

0.1 $\tilde{g}\tilde{g}$ one step (1065, 785, 505): (ATLAS_CONF_2013_047)

- Process: $pp \rightarrow \tilde{g}\tilde{g} : \tilde{g} \rightarrow qq\chi_1^\pm \rightarrow W^\pm qq\tilde{\chi}_1^0$.
- Mass: $m_{\tilde{q}} = 1065$ GeV, $m_{\tilde{\chi}_1^\pm} = 785$ GeV, $m_{\tilde{\chi}_1^0} = 505$ GeV.
- The number of events: $2 \cdot 10^4$.
- Event Generator: **MadGraph 5** and **Pythia 6**. The MLM merging is used with the shower- k_T scheme implemented in MadGraph 5 and Pythia 6, where we take $\text{xqcut} = \text{qcut} = M_{\text{SUSY}}/4$ with MSUSY being the mass of the heavier SUSY particles in the production.

#	cut name	ϵ_{Exp}	ϵ_{Atom}	$\frac{\text{Atom}}{\text{Exp}}$	$\frac{(\text{Exp}-\text{Atom})}{\text{Error}}$	#/?	R_{Exp}	R_{Atom}	$\frac{\text{Atom}}{\text{Exp}}$	$\frac{(\text{Exp}-\text{Atom})}{\text{Error}}$
0	No cut	100.0	100.0							
1	base: 0 lepton	63.7 ± 0.56	65.01 ± 0.34	1.02	1.99	0	0.64 ± 0.01	0.65 ± 0.0	1.02	1.99
2	base: MET > 160	50.04 ± 0.5	50.89 ± 0.35	1.02	1.39	1	0.79 ± 0.01	0.78 ± 0.01	1.0	-0.29
3	base: $p_T(j_1) > 130$	49.28 ± 0.5	49.79 ± 0.35	1.01	0.82	2	0.98 ± 0.01	0.98 ± 0.01	0.99	-0.54
4	base: $p_T(j_2) > 60$	49.25 ± 0.5	49.73 ± 0.35	1.01	0.8	3	1.0 ± 0.01	1.0 ± 0.01	1.0	-0.02
5	$p_T(j_3) > 60$	48.6 ± 0.49	48.88 ± 0.35	1.01	0.46	4	0.99 ± 0.01	0.98 ± 0.01	1.0	-0.33
6	$p_T(j_4) > 60$	44.55 ± 0.47	44.42 ± 0.35	1.0	-0.21	5	0.92 ± 0.01	0.91 ± 0.01	0.99	-0.64
7	$p_T(j_5) > 60$	34.4 ± 0.41	33.06 ± 0.33	0.96	-2.52	6	0.77 ± 0.01	0.74 ± 0.01	0.96	-2.34
8	D base: $\Delta\phi(j_i, \text{MET}) > 0.4$	29.23 ± 0.38	28.42 ± 0.32	0.97	-1.64	7	0.85 ± 0.01	0.86 ± 0.01	1.01	0.66
9	D base: $\Delta\phi(j_i > 40, \text{MET}) > 0.2$	24.64 ± 0.35	24.4 ± 0.3	0.99	-0.51	8	0.84 ± 0.01	0.86 ± 0.01	1.02	0.99
10	DM: MET/ $m_{\text{eff}}(5j) > 0.2$	21.59 ± 0.33	21.81 ± 0.29	1.01	0.49	9	0.88 ± 0.01	0.89 ± 0.01	1.02	0.97
11	DM: $m_{\text{eff}}(\text{inc}) > 1600$	1.97 ± 0.1	1.87 ± 0.1	0.95	-0.74	10	0.09 ± 0.0	0.09 ± 0.0	0.94	-0.88

Table 1: The cut-flow table for D signal region: $\tilde{g}\tilde{g}$ one step (1065, 785, 505).