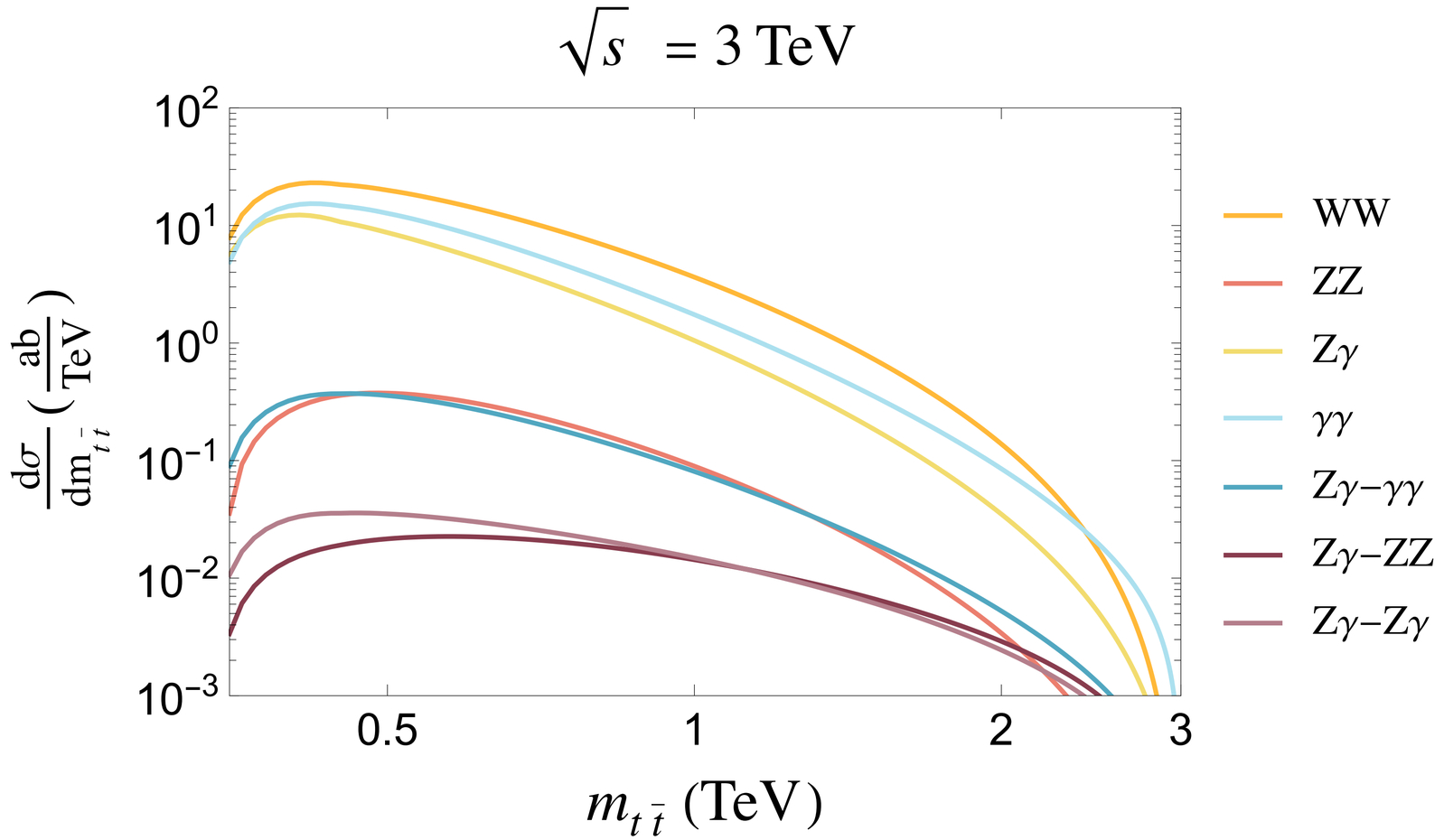
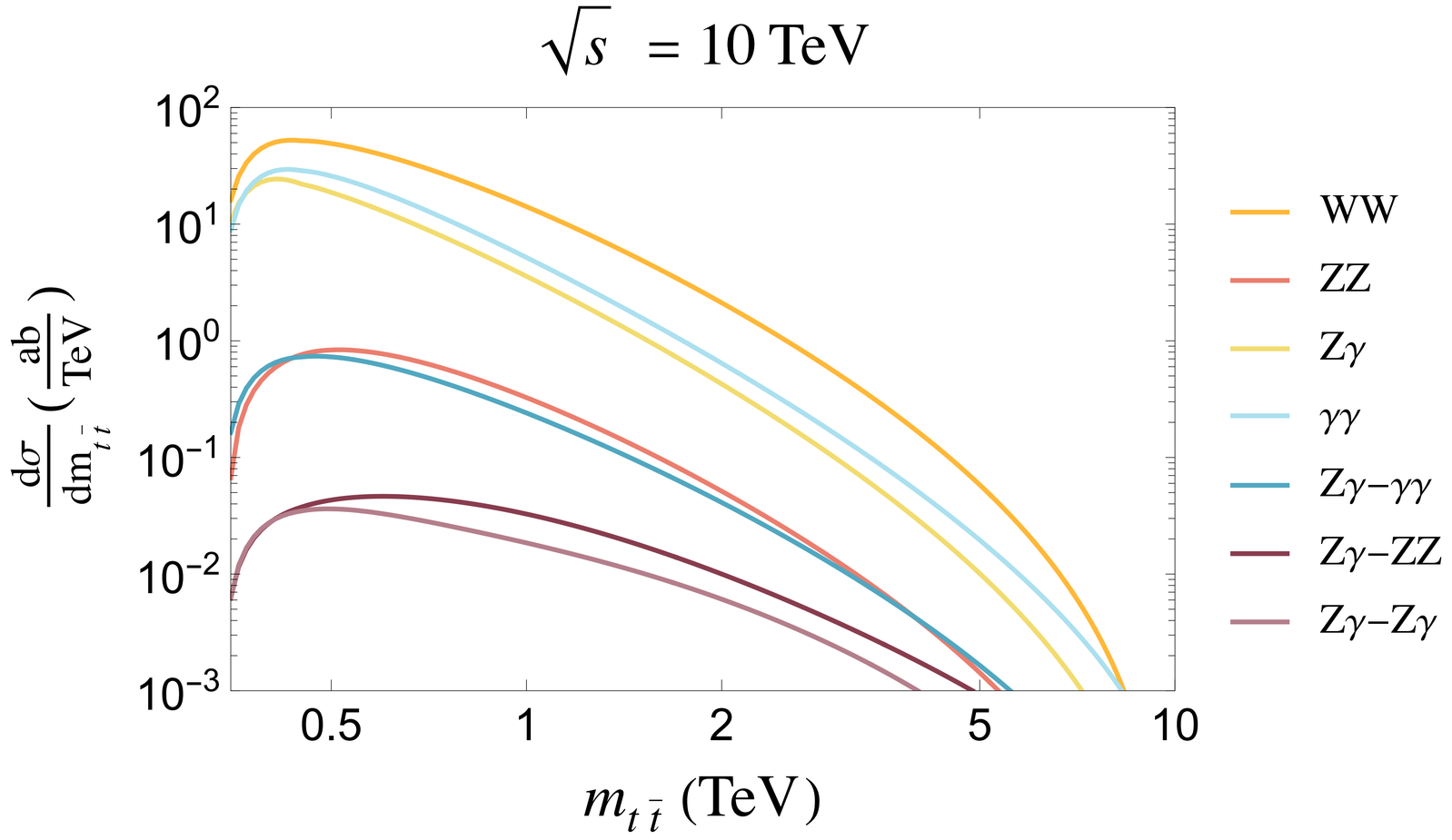
Interference terms included for 3 TeV and 1 ab^{-1} Collider

