Top to stop data analysis update

OUTLINE

- W+jets cross sections
- QCD background estimate
- A new optimization results

$e\nu$

(W->eν)+4jets: **3.1+-1.4**(pb) *from CDF paper PRD **63**(2001)072003*

(W->$\mu\nu$)+4jets: **3.1+-1.4**(pb) *branching ratio is the same as above*

(W->$\nu\tau$->leptonically)+4jets: **1.1+-0.5**(pb) *(3.1/10.9%)(10.9%35%)*

(W->$\nu\tau$->hadronically)+3jets: **11.9+-3.4**(pb) *(18.4/10.9%)(10.9%65%)*

Table 1: All the background sources at optimized cuts

$\not\!\!E_T$	$E_T(1)$	H_T	arc1	arc2	tt	Wth	Wen	Wmn	Wtl	WW	WZ	Z_{nn1}	Z_{nn2}	Z_{nn3}	Z_{nn4}	Z_{tt1}	Z_{tt2}	Z_{tt3}	Z_{tt4}
100.0	100.0	60.0	5.0	0.0	2.038	0.539	0.096	0.288	0.387	0.285	0.012	0.000	0.022	0.072	0.021	0.000	0.000	0.104	0.016
100.0	100.0	60.0	5.0	0.0	2.676	0.539	0.096	0.288	0.387	0.285	0.012	0.000	0.022	0.072	0.021	0.000	0.000	0.104	0.016
100.0	80.0	60.0	5.0	0.0	2.497	0.809	0.176	0.496	0.564	0.437	0.021	0.000	0.033	0.099	0.022	0.000	0.000	0.130	0.016
100.0	80.0	60.0	5.0	0.0	2.804	0.809	0.176	0.496	0.564	0.437	0.021	0.000	0.033	0.099	0.022	0.000	0.000	0.130	0.016
100.0	80.0	60.0	5.0	0.0	3.022	0.809	0.176	0.496	0.564	0.437	0.021	0.000	0.033	0.099	0.022	0.000	0.000	0.130	0.016
100.0	80.0	60.0	5.0	0.0	4.282	0.809	0.176	0.496	0.564	0.437	0.021	0.000	0.033	0.099	0.022	0.000	0.000	0.130	0.016
100.0	100.0	60.0	5.0	0.0	1.316	0.539	0.096	0.288	0.387	0.285	0.012	0.000	0.022	0.072	0.021	0.000	0.000	0.104	0.016
100.0	80.0	60.0	5.0	0.0	2.315	0.809	0.176	0.496	0.564	0.437	0.021	0.000	0.033	0.099	0.022	0.000	0.000	0.130	0.016
100.0	80.0	60.0	5.0	0.0	2.460	0.809	0.176	0.496	0.564	0.437	0.021	0.000	0.033	0.099	0.022	0.000	0.000	0.130	0.016
100.0	80.0	60.0	5.0	0.0	2.560	0.809	0.176	0.496	0.564	0.437	0.021	0.000	0.033	0.099	0.022	0.000	0.000	0.130	0.016
140.0	80.0	60.0	5.0	0.0	0.665	0.180	0.016	0.112	0.161	0.171	0.004	0.000	0.005	0.054	0.018	0.000	0.000	0.026	0.008
100.0	80.0	60.0	5.0	0.0	4.585	0.809	0.176	0.496	0.564	0.437	0.021	0.000	0.033	0.099	0.022	0.000	0.000	0.130	0.016
120.0	40.0	60.0	5.0	0.0	1.380	0.359	0.112	0.352	0.419	0.294	0.016	0.000	0.016	0.090	0.021	0.000	0.000	0.078	0.008
100.0	80.0	60.0	5.0	0.0	2.152	0.809	0.176	0.496	0.564	0.437	0.021	0.000	0.033	0.099	0.022	0.000	0.000	0.130	0.016
100.0	80.0	60.0	5.0	0.0	2.179	0.809	0.176	0.496	0.564	0.437	0.021	0.000	0.033	0.099	0.022	0.000	0.000	0.130	0.016
140.0	80.0	60.0	5.0	0.0	0.518	0.180	0.016	0.112	0.161	0.171	0.004	0.000	0.005	0.054	0.018	0.000	0.000	0.026	0.008
120.0	40.0	60.0	5.0	0.0	1.485	0.359	0.112	0.352	0.419	0.294	0.016	0.000	0.016	0.090	0.021	0.000	0.000	0.078	0.008
140.0	80.0	60.0	5.0	0.0	0.571	0.180	0.016	0.112	0.161	0.171	0.004	0.000	0.005	0.054	0.018	0.000	0.000	0.026	0.008
120.0	40.0	60.0	5.0	0.0	1.770	0.359	0.112	0.352	0.419	0.294	0.016	0.000	0.016	0.090	0.021	0.000	0.000	0.078	0.008
100.0	80.0	60.0	5.0	0.0	3.034	0.809	0.176	0.496	0.564	0.437	0.021	0.000	0.033	0.099	0.022	0.000	0.000	0.130	0.016
100.0	80.0	60.0	5.0	0.0	2.083	0.809	0.176	0.496	0.564	0.437	0.021	0.000	0.033	0.099	0.022	0.000	0.000	0.130	0.016
100.0	80.0	60.0	5.0	0.0	3.103	0.809	0.176	0.496	0.564	0.437	0.021	0.000	0.033	0.099	0.022	0.000	0.000	0.130	0.016
120.0	60.0	60.0	5.0	0.0	2.148	0.359	0.112	0.320	0.403	0.285	0.016	0.000	0.016	0.090	0.021	0.000	0.000	0.078	0.008
120.0	40.0	60.0	5.0	0.0	2.582	0.359	0.112	0.352	0.419	0.294	0.016	0.000	0.016	0.090	0.021	0.000	0.000	0.078	0.008
100.0	80.0	60.0	5.0	0.0	4.111	0.809	0.176	0.496	0.564	0.437	0.021	0.000	0.033	0.099	0.022	0.000	0.000	0.130	0.016
120.0	40.0	60.0	5.0	0.0	2.698	0.359	0.112	0.352	0.419	0.294	0.016	0.000	0.016	0.090	0.021	0.000	0.000	0.078	0.008
100.0	100.0	60.0	5.0	0.0	2.500	0.539	0.096	0.288	0.387	0.285	0.012	0.000	0.022	0.072	0.021	0.000	0.000	0.104	0.016
100.0	80.0	60.0	5.0	0.0	4.551	0.809	0.176	0.496	0.564	0.437	0.021	0.000	0.033	0.099	0.022	0.000	0.000	0.130	0.016

