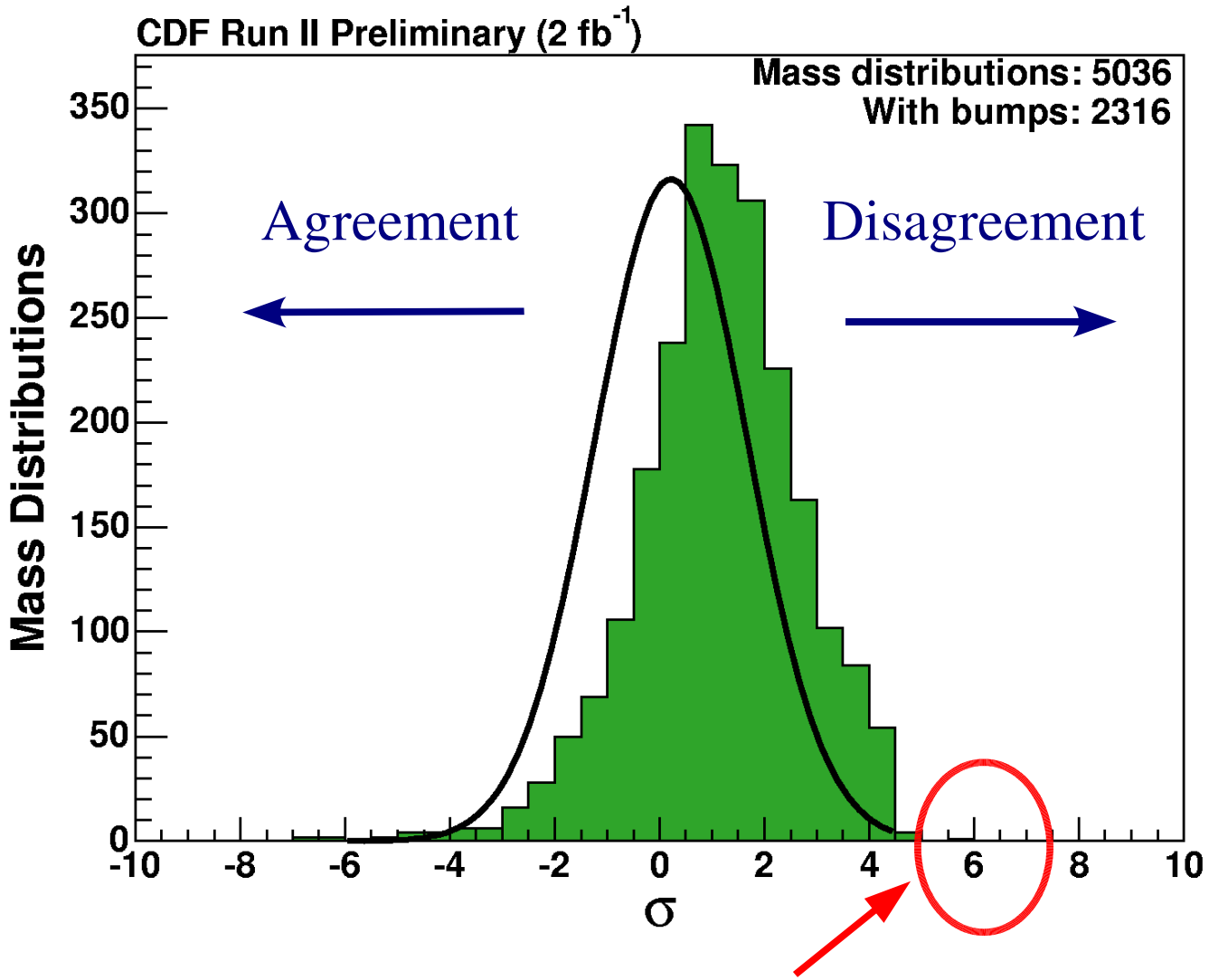
  so as not to miss something
- Define a possible 'bump':
  - at least 5 data events
  - verify that 'side-bands'