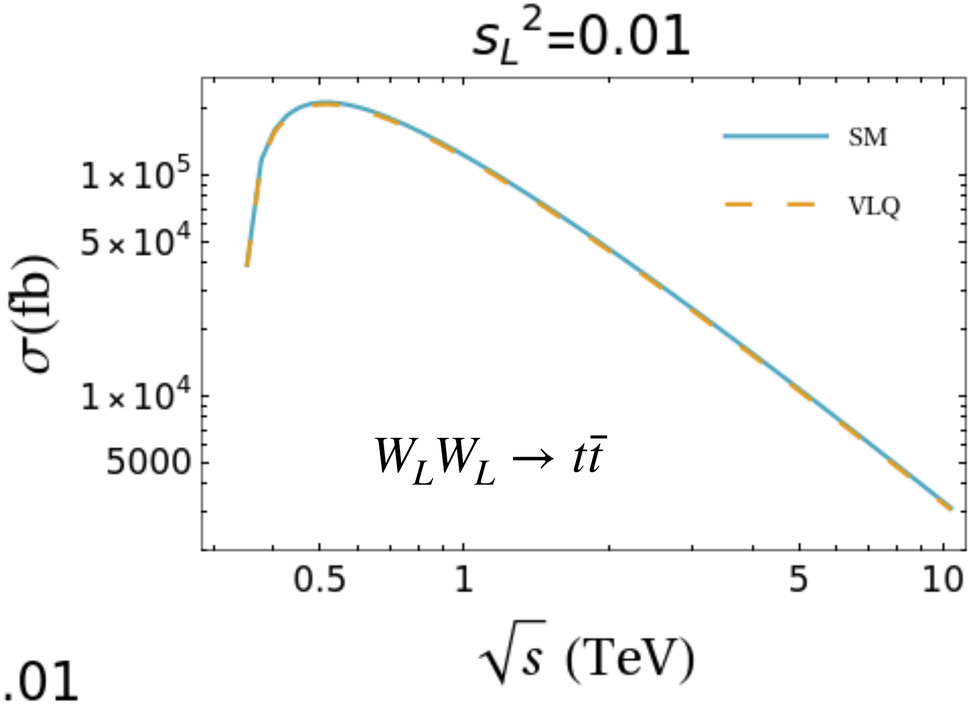


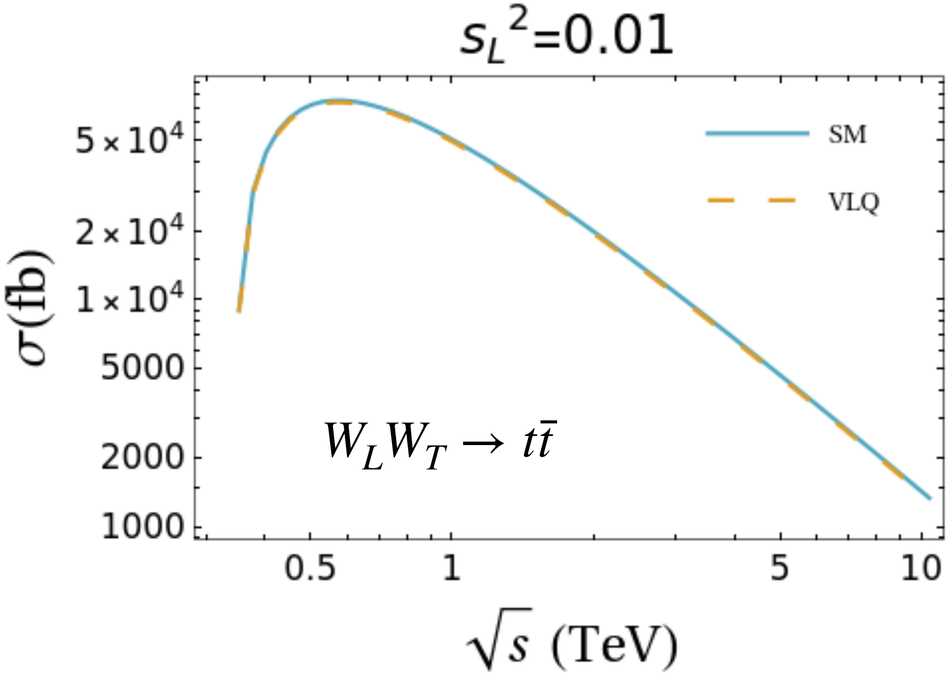
Interference terms included for 10 TeV and 10 ab^{-1} Collider

