$\mu \mu$ signal $\mu \mu$ bkgd.
$\mathrm{e} \mu$ signal (\%)

## Simulation:

SM cross section Jet energy scale Jet energy resolution Jet mass scale Jet mass resolution Subjettiness Pileup Unclustered energy Integrated luminosity Lepton selection Trigger selection b tagging

Theory:
PDF variation
Scale variation
Estimated from data:
Misidentified leptons
Mismeasured sign

| - | $12-14(15-27)$ | - | $13-18(22-41)$ | - | $12-14(16-30)$ |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $2-5(0-1)$ | $2-6(5-6)$ | $2-8(0-1)$ | $3-5(4-7)$ | $1-6(0-1)$ | $1-4(3)$ |
| $1-2(0-0.3)$ | $1-2(2-6)$ | $1-2(0-0.3)$ | $0-0.8(1-3)$ | $0.8(0-0.3)$ | $0-0.8(0-3)$ |
| $0-0.3(0-0.1)$ | $0-1(1-3)$ | $0-0.2(0-0.1)$ | $0-0.3(0.7)$ | $0-0.1(0-0.1)$ | $0-0.2(0-5)$ |
| $0-0.4(0-0.3)$ | $0-1(0-2)$ | $0-0.1(0-0.2)$ | $0-0.1(0-0.5)$ | $0-0.4(0-0.3)$ | $0-0.4(0-3)$ |
| $0-1(0-8)$ | $0-1.0(1-7)$ | $0-0.3(0-8)$ | $0-0.1(0-8)$ | $0-0.2(0-8)$ | $0-0.4(0-8)$ |
| $2-3(1)$ | $2(0-2)$ | $0-1(0-1)$ | $0-1(0-3)$ | $0.7(0.8)$ | $2(2-4)$ |
| $0-0.7(0-0.1)$ | $1(2-5)$ | $0-1(0-0.1)$ | $0-1(3-4)$ | $0-0.5(0-0.1)$ | $0.9(1-2)$ |
| $2.5(2.5)$ | $2.5(2.5)$ | $2.5(2.5)$ | $2.5(2.5)$ | $2.5(2.5)$ | $2.5(2.5)$ |
| $2-4(4)$ | $2-4(2-6)$ | $3(3-4)$ | $3(3-5)$ | $2(3)$ | $2(2-6)$ |
| $3-4(1)$ | $3(3-5)$ | $0-0.9(0-0.4)$ | $0-1(0-0.8)$ | $3(0-0.2)$ | $3(2)$ |
| $0-0.8(0-1)$ | $0.7(1)$ | $0-0.5(0-0.6)$ | $0-1(1-3)$ | $0-0.7(0-0.7)$ | $0-1(1-4)$ |
| $0-0.7(0-0.2)$ | $<15(<20)$ | $0-0.7(0-0.1)$ | $<15(<20)$ | $0-0.7(0-0.2)$ | $<15(<20)$ |
| $1-5(0-0.1)$ | - | $1-4(0-0.3)$ | - | $1-5(0-0.2)$ | - |