    agree better than center
- Estimate significance of bumps

  in data by pseudo-experiments

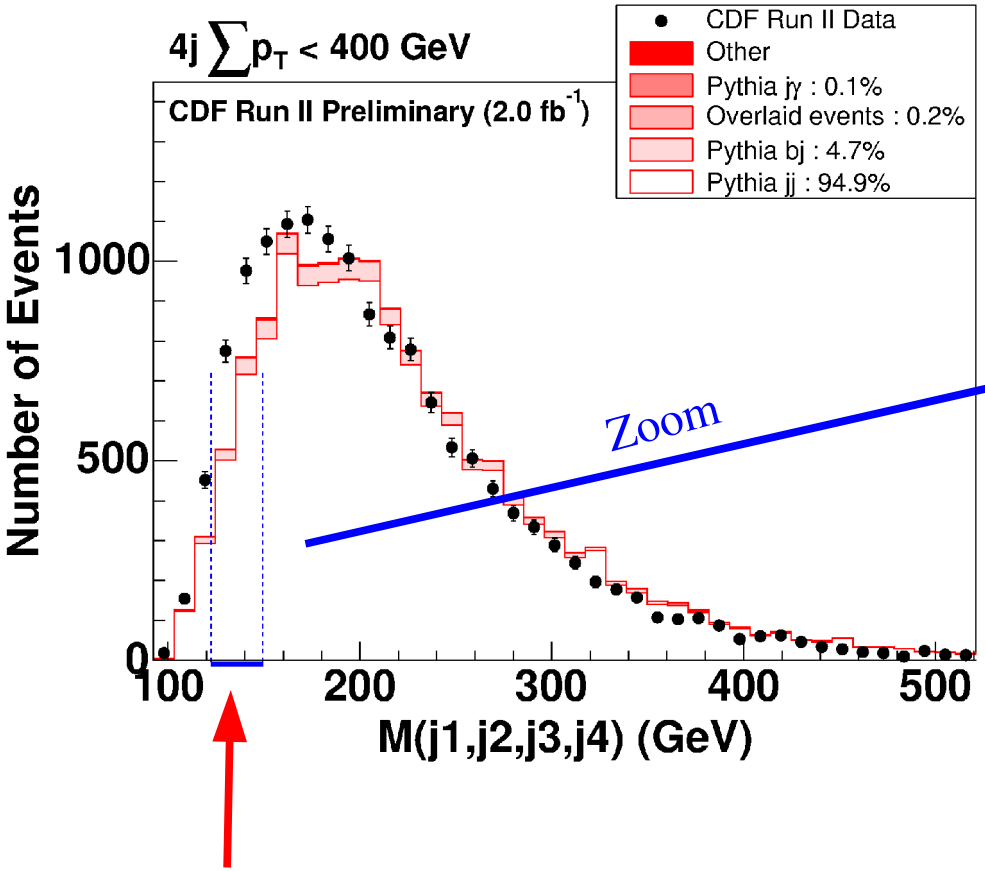


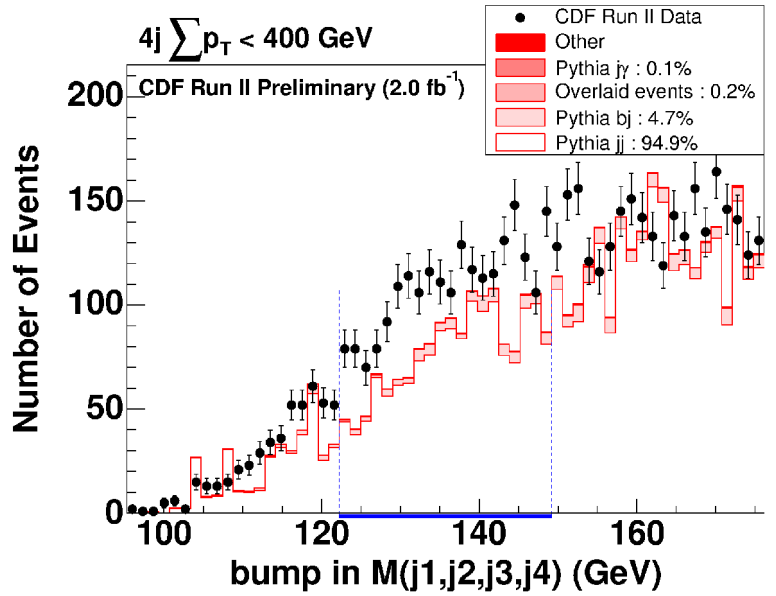
Bump Hunter Results Overview

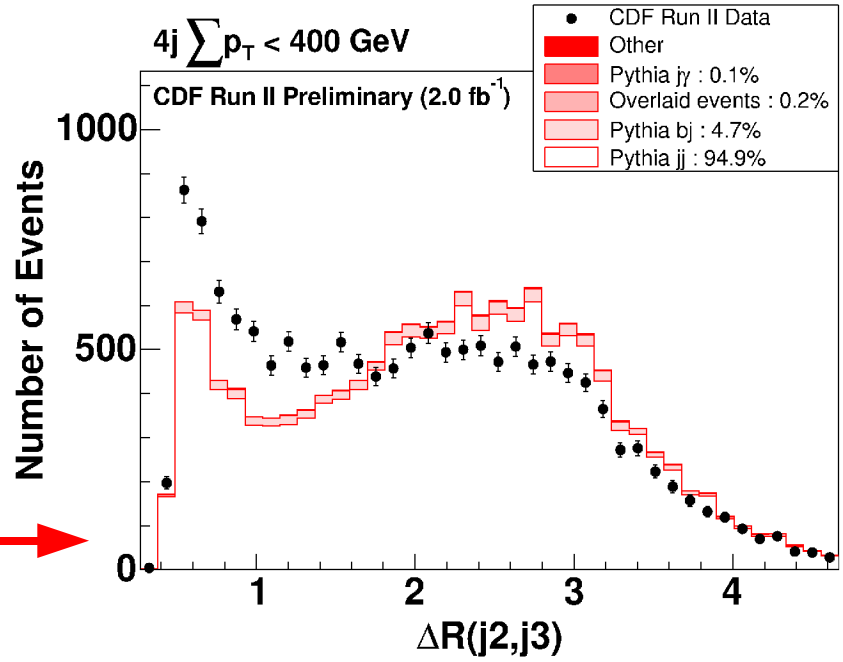


Only 1 invariant mass distribution has a bump with significance above the discovery threshold

Bump Hunter Results







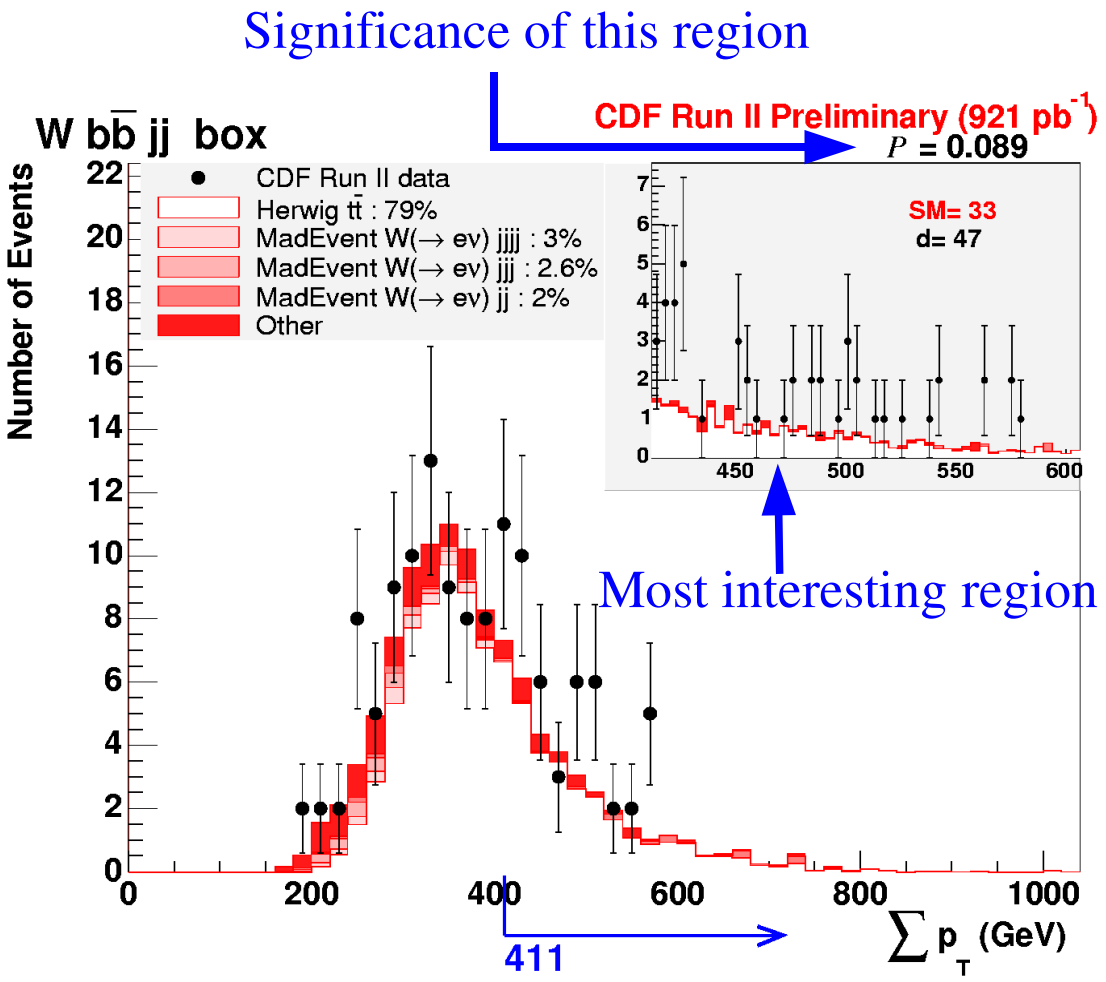
- This is the only 'discovery-level' bump found
- But we do not believe this indicates new physics – attribute it to the QCD ΔR modelling problem seen earlier

Sleuth

- Sleuth assumption:
  - new physics will appear as an excess of data at high Σp_T predominantly in one final state
- Sleuth's variable:

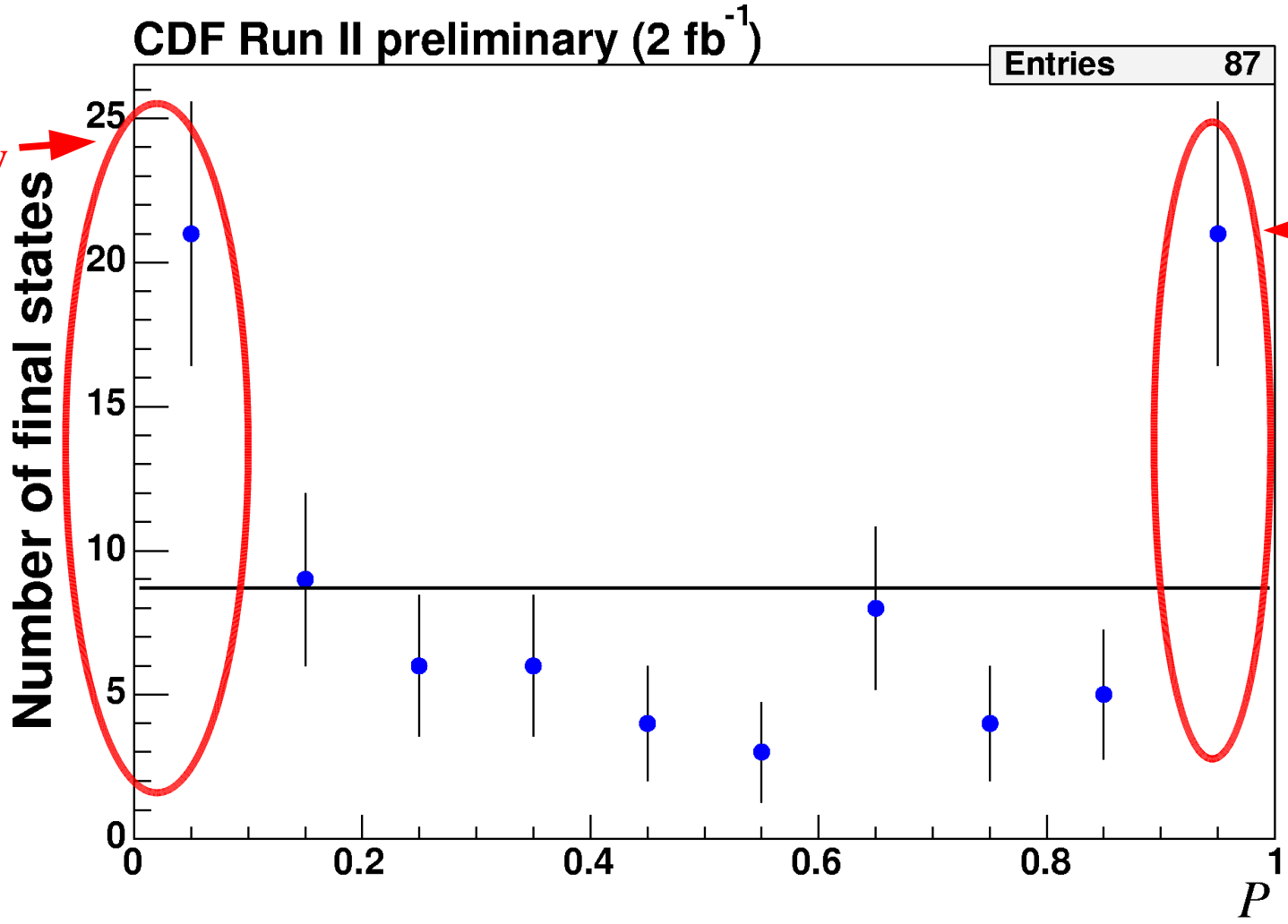
$$\sum p_T \equiv \sum_i |\vec{p}_i| + \left|\overrightarrow{\text{uncl}}\right| + \left|\vec{\not{p}}\right|,$$

- For each Sleuth final state:
  - scan the Σp_T spectrum
  - select one-sided region with most significant excess of data over SM prediction (require >=3 data events)
- Perform pseudo-experiments to assess the significance



Sleuth Results Summary

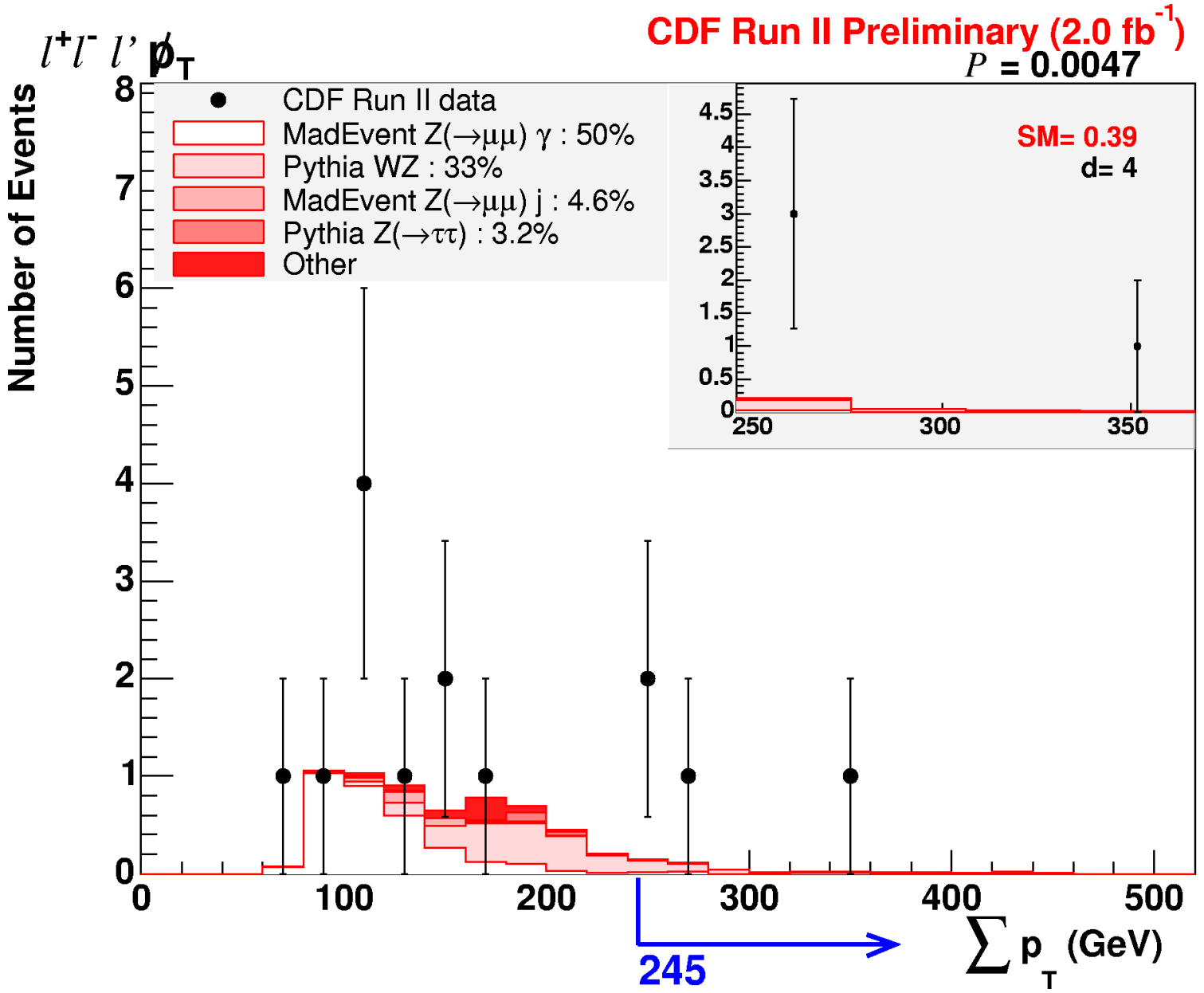
Maybe new physics here? Or just under-estimation of SM?