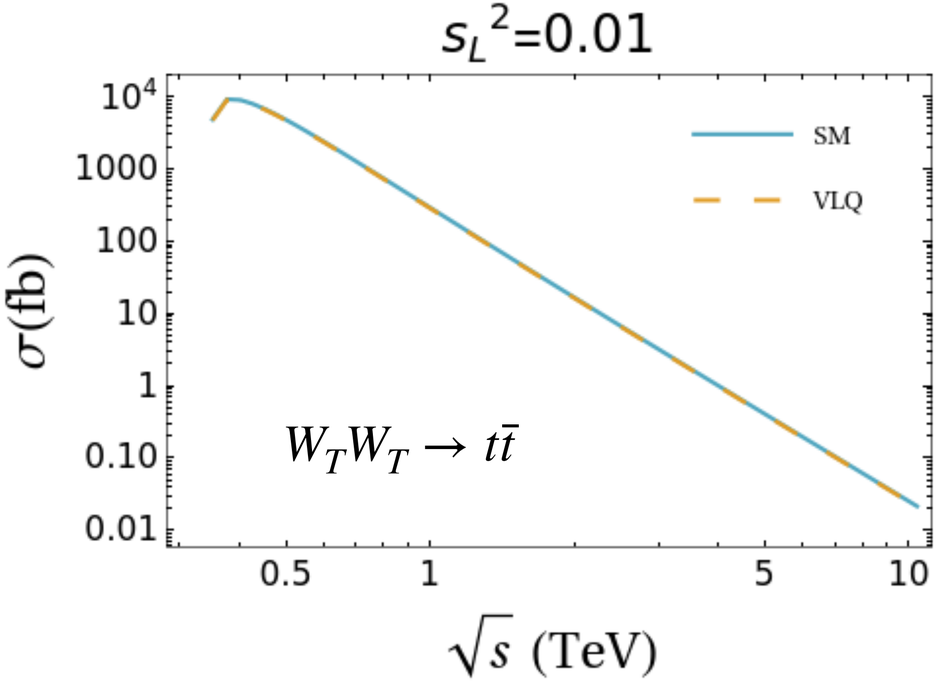


Analysis With VLQ Model

Partonic Distribution for a few selected polarization of WW



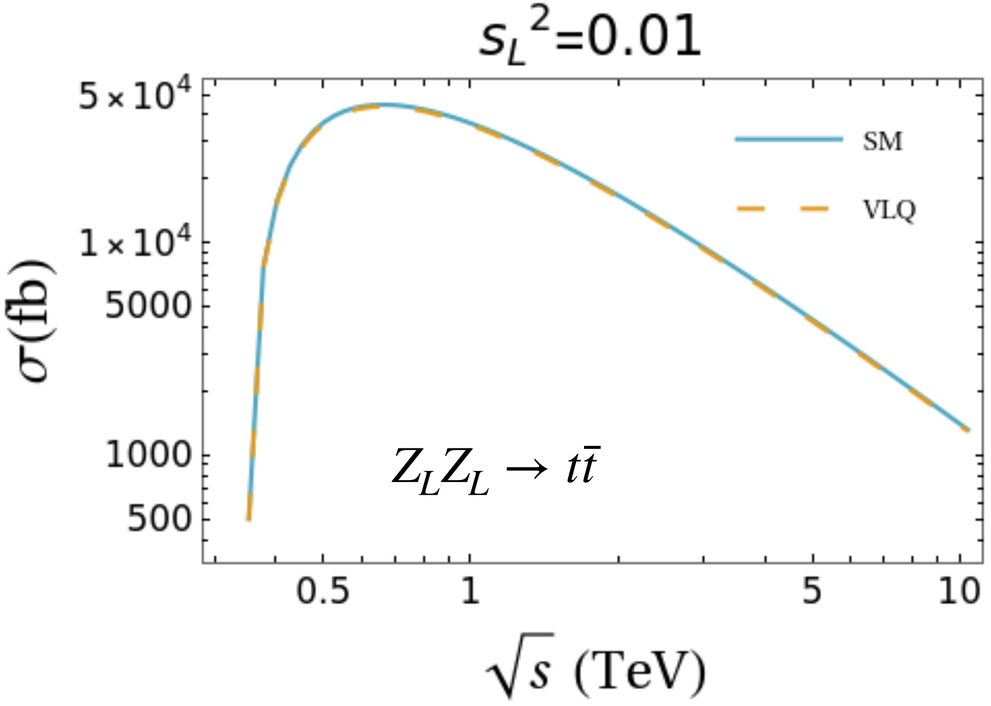


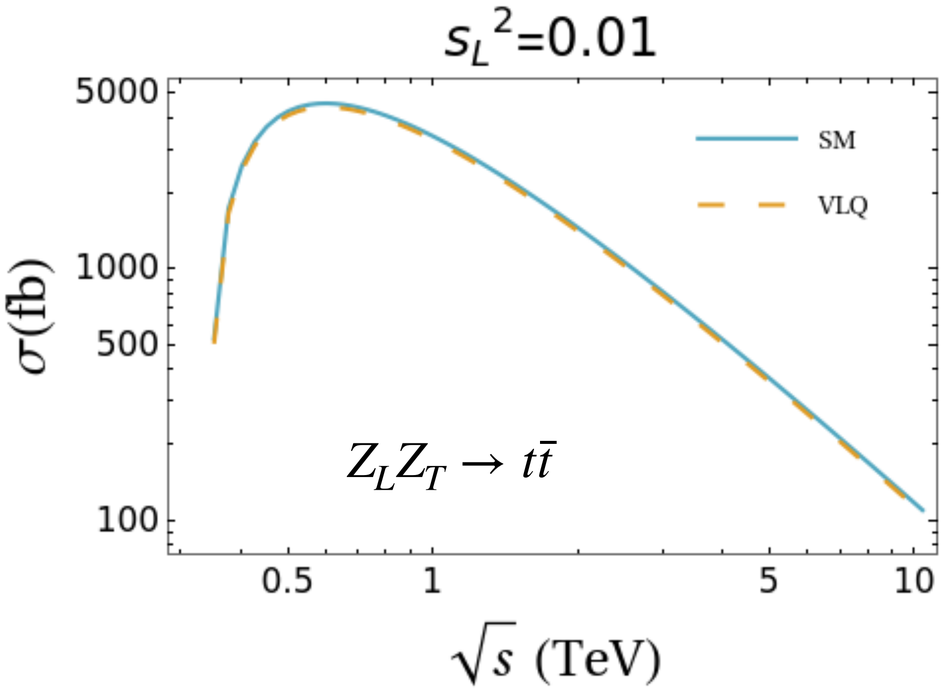


$$
\begin{aligned}
\frac{g}{\sqrt{2}} W_\mu^+ \, \bar{t}_L \gamma^\mu b_L \rightarrow & \frac{g}{\sqrt{2}} W_\mu^+ \, \left(c_L \, \bar{t}_L \gamma^\mu b_L - s_L \, \bar{T}_L \gamma^\mu b_L \right) \ , \\
\frac{g}{\cos\theta_w} \left(\frac{1}{2} - \frac{2}{3} \sin^2\theta_w \right) Z_\mu \bar{t}_L \gamma^\mu t_L \rightarrow & \frac{g}{\cos\theta_w} \left(\frac{1}{2} - \frac{2}{3} \sin^2\theta_w \right) Z_\mu \\
& \left[c_L^2 \bar{t}_L \gamma^\mu t_L - c_L s_L \left(\bar{t}_L \gamma^\mu T_L + \bar{T}_L \gamma^\mu t_L \right) + s_L^2 \bar{T}_L \gamma^\mu T_L \right] \qquad (12) \\
\frac{g}{\cos\theta_w} \left(-\frac{2}{3} \sin^2\theta_w \right) Z_\mu \bar{T}_L \gamma^\mu T_L \rightarrow & \frac{g}{\cos\theta_w} \left(-\frac{2}{3} \sin^2\theta_w \right) Z_\mu \\
& \left[s_L^2 \bar{t}_L \gamma^\mu t_L - c_L s_L \left(\bar{t}_L \gamma^\mu T_L + \bar{T}_L \gamma^\mu t_L \right) + c_L^2 \bar{T}_L \gamma^\mu T_L \right]
\end{aligned}
$$

