Figure 7: Distributions of $t_z$ for (left) $J/\psi$ and (right) $\eta_c$ mesons for the entire $p_T$ range $6.5 < p_T < 14.0 \, \text{GeV}$ and the result of the simultaneous $\chi^2$ fit. The solid blue lines show the fit function, the red dashed areas show the prompt components, the green dotted areas show the contributions from inclusive $b$-hadron decays, the grey lines show contributions from the events with wrongly associated PV. The $t_z$ values of the data points correspond to the average values of the fit function over the bins.

Figure 8: Relative $\eta_c$ to $J/\psi$ differential production cross-sections for (left) prompt production and (right) production in $b$-hadron inclusive decays obtained using the alternative technique (points) and the baseline technique (red boxes). The uncertainties shown are statistical, systematic, and the uncertainty due to the $\eta_c \rightarrow p\bar{p}$ and $J/\psi \rightarrow p\bar{p}$ branching fractions.