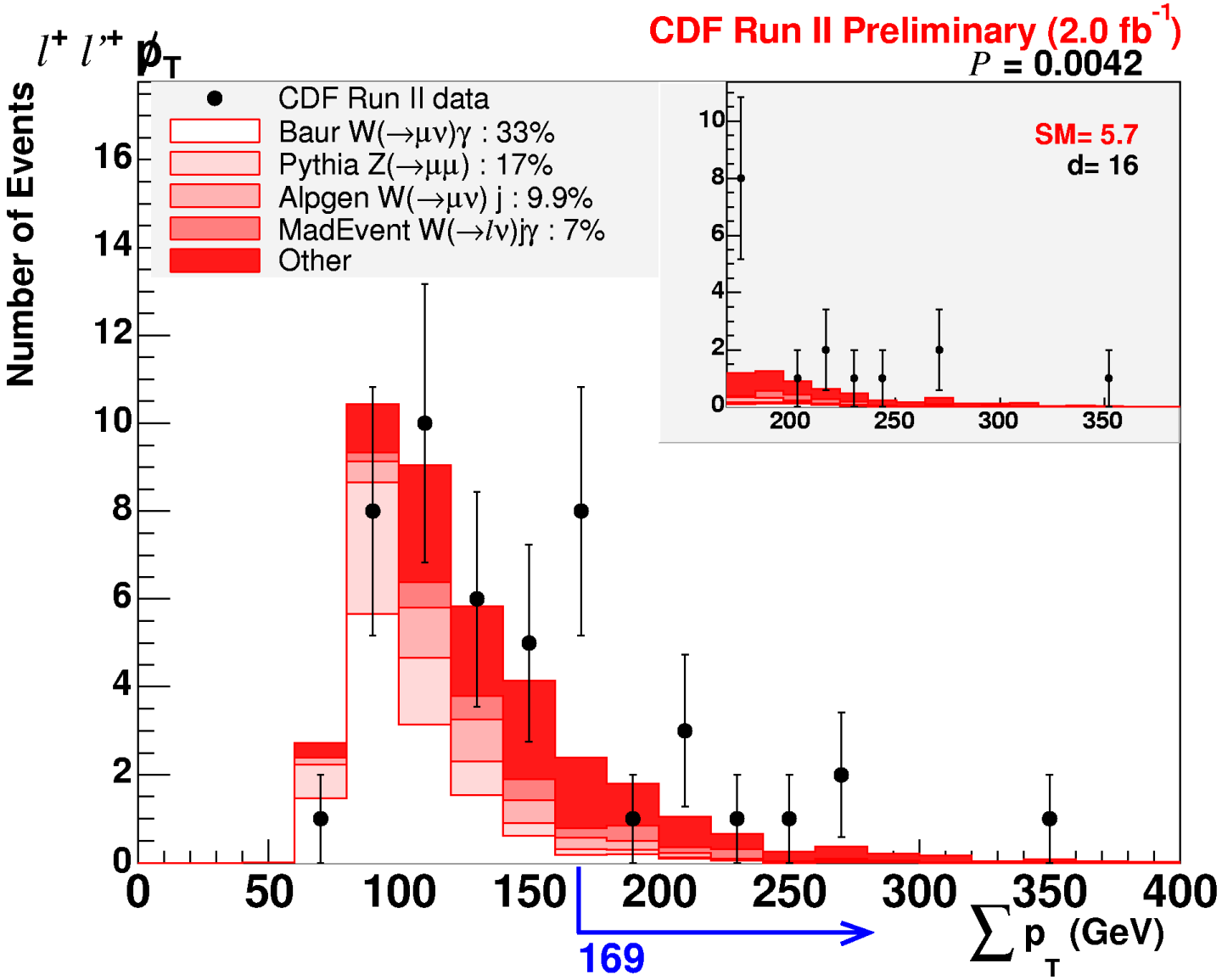
Probable over-estimation of SM background

If our simplified Standard Model prediction perfectly represented the data, we would expect this to be a uniform distribution

