

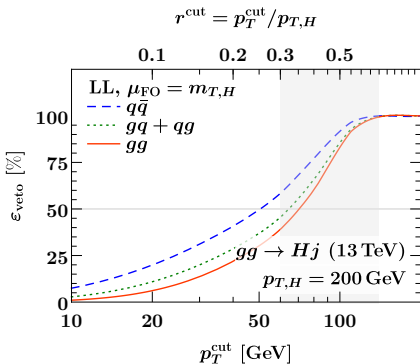
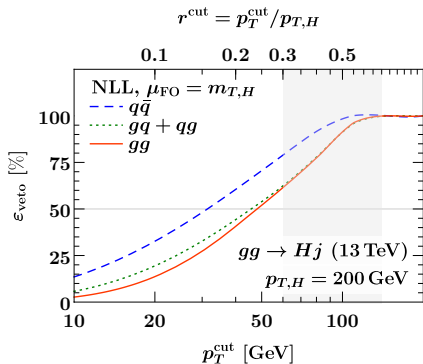
- Calculate $1/\geq 1$ -jet veto efficiency for $gg \rightarrow Hj$, $p_T^H \geq 200$ GeV:

$$\varepsilon_{\text{veto}}(p_T^{\text{cut}}) \equiv \frac{d\sigma_{\text{NLL}}(p_T^{\text{cut}})}{dp_{T,H}} \bigg/ \frac{d\sigma_{\text{LO}_1}}{dp_{T,H}}$$

- Quick & dirty SCETlib implementation of [Liu, Petriello 1210.1906] adapted to Higgs production
- $\alpha_s(m_Z) = 0.118$, PDF4LHC15_nnlo_mc, $\mu_{\text{FO}} = m_{T,H}$, $R = 0.4$
- Restrict to $|Y_H| < 2.4$ (virtually no effect on efficiency)
- Resummed emissions cannot resolve the top loop because $p_T^{\text{cut}} \ll p_{T,H} \sim m_t$
- Resummation does not (yet) mix partonic channels at this order
 - ▶ At NLL, $\varepsilon_{\text{veto}}$ in individual partonic channels is independent of top loop vs. contact operator
 - Caveat: integrating over (some of) $\eta_J, Y_H \leftrightarrow s, t, u$ as done here reintroduces some model dependence (use strict EFT for simplicity)

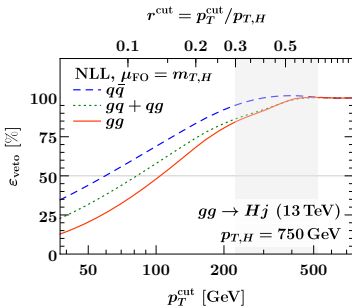
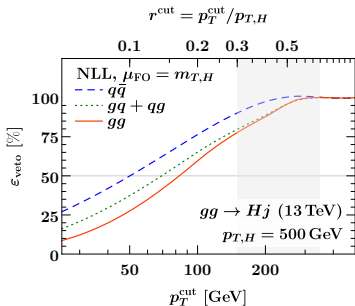
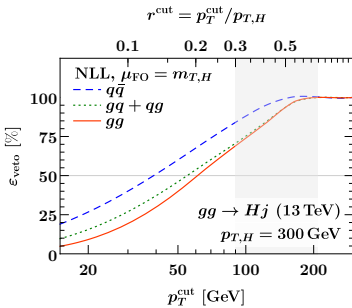
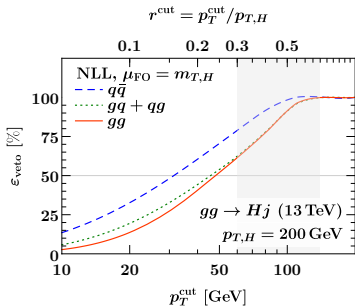
Example.

- Take comparison to LL as proxy for the (large) uncertainties
- Resummed calculation in soft-collinear limit is reliable up to $\epsilon_{\text{veto}} \sim 0.5$

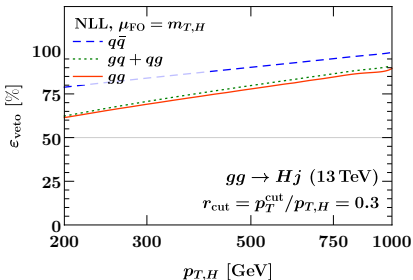
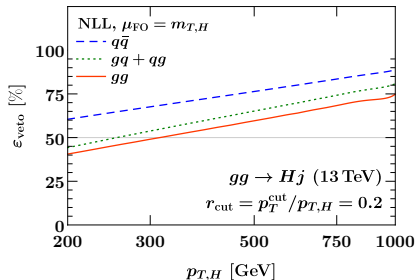
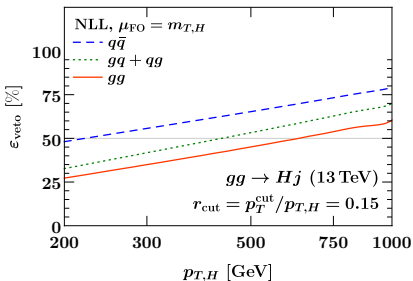
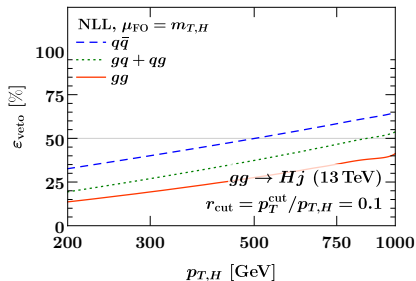


- Gray-shaded area (close to $\epsilon_{\text{veto}} \rightarrow 1$) is where matching to fixed-order $H + 2j$ would become important
 - ▶ Without FO matching, ϵ_{veto} can exceed 1 (within uncertainty)

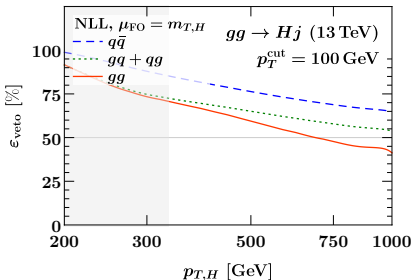
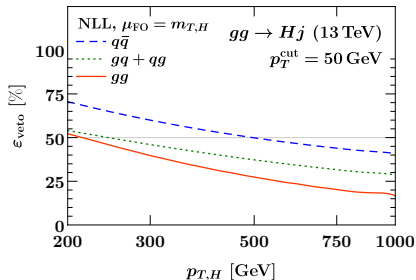
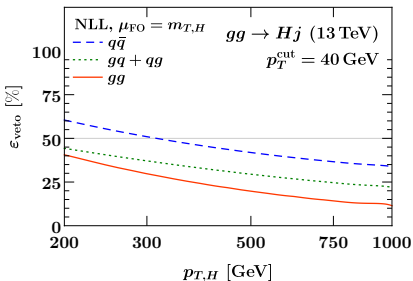
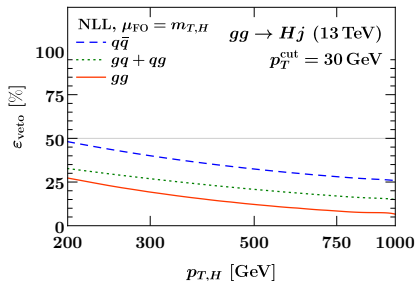
Results: fixed $p_{T,H}$, varying cut



Results: fixed r_{cut} , varying $p_{T,H}$



Results: fixed p_T^{cut} , varying $p_{T,H}$



Results: fixed \tilde{r}_{cut} , varying $p_{T,H}$

