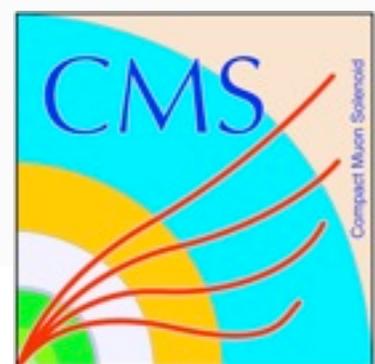




Dilepton charge asymmetry, spin correlation, and polarisation: status and plans

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Top properties meeting
Round Table
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- ▶ Top spin correlation and polarisation paper in 7 TeV just finished CWR (TOP-13-003)
- ▶ Top and lepton charge asymmetry paper in 7 TeV about to start CWR (TOP-12-010)
- ▶ We used the same analysis technique to make the measurements in both of these papers, using 5 different asymmetry variables

- ▶ We are working on the 8 TeV data, with the following plans for improvements on the 7 TeV results:
 - ▶ add full 2D unfolding to measure the differential dependence of the asymmetries on M_{tt} , $p_{T,tt}$, y_{tt} (the simplified version we were using for 7 TeV was found to be insufficient for most of the variables)
 - ▶ add particle-level unfolding as well as parton-level unfolding
 - ▶ provide bin-by-bin results for the differential cross-sections, not just the asymmetry values
 - ▶ upload results to HepData for use with Rivet
 - ▶ we'll need to evaluate the covariance matrix for the systematic uncertainties of the bins of the differential cross-section measurement (we already have the covariance matrix for the stat. uncertainties). This will allow for general interpretation and combination of our results.
 - ▶ add BSM interpretations, working with Jeremy, W. Bernreuther, et al

- ▶ Other planned changes:
 - ▶ migrate to official top group event selection
 - ▶ could change our choice of signal MC (previously we used MC@NLO for consistency with the template analysis, so we'll need to decide this together)
 - ▶ MC@NLO is not ideal, because it is not interfaced with tauola

- ▶ Additional considerations:
 - ▶ need an improved understanding of the top p_T reweighting
 - ▶ should we apply it for the 8 TeV results?
 - ▶ can we use a less conservative systematic uncertainty (than 100%)?