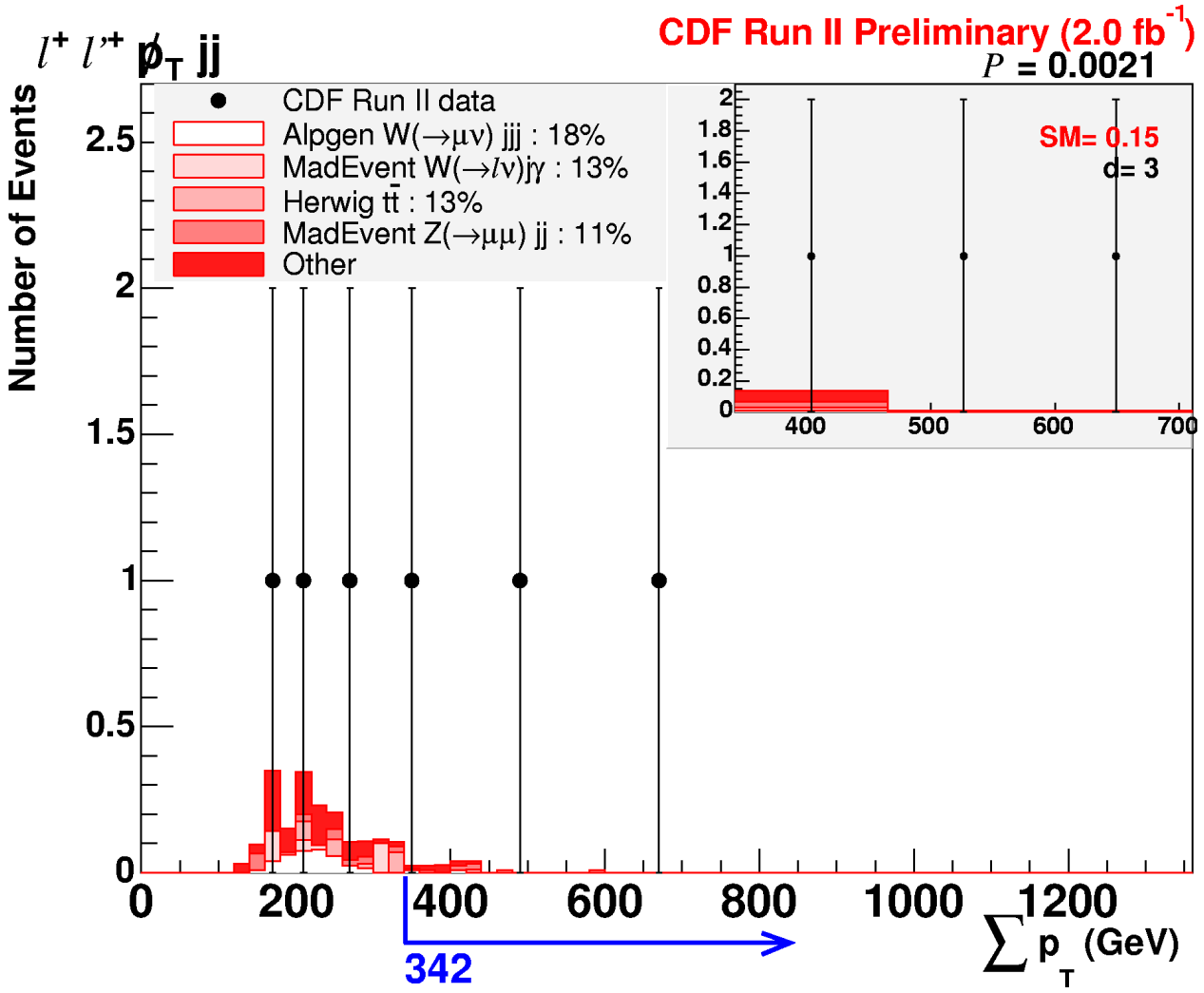
Sleuth #4 Final State



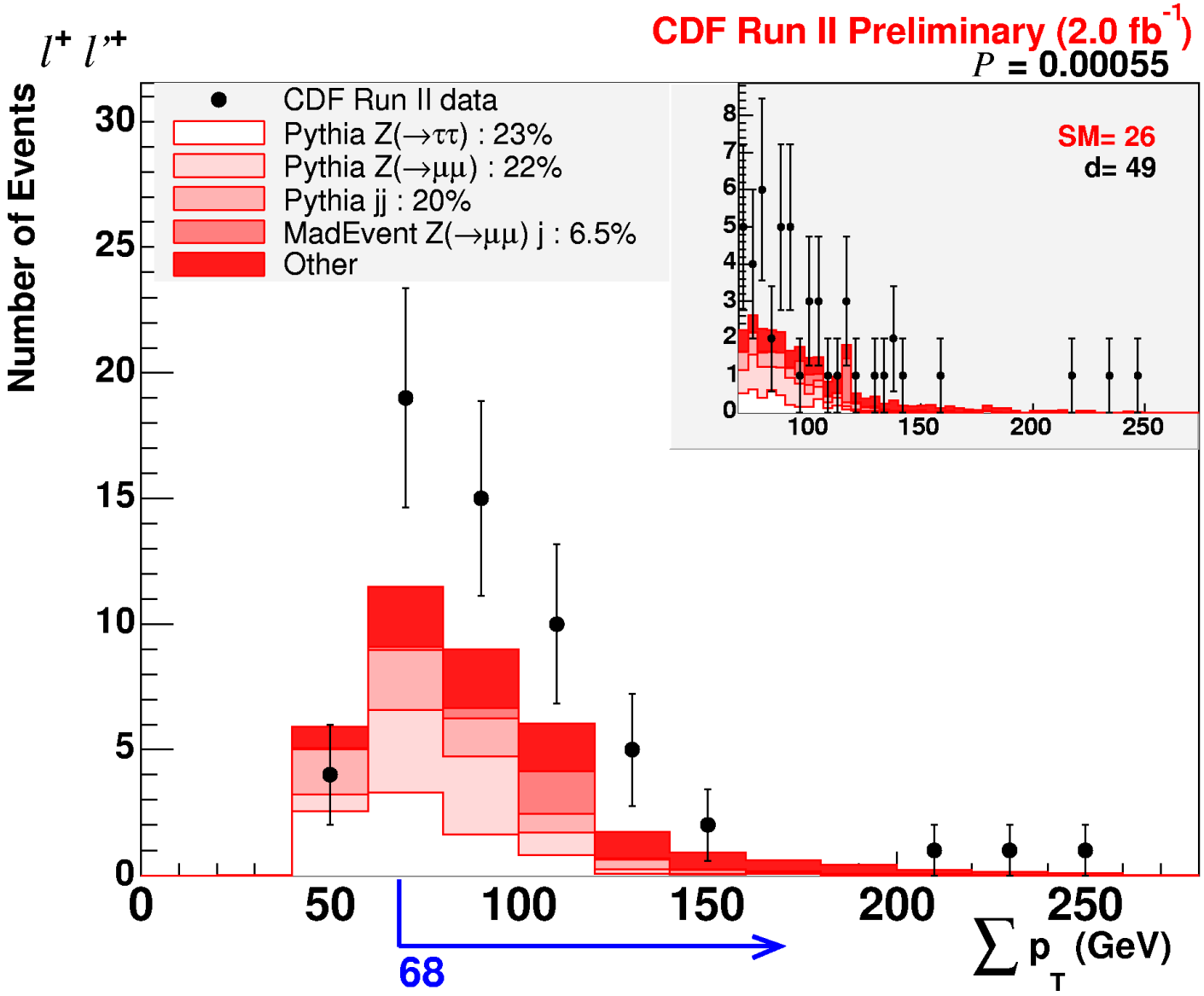
Sleuth #3 Final State



Sleuth #2 Final State



Sleuth #1 Final State



Sleuth Results

- How significant is the most discrepant excess seen by Sleuth, after accounting for the trials factor?
- Sadly, not very significant:
  - ~8% of hypothetical similar CDF experiments are expected to give a more interesting excess, purely by chance
- There is no discovery claim arising from Sleuth with 2.0 fb^{-1} of data

Conclusions

- CDF has performed a model-independent global search for new physics in 2.0 fb^{-1} of data
- Vista considered the bulk features of the high-p_T data: final state populations and shapes of kinematic distributions
- The Bump Hunter searched for narrow resonances in invariant mass distributions
- Sleuth searched for excesses of data at high sum-p_T
- None of these techniques found a significant (~5σ) effect that could motivate a new physics claim
- The hunt for new physics at the Tevatron will continue!