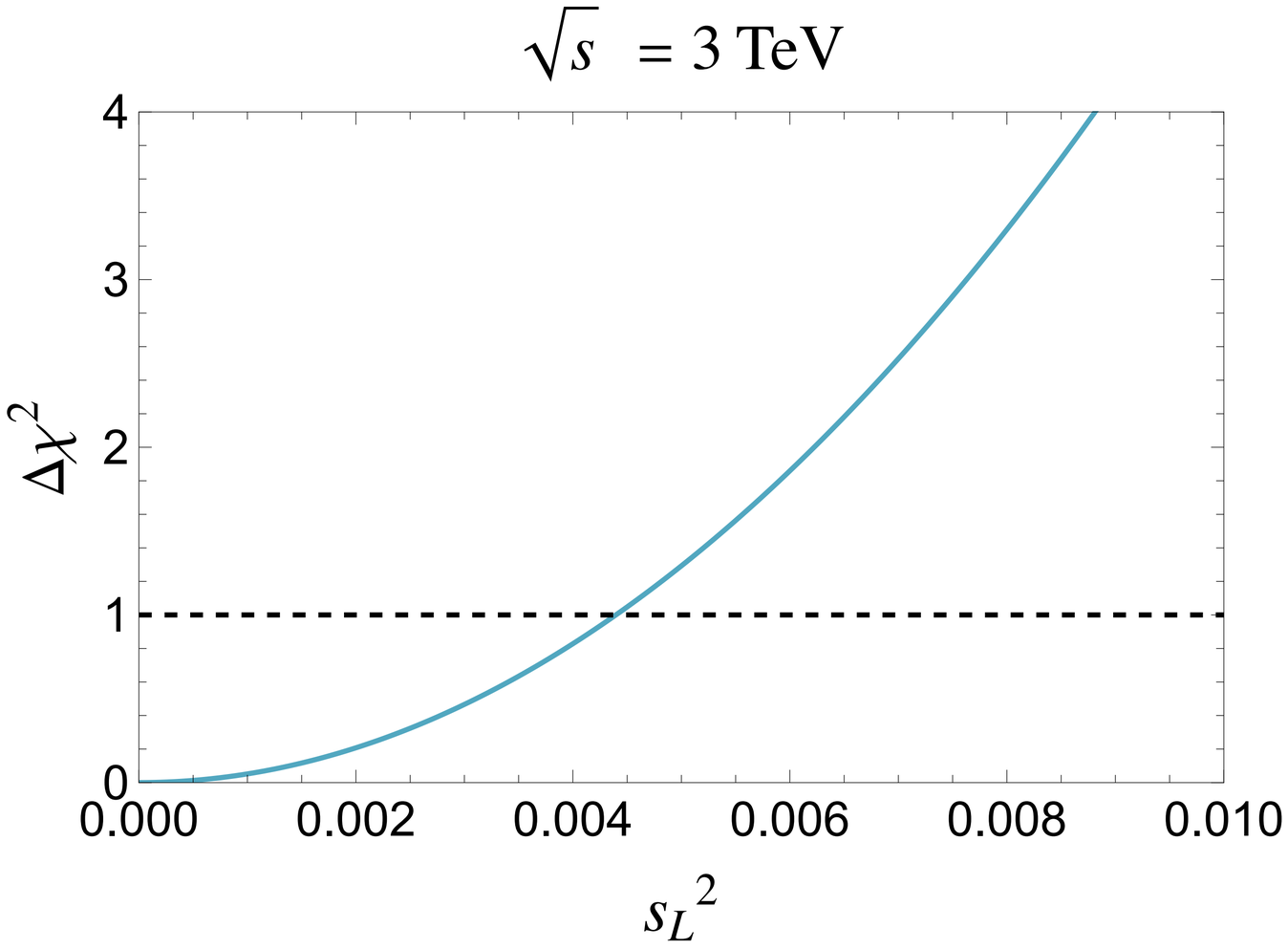
Analysis With VLQ Model

Partonic Distribution for a few selected polarization of ZZ



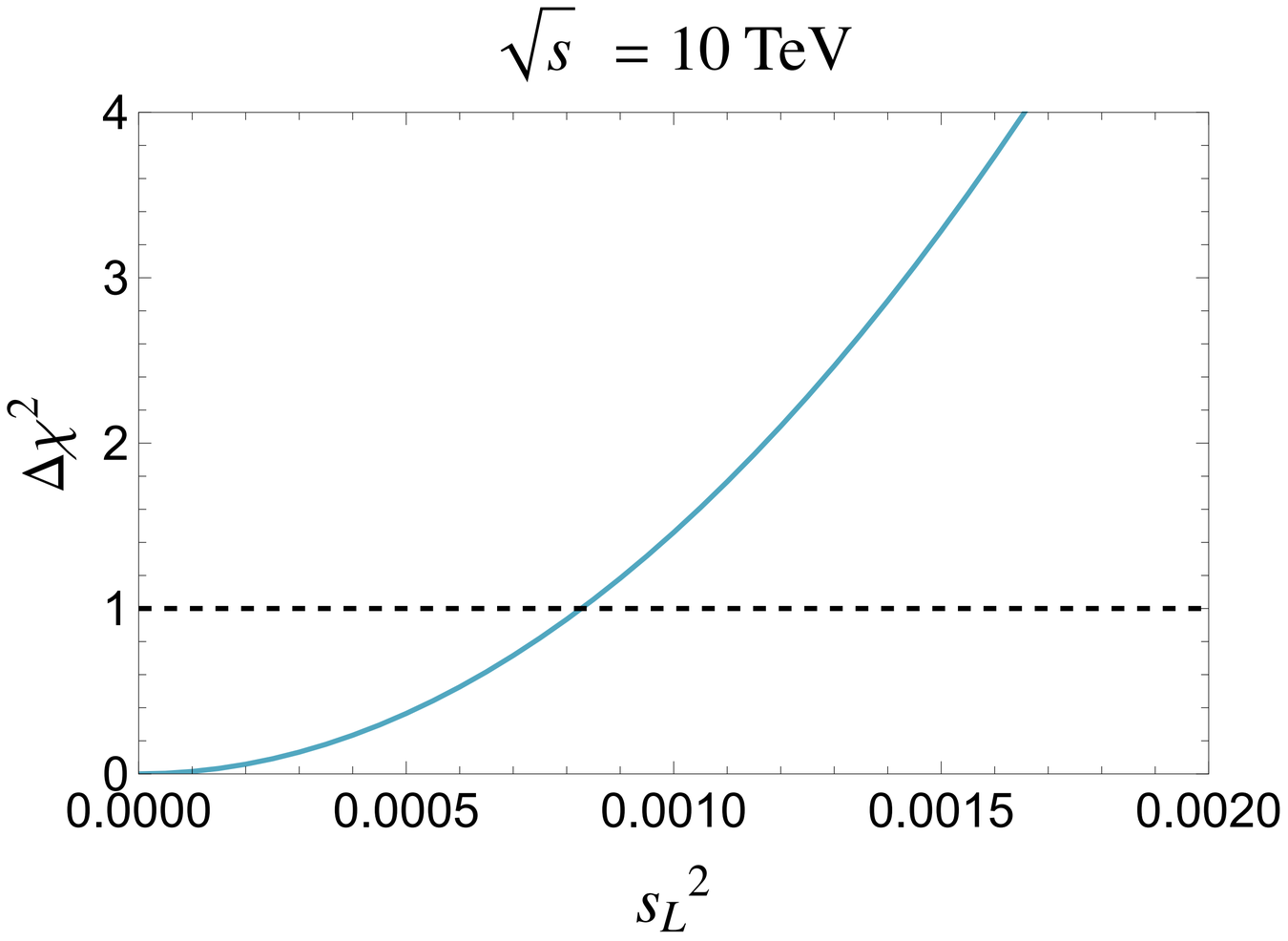


s_L^2 bound for 3 TeV and 1 ab^{-1} Collider



