

| Uncertainty of channel                        | SR2L_Top2L          | SR2L_SingleTop       |
|---|---------------------|----------------------|
| Total background expectation                  | 1.17                | 0.11                 |
| Total statistical ( $\sqrt{N_{\text{exp}}}$ ) | $\pm 1.08$          | $\pm 0.33$           |
| Total background systematic                   | $\pm 0.98$ [83.76%] | $\pm 0.32$ [289.34%] |
| alpha_JER_EffectiveNP_3                       | $\pm 0.43$ [37.0%]  | $\pm 0.13$ [114.9%]  |
| alpha_JER_EffectiveNP_1                       | $\pm 0.35$ [30.0%]  | $\pm 0.13$ [114.9%]  |
| alpha_MatrixElement-Top2L                     | $\pm 0.30$ [26.0%]  | $\pm 0.00$ [0.00%]   |
| alpha_JER_EffectiveNP_2                       | $\pm 0.28$ [24.0%]  | $\pm 0.13$ [114.9%]  |
| alpha_JER_EffectiveNP_5                       | $\pm 0.26$ [22.0%]  | $\pm 0.13$ [114.9%]  |
| alpha_JES_Group1                              | $\pm 0.24$ [20.5%]  | $\pm 0.00$ [0.24%]   |
| alpha_ISR-Top2L                               | $\pm 0.24$ [20.4%]  | $\pm 0.00$ [0.00%]   |
| alpha_JES_Group2                              | $\pm 0.24$ [20.2%]  | $\pm 0.00$ [2.5%]    |
| alpha_JER_EffectiveNP_7restTerm               | $\pm 0.23$ [20.0%]  | $\pm 0.13$ [115.0%]  |
| alpha_JER_EffectiveNP_6                       | $\pm 0.22$ [19.0%]  | $\pm 0.03$ [29.7%]   |
| alpha_PartonShower-Top2L                      | $\pm 0.21$ [17.9%]  | $\pm 0.00$ [0.00%]   |
| alpha_JET_Flavor_Response                     | $\pm 0.19$ [16.5%]  | $\pm 0.00$ [2.4%]    |
| alpha_JER_EffectiveNP_4                       | $\pm 0.18$ [15.0%]  | $\pm 0.13$ [115.0%]  |
| alpha_JER_DataVsMC                            | $\pm 0.11$ [9.0%]   | $\pm 0.03$ [29.6%]   |
| gamma_stat_SR2L_cuts_bin_0                    | $\pm 0.10$ [8.4%]   | $\pm 0.01$ [8.4%]    |
| alpha_pileup                                  | $\pm 0.04$ [3.5%]   | $\pm 0.00$ [0.00%]   |
| alpha_MET_SoftTrk_ResoPara                    | $\pm 0.03$ [2.6%]   | $\pm 0.00$ [0.00%]   |
| alpha_FSR-Top2L                               | $\pm 0.03$ [2.2%]   | $\pm 0.00$ [0.00%]   |
| alpha_MET_SoftTrk_ResoPerp                    | $\pm 0.02$ [1.7%]   | $\pm 0.00$ [0.00%]   |
| alpha_btag_BT                                 | $\pm 0.02$ [1.5%]   | $\pm 0.00$ [0.00%]   |
| alpha_MUON_Trig_sys                           | $\pm 0.02$ [1.4%]   | $\pm 0.00$ [0.00%]   |
| alpha_MET_SoftTrk                             | $\pm 0.02$ [1.3%]   | $\pm 0.00$ [0.00%]   |
| alpha_EG_RESOLUTION_ALL                       | $\pm 0.02$ [1.3%]   | $\pm 0.00$ [0.00%]   |
| alpha_MUON_MS                                 | $\pm 0.01$ [1.0%]   | $\pm 0.00$ [0.00%]   |
| alpha_MUON_SCALE                              | $\pm 0.01$ [0.78%]  | $\pm 0.00$ [0.00%]   |
| alpha_JVT                                     | $\pm 0.01$ [0.74%]  | $\pm 0.00$ [0.00%]   |
| alpha_MUON_ID                                 | $\pm 0.01$ [0.71%]  | $\pm 0.00$ [0.00%]   |
| alpha_EG_Eff                                  | $\pm 0.01$ [0.60%]  | $\pm 0.00$ [0.00%]   |
| alpha_btag_LightT                             | $\pm 0.00$ [0.31%]  | $\pm 0.00$ [0.00%]   |
| alpha_MUON_Eff_sys                            | $\pm 0.00$ [0.26%]  | $\pm 0.00$ [0.00%]   |