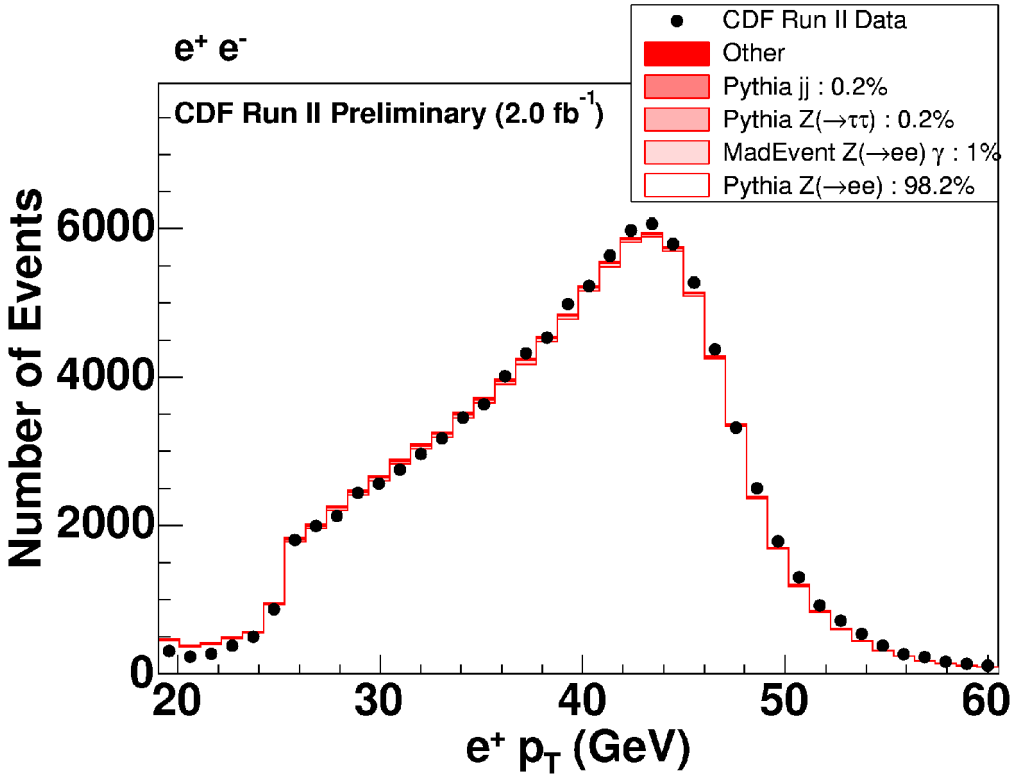
Backups

Vista Correction Factors

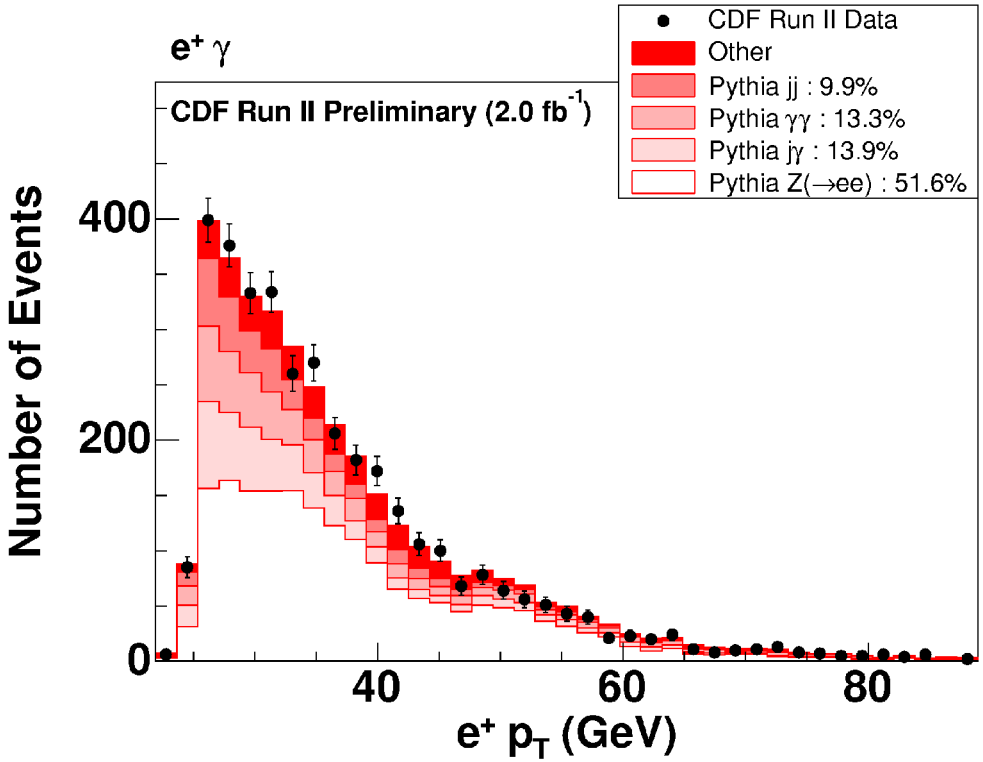
CDF Run II Preliminary (2.0 fb^{-1})

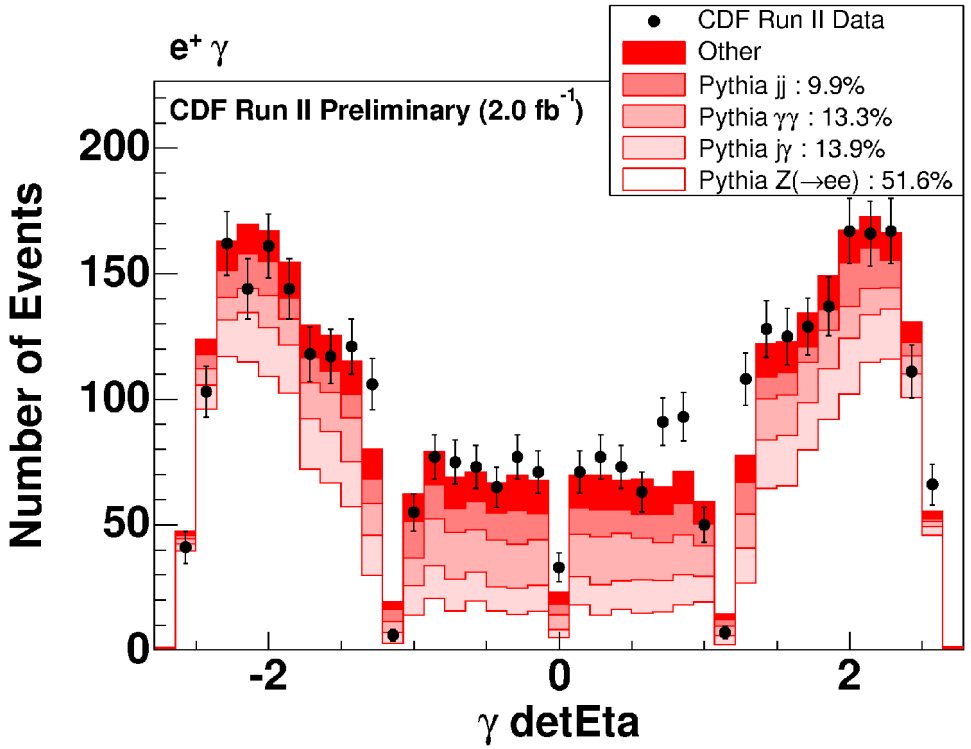
Code	Category	Explanation	Value	Error	Error(%)
0001	luminosity	CDF integrated luminosity	1990	50	2.6
0002	k-factor	cosmic_ph	0.83	0.05	6.0
0003	k-factor	cosmic_j	0.192	0.006	3.1
0004	k-factor	1γ1j photon+jet(s)	0.92	0.04	4.4
0005	k-factor	1γ2j	1.26	0.05	4.0
0006	k-factor	1γ3j	1.61	0.08	5.0
0007	k-factor	1γ4j+	1.94	0.16	8.3
0008	k-factor	2γ0j diphoton(+jets)	1.6	0.08	5.0
0009	k-factor	2γ1j	2.99	0.17	5.7
0010	k-factor	2γ2j+	1.2	0.09	7.5
0011	k-factor	W0j W (+jets)	1.38	0.03	2.2
0012	k-factor	W1j	1.33	0.03	2.3
0013	k-factor	W2j	1.99	0.05	2.5
0014	k-factor	W3j+	2.11	0.09	4.3
0015	k-factor	Z0j Z (+jets)	1.39	0.028	2.0
0016	k-factor	Z1j	1.23	0.04	3.2
0017	k-factor	Z2j+	1.02	0.04	3.9
0018	k-factor	2j $\hat{p}_T$<150 dijet	1.003	0.027	2.7
0019	k-factor	2j 150<$\hat{p}_T$	1.34	0.03	2.2
0020	k-factor	3j $\hat{p}_T$<150 multijet	0.941	0.025	2.7
0021	k-factor	3j 150<$\hat{p}_T$	1.48	0.04	2.7
0022	k-factor	4j $\hat{p}_T$<150	1.06	0.03	2.8
0023	k-factor	4j 150<$\hat{p}_T$	1.93	0.06	3.1
0024	k-factor	5j low	1.33	0.05	3.8
0025	k-factor	1b2j 150<$\hat{p}_T$	2.22	0.11	5.0
0026	k-factor	1b3j 150<$\hat{p}_T$	2.98	0.15	5.0
0027	misId	p(e→e) central	0.978	0.006	0.6
0028	misId	p(e→e) plug	0.966	0.007	0.7
0029	misId	p(μ→μ) CMUP+CMX	0.888	0.007	0.8
0030	misId	p(γ→γ) central	0.949	0.018	1.9
0031	misId	p(γ→γ) plug	0.859	0.016	1.9
0032	misId	p(b→b) central	0.978	0.021	2.1
0033	misId	p(γ→e) plug	0.06	0.003	5.0
0034	misId	p(q→e) central	7.09×10^{-5}	1.9×10^{-6}	2.7
0035	misId	p(q→e) plug	0.000766	1.2×10^{-5}	1.6
0036	misId	p(q→μ)	1.14×10^{-5}	6×10^{-7}	5.2
0037	misId	p(b→μ)	3.3×10^{-5}	1.1×10^{-5}	33.0
0038	misId	p(j→b) 25<p_T	0.0183	0.0002	1.1
0039	misId	p(q→τ)	0.0052	0.0001	1.9
0040	misId	p(q→γ) central	0.000266	1.4×10^{-5}	5.3
0041	misId	p(q→γ) plug	0.00048	6×10^{-5}	12.6
0042	trigger	p(e→trig) plug, p_T>25	0.86	0.007	0.8
0043	trigger	p(μ→trig) CMUP+CMX, p_T>25	0.916	0.004	0.4