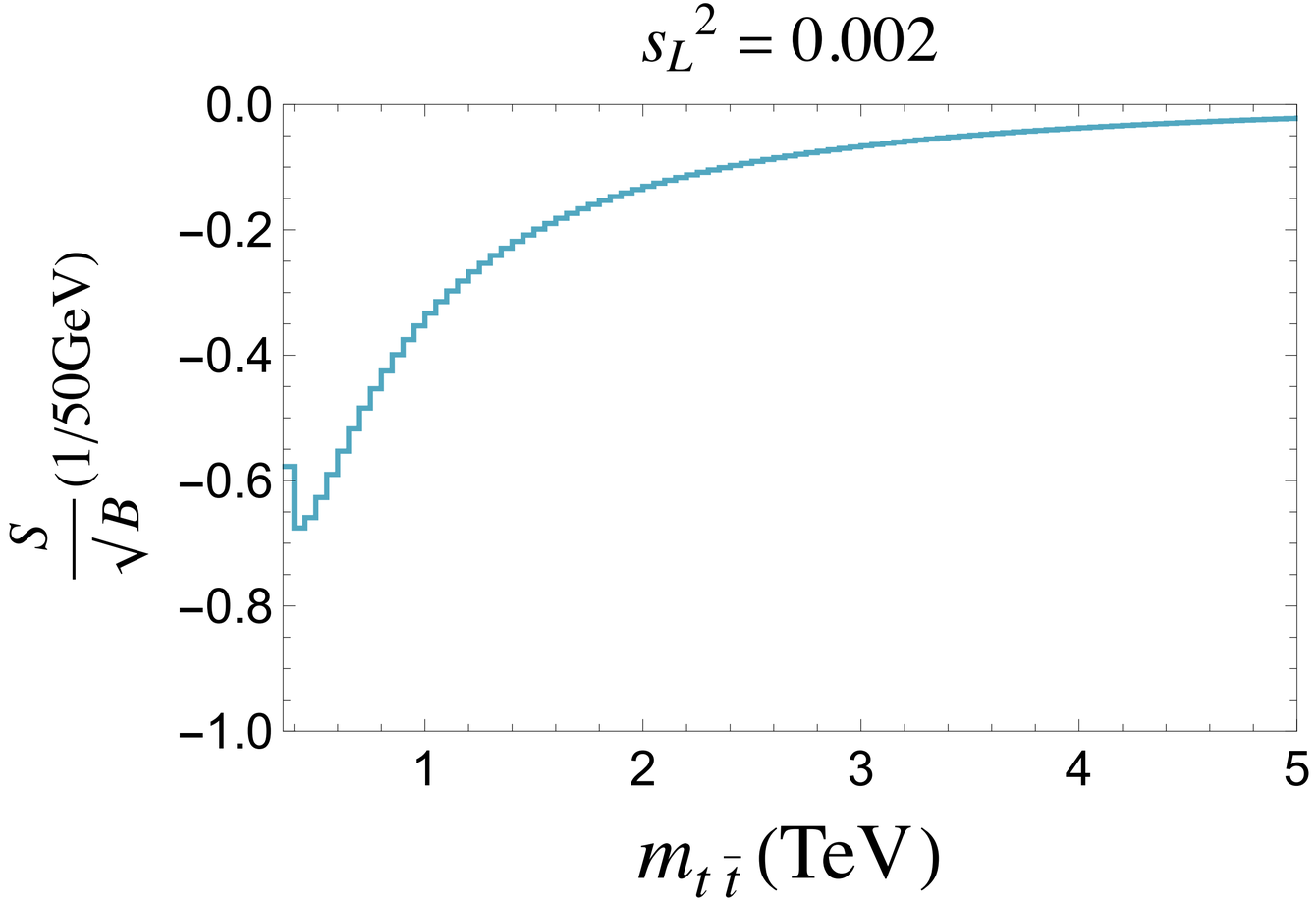
1σ bound is less than 0.5% on s_L^2 after including all channels for 3 TeV collider

s_L^2 bound for 10 TeV and 10 ab^{-1} Collider



1σ bound is less than 0.1% on s_L^2 after including all channels

