Weekly update

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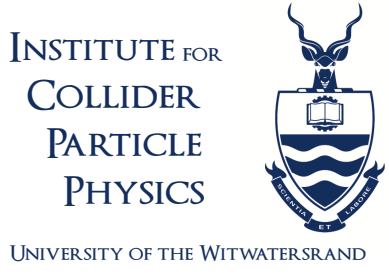

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DiHiggs to 4ℓ analysis

The impact of removing D_0/Z_0 cut from the electrons

	Non-Res	$q\bar{q} \to ZZ$	$q\bar{q} \to ZZ$ (EW)	$t\bar{t}Z$	VVV	Z
Preselection	0.125±0.005	928.41±3.80	12.21±0.16	75.40±0.87	9.23±0.10	0.0039±0.0000
0/1-SFOS	0.063±0.003	28.54±0.92	0.24±0.02	38.02±0.62	4.26±0.07	0.0075±0.0000
$\lvert m_{Z_2} - m_Z \rvert < 25$ GeV	0.024±0.002	16.79±0.74	0.14±0.01	8.68±0.30	3.62±0.06	0.0045±0.0000
$\lvert m_{Z_2} - m_Z \rvert > 20$ GeV	0.029±0.002	1.34±0.18	0.02±0.00	0.96±0.10	0.21±0.02	0.0182±0.0001
2-SFOS	0.061±0.248	899.87±30.00	11.97±3.46	37.38±6.11	4.97±2.23	0.0020±0.0022
$\lvert m_{Z_1} - m_Z \rvert > 25$ GeV	0.030±0.002	18.03±0.66	0.67±0.03	5.48±0.24	2.08±0.05	0.0058±0.0000

Table: Before removing the D_0/Z_0 from the electrons

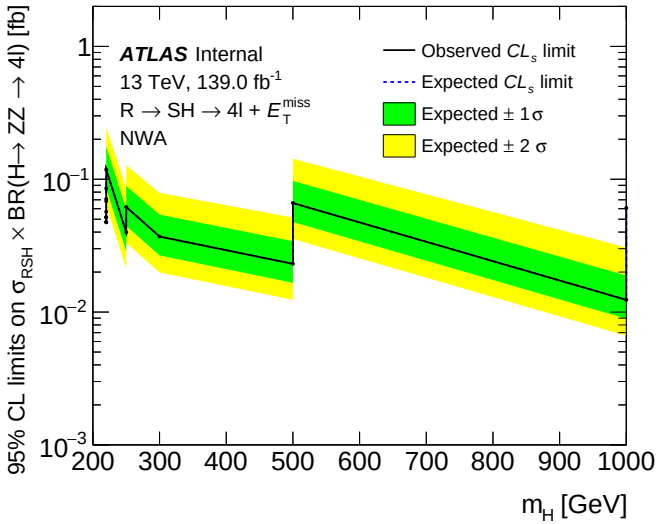
	Non-Res	$q\bar{q} \to ZZ$	$q\bar{q} \to ZZ$ (EW)	$t\bar{t}Z$	VVV	Z
Preselection	0.125±0.005	928.41±3.80	12.21±0.16	75.40±0.87	9.23±0.10	0.0039±0.0000
0/1-SFOS	0.063±0.003	28.54±0.92	0.24±0.02	38.02±0.62	4.26±0.07	0.0075±0.0000
$\lvert m_{Z_2} - m_Z \rvert < 25$ GeV	0.025±0.002	17.70±0.75	0.15±0.01	8.76±0.30	3.66±0.06	0.0046±0.0000
$\lvert m_{Z_2} - m_Z \rvert > 20$ GeV	0.030±0.002	1.44±0.18	0.02±0.00	0.97±0.10	0.22±0.02	0.0187±0.0001
2-SFOS	0.061±0.248	899.87±30.00	11.97±3.46	37.38±6.11	4.97±2.23	0.0020±0.0022
$\lvert m_{Z_1} - m_Z \rvert > 25$ GeV	0.031±0.002	18.88±0.69	0.67±0.03	5.58±0.24	2.10±0.05	0.0059±0.0001

