

Measurements of differential cross sections and spin asymmetry in tZq David Walter, on behalf of the CMS Collaboration **Event selection Top quark spin asymmetry** • 3 isolated leptons (e/µ)





- OSSF pair: $|m(ll) m_7| < 15 \text{ GeV}$
- ≥ 2 jets, including $|\eta| < 5$
- \geq 1 b-tagged jet

Main backgrounds

- ttZ, WZ, ZZ, Zγ
- Nonprompt leptons
- Data driven estimation via fake rates

Binned Maximum likelihood based unfolding One single multidimensional fit Signal region binned in observable at detector level and tZq score Including control regions $t(\bar{t})X$ Post-fit I Data Nonprompt ZZ/H Multiboson WZ 📃 \mathbf{I} tZq(others) \mathbf{I} tZq[140, ∞] tZq[70, 140] tZq[0, 70] //// Uncertainty tZq $p_{\rm T}({\rm j'}) < 70\,{
m GeV}$ $70 < p_{\rm T}(j') < 140 \,{\rm GeV}$ ttΖ 10 WZ t(t)X ata Jther 110 Neural network score of tZq output node