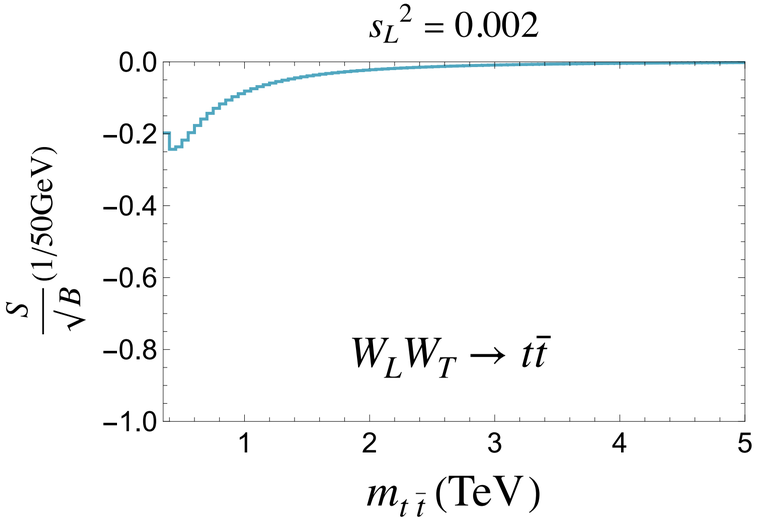
Signal Significance from all channels for 10 TeV collider

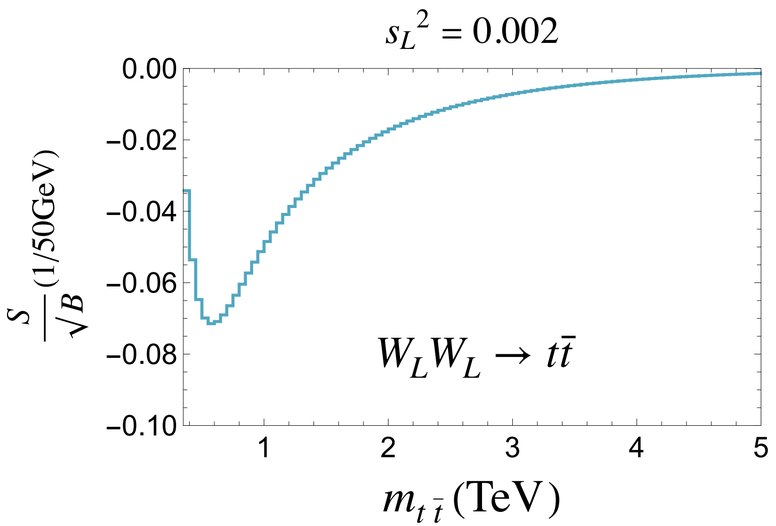


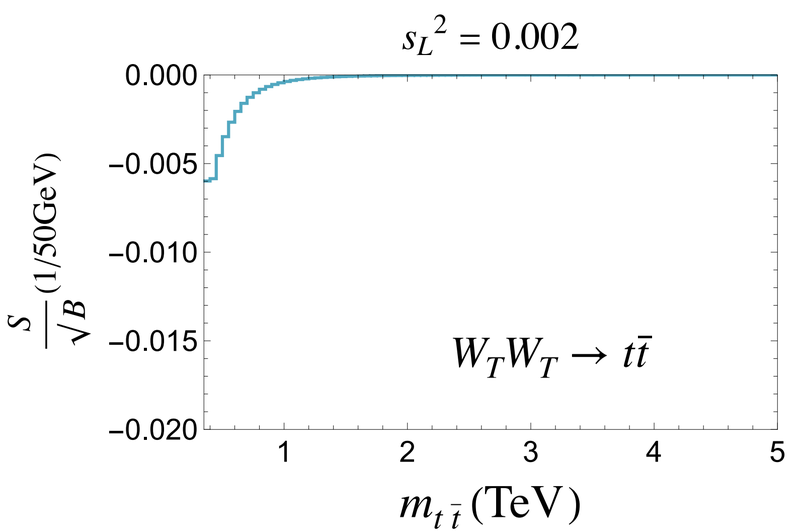
The figure sums contributions from all channels