Table: After removing the D_0/Z_0 from the electrons

$4\ell + E_{\mathrm{T}}^{\mathrm{miss}}$ analysis

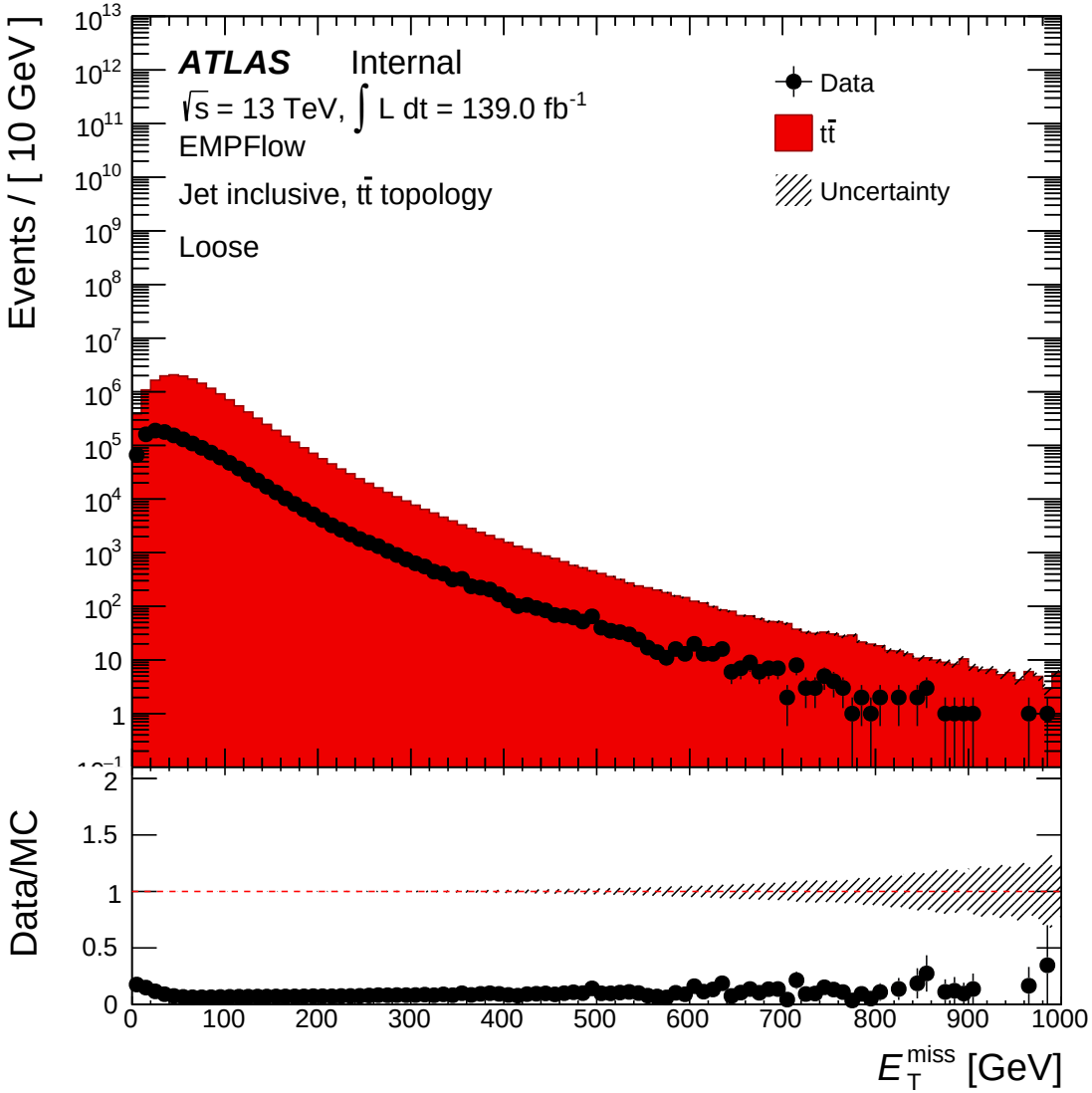
Upper limits on the xs times the branching ratio

mass point = m_R, m_H [GeV]	-2σ	-1σ	Median	$+1\sigma$	$+2\sigma$
390, 220	0.064	0.085	0.119	0.177	0.246
410, 220	0.046	0.062	0.086	0.129	0.180
430, 220	0.038	0.051	0.071	0.106	0.149
450, 220	0.037	0.049	0.069	0.103	0.144
580, 220	0.031	0.041	0.057	0.086	0.121
450, 250	0.033	0.045	0.062	0.089	0.127
800, 220	0.028	0.038	0.052	0.079	0.112
880, 220	0.028	0.037	0.051	0.078	0.111
800, 300	0.020	0.027	0.037	0.054	0.079
670, 500	0.036	0.048	0.066	0.097	0.143
800, 500	0.012	0.017	0.023	0.034	0.051
1380, 220	0.026	0.035	0.048	0.072	0.103
1500, 220	0.026	0.034	0.048	0.072	0.103
1500, 250	0.021	0.029	0.040	0.059	0.087
1170, 1000	0.033	0.044	0.061	0.092	0.146
1500, 1000	0.007	0.009	0.012	0.019	0.031



$E_{\mathrm{T}}^{\mathrm{miss}}$ Performance

$t\bar{t}$ events



Thank you!