Vista: W & Z Production



Vista: Determining Fake Rates





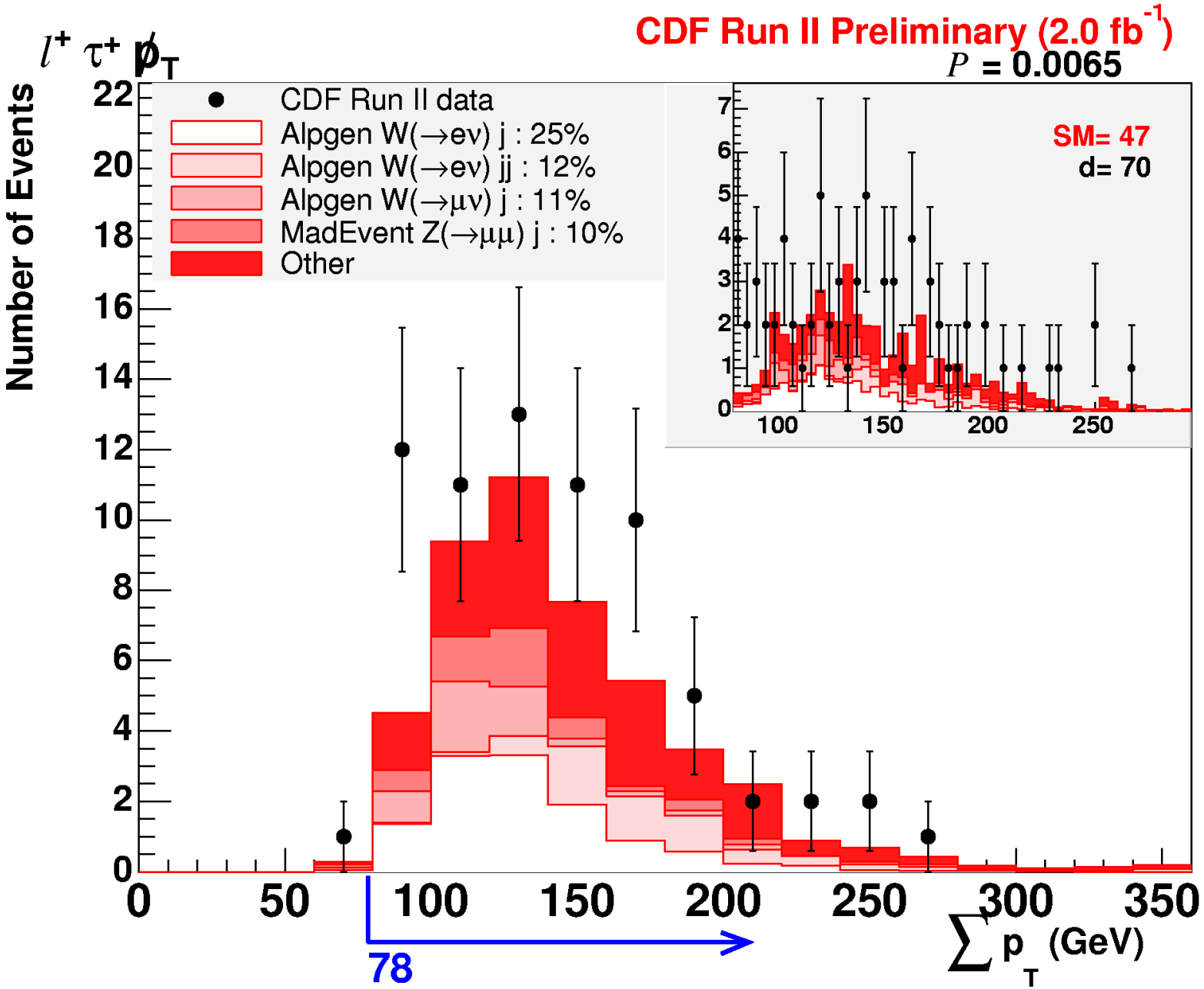
Sleuth Top 5 Summary

tildeScriptP = 8%

CDF Run II Preliminary (2.0 fb^{-1})

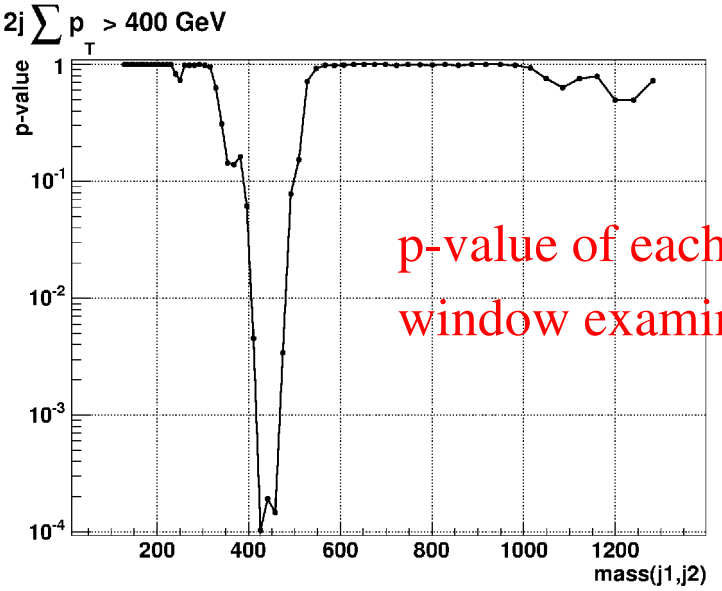
SLEUTH Final State	$\mathcal{P}$
$\ell^+\ell'^+$	0.00055
$\ell^+\ell'^+ \not{p} jj$	0.0021
$\ell^+\ell'^+ \not{p}$	0.0042
$\ell^+\ell^-\ell' \not{p}$	0.0047
$\ell^+\tau^+ \not{p}$	0.0065