Signal Significance in Various Channels for 10 TeV collider

WWtt Channel



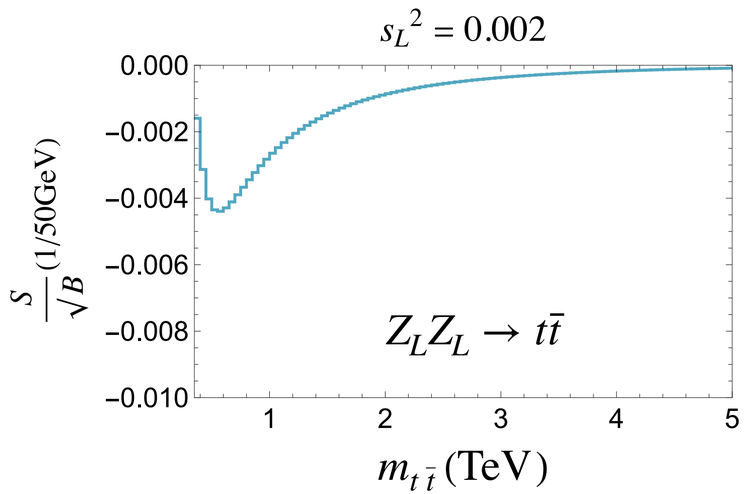


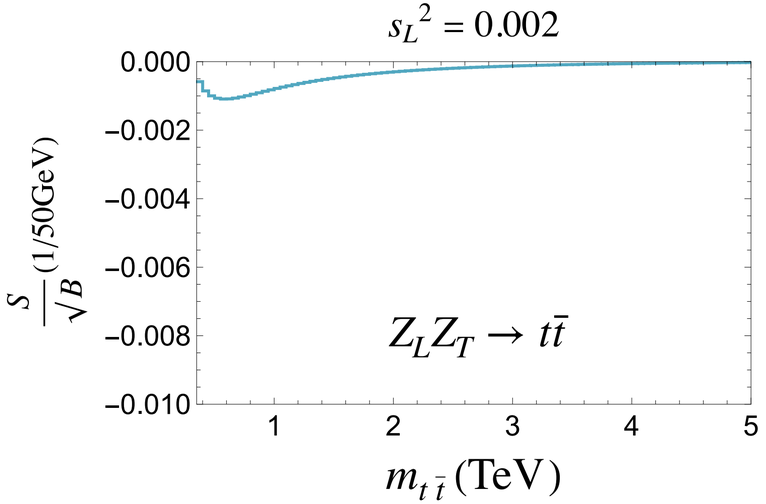


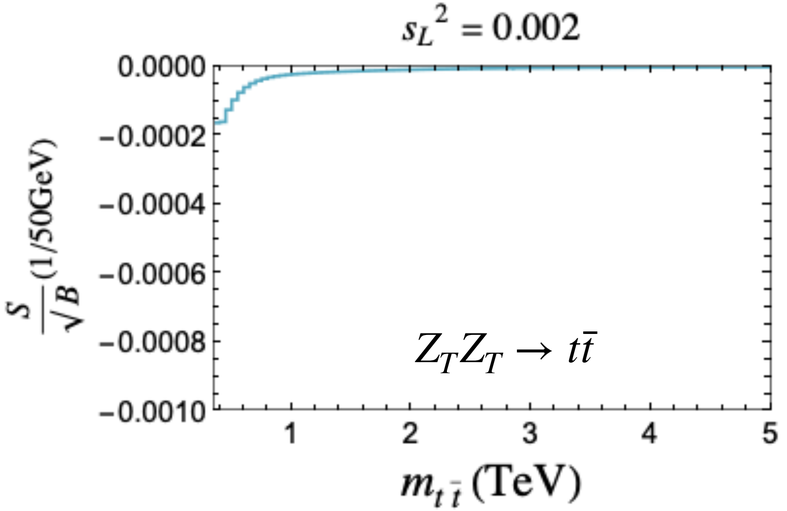
The largest overall contribution comes from $W_L W_L \to t\bar{t}$