QCD background estimate

Use inclusive jet trigger to estimate:

- 70>Et(1)>45GeV: **jet_30 + jet_3_mon**: **0.867+0.356** (pb^-1)
- 115>Et(1)>70: **jet_50**: **4.68** (pb^-1)
- Et(1)>115 GeV: **jet_85**: **57.09** (pb^-1)

make mEt spectrum (red) at low range
fit with 3 functions and extrapolate to high mEt range. The area under the fitted function outside a threshold mEc is S,
the QCD background is

Nqcd=(S/L)(81.23)/(5)

the fitting with smallest chi^2 is chosen as QCD background.

- ***Data sample has small statistics at low Et***
- ***No jetpointing consideration***

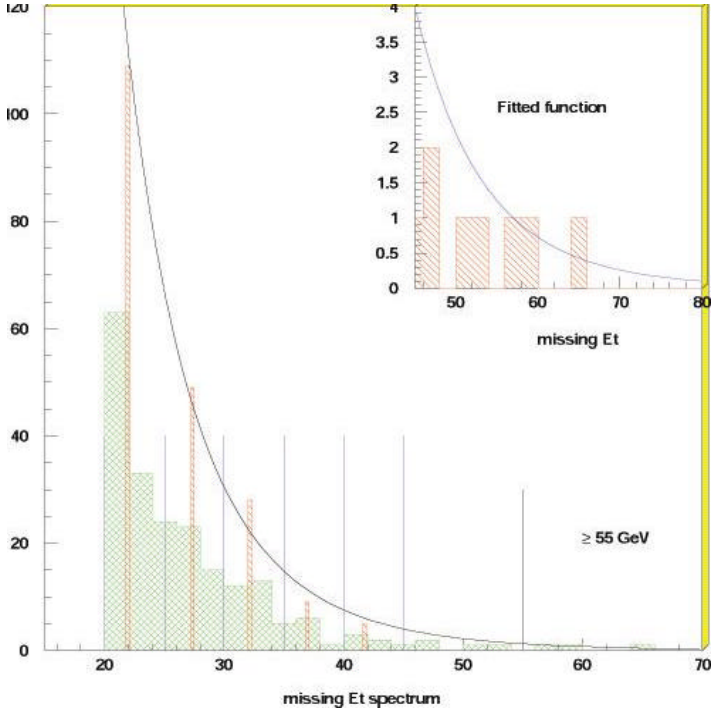

Table 1: Comparision of data and backgrounds at optimized cuts

μ	$M_{\tilde{g}}$	$\not\!\!E_T$	jet1	H_T	arc1	arc2	$s/\sqrt{b}$	signal	Phy bkg	QCD	bkgd	data
160	655	100.0	100.0	60.0	0.5	0.0	2.9	6.5	$3.9 \pm 0.3\,^{0.2}_{0.9}$	0.5 ± 0.2	4.4 ± 1.0	
160	670	100.0	100.0	60.0	0.5	0.0	0.9	2.2	$4.5 \pm 0.3\,^{0.9}_{0.9}$	0.5 ± 0.2	5.0 ± 1.0	
165	600	100.0	80.0	60.0	0.5	0.0	4.3	11.4	$5.3 \pm 0.4\,^{1.5}_{1.4}$	0.9 ± 0.3	6.2 ± 1.5	
165	640	100.0	80.0	60.0	0.5	0.0	3.7	10.0	$5.6 \pm 0.4\,^{1.5}_{1.4}$	0.9 ± 0.3	6.5 ± 1.6	
165	655	100.0	80.0	60.0	0.5	0.0	4.2	11.6	$5.8 \pm 0.4\,^{1.5}_{1.4}$	0.9 ± 0.3	6.7 ± 1.6	
165	685	100.0	80.0	60.0	0.5	0.0	1.4	4.1	$7.1 \pm 0.4\,^{1.5}_{1.4}$	0.9 ± 0.3	8.0 ± 1.6	
170	560	100.0	100.0	60.0	0.5	0.0	5.0	10.4	$3.2 \pm 0.3\,^{0.9}_{0.9}$	0.5 ± 0.2	3.7 ± 1.0	
170	590	100.0	80.0	60.0	0.5	0.0	4.5	11.9	$5.1 \pm 0.4\,^{1.5}_{1.4}$	0.9 ± 0.3	6.0 ± 1.5	
170	625	100.0	80.0	60.0	0.5	0.0	4.2	11.2	$5.3 \pm 0.4\,^{1.5}_{1.4}$	0.9 ± 0.3	6.2 ± 1.5	
170	640	100.0	80.0	60.0	0.5	0.0	4.5	12.1	$5.4 \pm 0.4\,^{1.5}_{1.4}$	0.9 ± 0.3	6.3 ± 1.6	
