The CMS collaboration has published data on the production of top quarks and associated dibosons in proton-proton collisions at a center-of-mass energy of 8 TeV. The graph shows the distribution of events as a function of the missing transverse momentum ($M_{CT}$), with the number of events per 50 GeV bin. The data points are compared to the predictions from various Monte Carlo (MC) simulations, including backgrounds from $Z \rightarrow \nu \bar{\nu}$, $W \rightarrow l \nu$, top quarks, dibosons, and QCD processes. The CMS dataset has an integrated luminosity of 19.4 fb$^{-1}$.

The figure also includes a fit to the signal of a new particles decaying to bottom quark and neutralino ($\tilde{b} \rightarrow b\tilde{\chi}_0^0(750,50)$), with the mass of the neutralino being 750 GeV and the mass of the top quark being 50 GeV.

The comparison between data and MC simulations shows good agreement, with the exception of the diboson and QCD backgrounds, which are slightly overestimated in the MC predictions.