Signal Significance in Various Channels for 10 TeV collider

ZZtt Channel



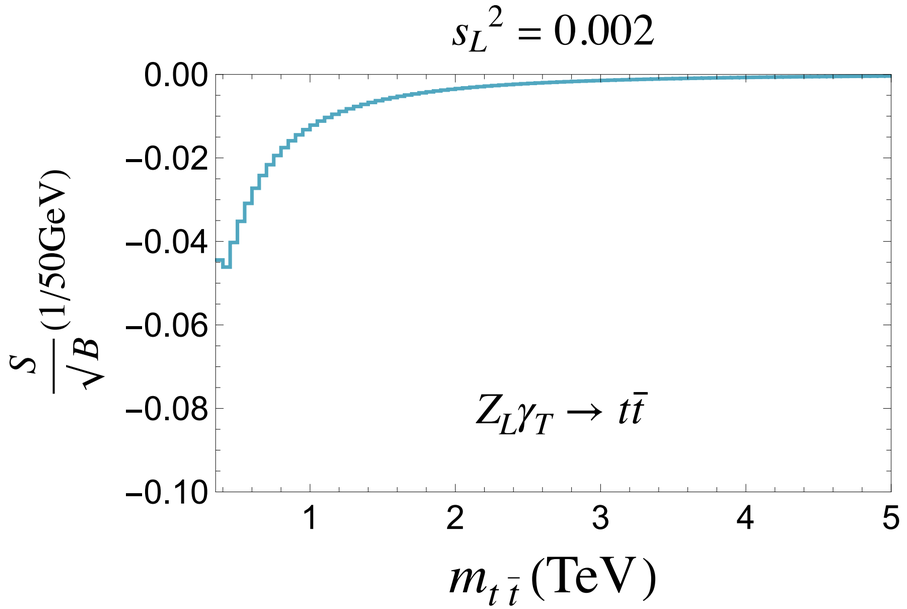


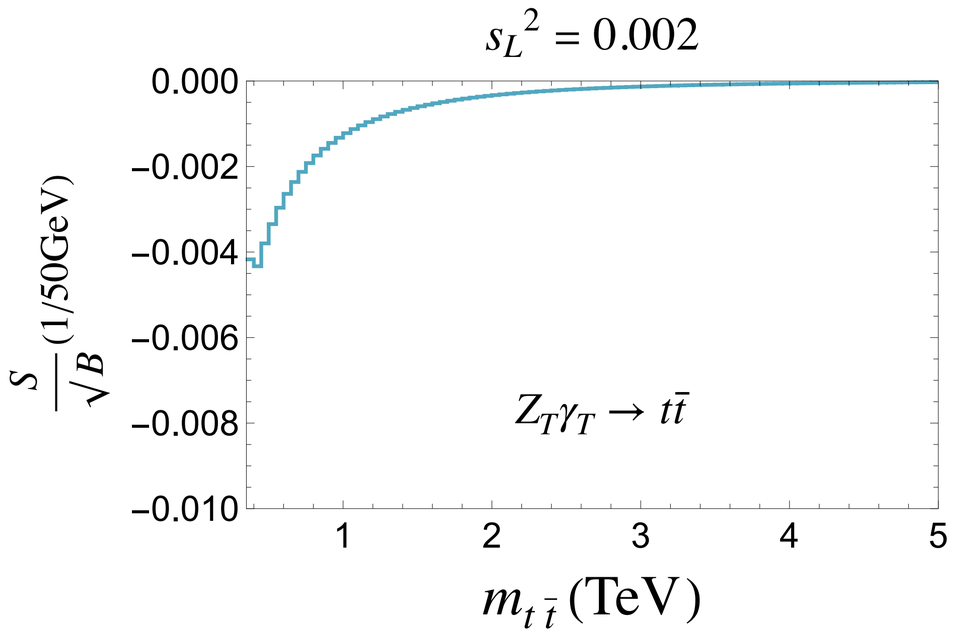


Minimal contribution to overall significance from this channel

Signal Significance in Various Channels for 10 TeV collider

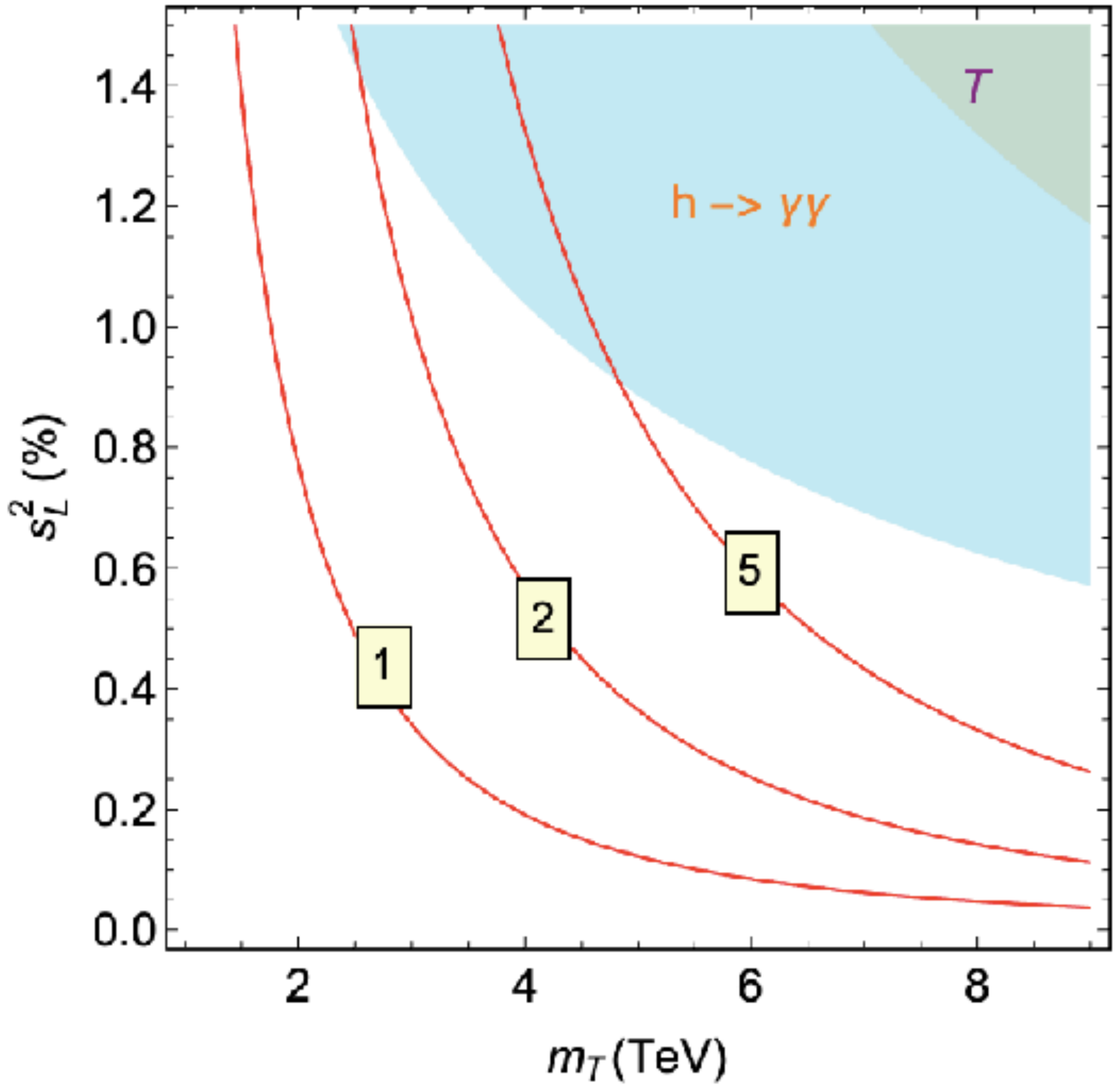
Zγtt Channel





The conclusion seems to be almost all significance comes from WWtt channel

The parameter space for the VLQ model



Signal vs Background in Partonic cross-section for WWtt