170	670	140.0	80.0	60.0	0.5	0.0	4.5	6.1	$1.4 \pm 0.2\,^{0.3}_{0.4}$	0.0 ± 0.0	1.4 ± 0.4	
170	705	100.0	80.0	60.0	0.5	0.0	0.6	1.7	$7.4 \pm 0.4\,^{1.5}_{1.4}$	0.9 ± 0.3	8.3 ± 1.6	
175	520	120.0	40.0	60.0	0.5	0.0	5.0	10.3	$3.1 \pm 0.3\,^{0.9}_{0.9}$	0.6 ± 0.1	3.7 ± 1.0	
175	550	100.0	80.0	60.0	0.5	0.0	4.7	12.1	$5.0 \pm 0.3\,^{1.5}_{1.4}$	0.9 ± 0.3	5.8 ± 1.5	
175	580	100.0	80.0	60.0	0.5	0.0	4.8	12.5	$5.0 \pm 0.3\,^{1.5}_{1.4}$	0.9 ± 0.3	5.9 ± 1.5	
175	615	140.0	80.0	60.0	0.5	0.0	5.4	7.0	$1.3 \pm 0.2\,^{0.3}_{0.4}$	0.0 ± 0.0	1.3 ± 0.4	
175	630	120.0	40.0	60.0	0.5	0.0	5.5	11.4	$3.3 \pm 0.3\,^{0.9}_{0.9}$	0.6 ± 0.1	3.8 ± 1.0	
175	660	140.0	80.0	60.0	0.5	0.0	4.9	6.5	$1.3 \pm 0.2\,^{0.3}_{0.4}$	0.0 ± 0.0	1.4 ± 0.4	
175	685	120.0	40.0	60.0	0.5	0.0	4.8	10.3	$3.5 \pm 0.3\,^{0.9}_{0.9}$	0.6 ± 0.1	4.1 ± 1.0	
175	700	100.0	80.0	60.0	0.5	0.0	4.2	11.5	$5.8 \pm 0.4\,^{1.5}_{1.4}$	0.9 ± 0.3	6.7 ± 1.6	
180	510	100.0	80.0	60.0	0.5	0.0	4.7	12.2	$4.9 \pm 0.3\,^{1.5}_{1.4}$	0.9 ± 0.3	5.8 ± 1.5	
400	350	100.0	80.0	60.0	0.5	0.0	3.8	10.7	$5.9 \pm 0.4\,^{1.5}_{1.4}$	0.9 ± 0.3	6.8 ± 1.6	
370	350	120.0	60.0	60.0	0.5	0.0	2.7	6.1	$3.9 \pm 0.3\,^{0.9}_{0.9}$	0.8 ± 0.3	4.7 ± 1.0	
370	400	120.0	40.0	60.0	0.5	0.0	2.6	6.1	$4.3 \pm 0.3\,^{0.9}_{0.9}$	0.6 ± 0.1	4.9 ± 1.0	
350	400	100.0	80.0	60.0	0.5	0.0	1.7	5.1	$6.9 \pm 0.4\,^{1.5}_{1.4}$	0.9 ± 0.3	7.8 ± 1.6	
330	400	120.0	40.0	60.0	0.5	0.0	1.6	3.7	$4.5 \pm 0.3\,^{0.9}_{0.9}$	0.6 ± 0.1	5.0 ± 1.0	
330	450	100.0	100.0	60.0	0.5	0.0	1.4	3.2	$4.3 \pm 0.3\,^{0.9}_{0.9}$	0.5 ± 0.2	4.9 ± 1.0	
300	450	100.0	80.0	60.0	0.5	0.0	0.9	2.8	$7.4 \pm 0.4\,^{1.5}_{1.4}$	0.9 ± 0.3	8.2 ± 1.6	