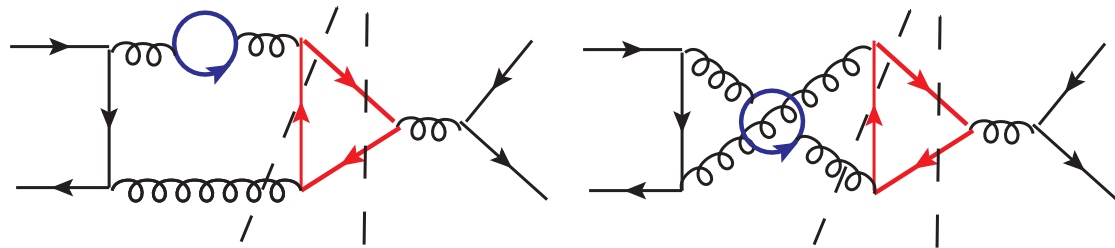


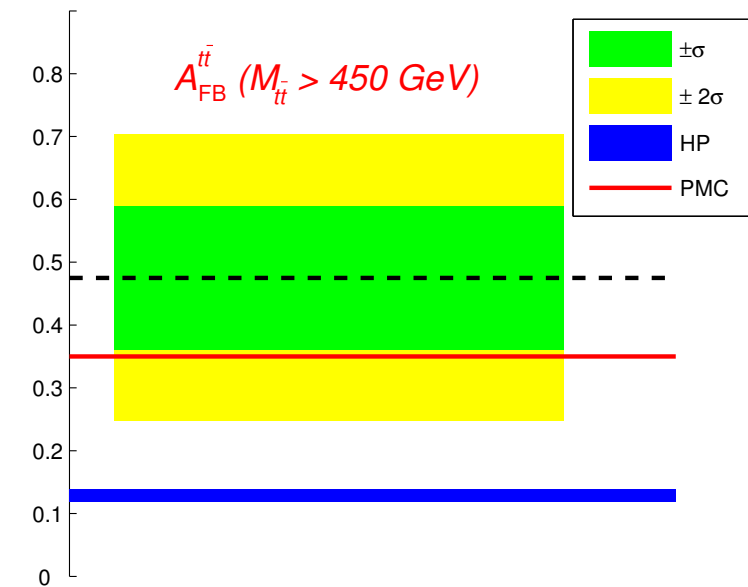
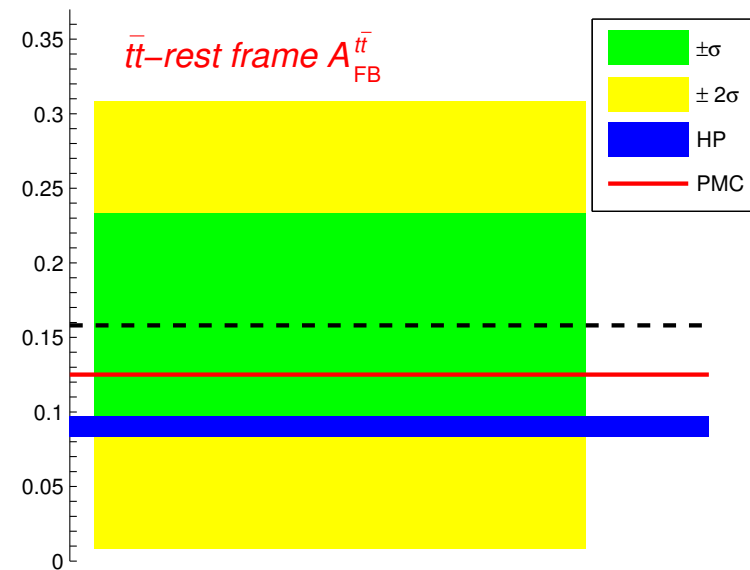
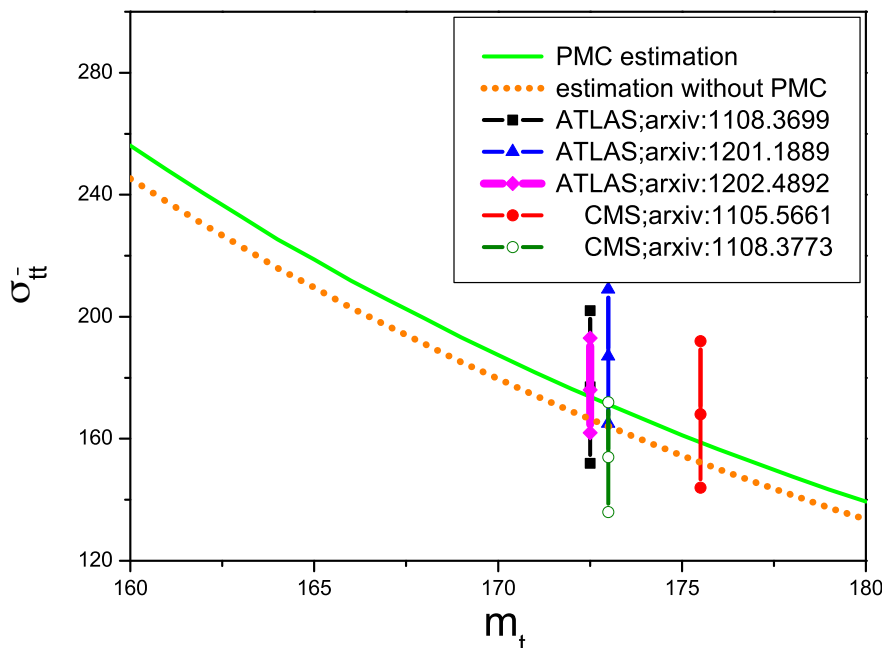
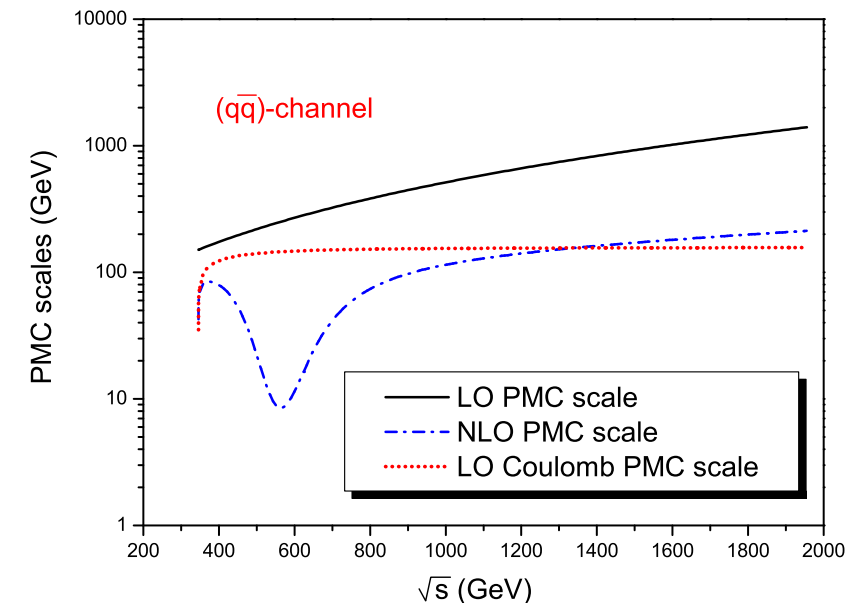
Important Example: Top-Quark FB Asymmetry

Brodsky, Wu, *Phys.Rev.Lett.* **109**, [arXiv:1203.5312]

$$A_{FB}^{t\bar{t}} = \frac{\sigma(y_t^{t\bar{t}} > 0) - \sigma(y_t^{t\bar{t}} < 0)}{\sigma(y_t^{t\bar{t}} > 0) + \sigma(y_t^{t\bar{t}} < 0)}$$



$\mu_r \neq \mu_f$ (!)



Conventional Scale Setting: $\alpha(\mu) = \alpha_{\overline{MS}}(\mu)$ and $\mu = [\frac{1}{2}Q, 2Q]$

HP: Hollik, Pagani, *Phys.Rev. D84*(2011)

Conventional 'uncertainty estimate' can be misleading

(see also Blumlein & van Neerven, *Phys.Lett. B450*, 417[1999])

Improving pQCD precision important for exposing new physics correctly!