| alpha_EG_SCALE_ALL                            | $\pm 0.00$ [0.23%]  | $\pm 0.00$ [0.00%]   |
| alpha_MUON_Trig_stat                          | $\pm 0.00$ [0.10%]  | $\pm 0.00$ [0.00%]   |
| alpha_EG_Reco                                 | $\pm 0.00$ [0.09%]  | $\pm 0.00$ [0.00%]   |
| alpha_btag_CT                                 | $\pm 0.00$ [0.07%]  | $\pm 0.00$ [0.00%]   |
| alpha_EG_Trig                                 | $\pm 0.00$ [0.07%]  | $\pm 0.00$ [0.00%]   |
| alpha_MUON_Eff_Iso_sys                        | $\pm 0.00$ [0.04%]  | $\pm 0.00$ [0.00%]   |
| alpha_JES_Group3                              | $\pm 0.00$ [0.03%]  | $\pm 0.00$ [0.00%]   |
| alpha_MUON_Eff_Iso_stat                       | $\pm 0.00$ [0.02%]  | $\pm 0.00$ [0.00%]   |
| alpha_btag_Extra                              | $\pm 0.00$ [0.02%]  | $\pm 0.00$ [0.00%]   |
| alpha_JET_EtaInt_posEta                       | $\pm 0.00$ [0.02%]  | $\pm 0.03$ [29.4%]   |
| alpha_JET_EtaInt_negEta                       | $\pm 0.00$ [0.01%]  | $\pm 0.03$ [29.4%]   |
| mu_tt_2L                                      | $\pm 0.00$ [0.01%]  | $\pm 0.00$ [0.00%]   |
| alpha_EG_TrigEff                              | $\pm 0.00$ [0.01%]  | $\pm 0.00$ [0.00%]   |
| alpha_MUON_TTVA_stat                          | $\pm 0.00$ [0.00%]  | $\pm 0.00$ [0.00%]   |
| gamma_stat_tW2L_CRtt_cuts_bin_0               | $\pm 0.00$ [0.00%]  | $\pm 0.00$ [0.00%]   |
| alpha_JER_DataVsMC_AFII                       | $\pm 0.00$ [0.00%]  | $\pm 0.00$ [0.00%]   |
| alpha_btag_ExtraFromCharm                     | $\pm 0.00$ [0.00%]  | $\pm 0.00$ [0.00%]   |
| alpha_MUON_TTVA_sys                           | $\pm 0.00$ [0.00%]  | $\pm 0.00$ [0.00%]   |
| alpha_JET_EtaInt_highE                        | $\pm 0.00$ [0.00%]  | $\pm 0.03$ [29.4%]   |
| mu_ttV  | $\pm 0.00$ [0.00%]  | $\pm 0.00$ [0.00%]   |
| alpha_muR_muF_ttV                             | $\pm 0.00$ [0.00%]  | $\pm 0.00$ [0.00%]   |
| mu_dib  | $\pm 0.00$ [0.00%]  | $\pm 0.00$ [0.00%]   |
| alpha_fJVT                                    | $\pm 0.00$ [0.00%]  | $\pm 0.00$ [0.00%]   |
| alpha_MUON_Eff_stat_lowpt                     | $\pm 0.00$ [0.00%]  | $\pm 0.00$ [0.00%]   |
| Lumi  | $\pm 0.00$ [0.00%]  | $\pm 0.00$ [1.7%]    |
| alpha_fakesSyst                               | $\pm 0.00$ [0.00%]  | $\pm 0.00$ [0.00%]   |
| alpha_MUON_Eff_sys_lowpt                      | $\pm 0.00$ [0.00%]  | $\pm 0.00$ [0.00%]   |
| alpha_MUON_Eff_stat                           | $\pm 0.00$ [0.00%]  | $\pm 0.00$ [0.00%]   |
| gamma_stat_tW2L_CRWZ_cuts_bin_0               | $\pm 0.00$ [0.00%]  | $\pm 0.00$ [0.00%]   |
| alpha_EG_SCALE_AF2                            | $\pm 0.00$ [0.00%]  | $\pm 0.00$ [0.00%]   |
| alpha_JET_RelNonClos_AFII                     | $\pm 0.00$ [0.00%]  | $\pm 0.00$ [0.00%]   |
| alpha_muR_muF-Diboson                         | $\pm 0.00$ [0.00%]  | $\pm 0.00$ [0.00%]   |
| alpha_MUON_Eff_BadMuon_sys                    | $\pm 0.00$ [0.00%]  | $\pm 0.00$ [0.00%]   |
| alpha_MUON_Eff_BadMuon_stat                   | $\pm 0.00$ [0.00%]  | $\pm 0.00$ [0.00%]   |
| gamma_stat_tW2L_CRttZ_cuts_bin_0              | $\pm 0.00$ [0.00%]  | $\pm 0.00$ [0.00%]   |