Sleuth #5 Final State

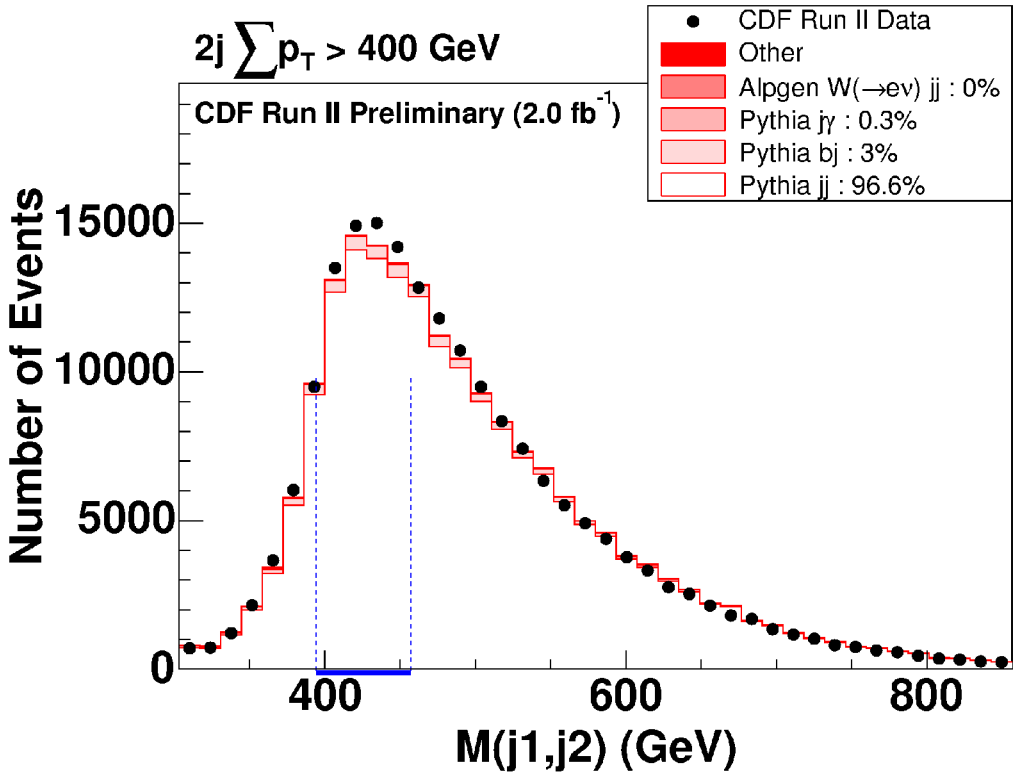


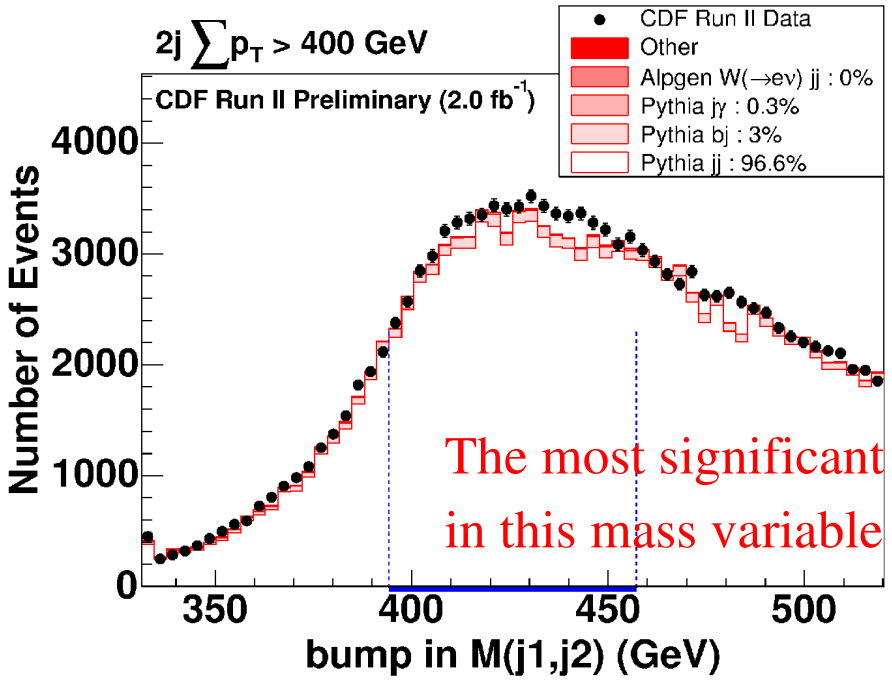
Bump Hunter Example

- Example of Bump Hunter scanning the dijet invariant mass distribution
- No significant bumps found here



p-value of each mass window examined





The most significant bump in this mass variable

Constrained Correction Factors

Category	Explanation	
luminosity	CDF integrated luminosity	
k-factor	cosmic_ph	
k-factor	cosmic_j	
k-factor	1ph1j	photon+jet(s)
k-factor	1ph2j	
k-factor	1ph3j	
k-factor	1ph4j+	
k-factor	2ph0j	diphoton(+jets)
k-factor	2ph1j	
k-factor	2ph2j+	
k-factor	W0j	W (+jets)
k-factor	W1j	
k-factor	W2j	
k-factor	W3j+	
k-factor	Z0j	Z (+jets)
k-factor	Z1j	
k-factor	Z2j+	
k-factor	2j pt<150	dijet
k-factor	2j 150<pt	
k-factor	3j pt<150	multijet
k-factor	3j 150<pt	
k-factor	4j pt<150	
k-factor	4j 150<pt	
k-factor	5j+ low	

Category	Explanation	
misId	p(e->e)	central
misId	p(e->e)	plug
misId	p(mu->mu)	CMUP
misId	p(mu->mu)	CMX
misId	p(ph->ph)	central
misId	p(ph->ph)	plug
misId	p(b->b)	central
misId	p(e->ph)	plug
misId	p(q->e)	central
misId	p(q->e)	plug
misId	p(q->mu)	
misId	p(j->b)	25<pt
misId	p(q->tau)	15<pt<60
misId	p(q->tau)	60<pt<200
misId	p(q->ph)	central
misId	p(q->ph)	plug
trigger	p(e->trig)	central, pt>25
trigger	p(e->trig)	plug, pt>25
trigger	p(mu->trig)	CMUP, pt>25
trigger	p(mu->trig)	CMX, pt>25

Has external constraint

Part of inclusive constraint

Vista Correction Factor Constraints

Code	Description	Value	σ_{fit}	$\mu_{\text{constraint}}$	$\sigma_{\text{constraint}}$	$\frac{\text{value}-\mu}{\sigma_{\text{constraint}}}$
5001	luminosity	927.1	20	901.9	53.11	0.47
5161	k-factor, 2j $\hat{p}_T < 150$	0.96	0.02	1.100	0.050	-2.8
5162	k-factor, 2j $150 < \hat{p}_T$	1.26	0.03	1.330	0.050	-1.4
5211	misId, $p(e \to e)$ central	0.99	0.01	0.981	0.007	1.29
5212	misId, $p(e \to e)$ plug	0.93	0.01	0.940	0.010	-1
5216	misId, $p(\gamma \to \gamma)$ central	0.97	0.02	0.990	0.020	-1
5217	misId, $p(\gamma \to \gamma)$ plug	0.91	0.02	0.910	0.020	0
5219	misId, $p(b \to b)$ central	1	0.04	0.874	0.080	1.58
5285	misId, $p(q \to \tau) 15 < \hat{p}_T < 60$	3.4×10^{-3}	1.0×10^{-4}	0.004	0.0004	-1.5
5401	trigger, $p(e \to trig)$ central, $\hat{p}_T > 25$	0.98	0.01	0.970	0.010	1
5403	trigger , $p(\mu \to trig)$ CMUP, $\hat{p}_T > 25$	0.92	0.01	0.908	0.010	1.2
5404	trigger , $p(\mu \to trig)$ CMX, $\hat{p}_T > 25$	0.96	0.01	0.954	0.015	0.4

Plus inclusive constraints on: W+jets; Z+jets; (di)photon+jets

Publications

Global Search at CDF on 1.0 fb^{-1}:

arXiv:0712.2534 submitted to Phys Rev Lett.

arXiv:0712.1311 accepted by Phys Rev D

Sleuth previously used in searches at D0 and H1:

D0, Phys. Rev. Lett. 86, 3712 (2001)

D0, Phys. Rev. D 62, 092004 (2000)

D0, Phys. Rev. D 64, 012004 (2001)

H1, Phys. Lett. B 602, 14 (2004)