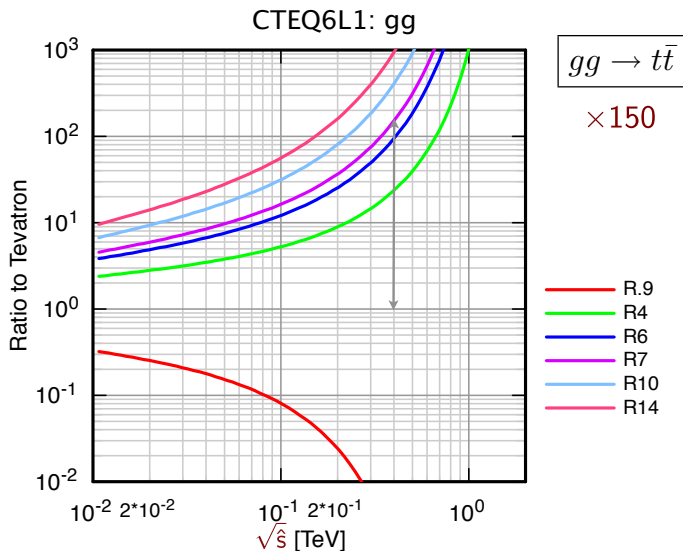
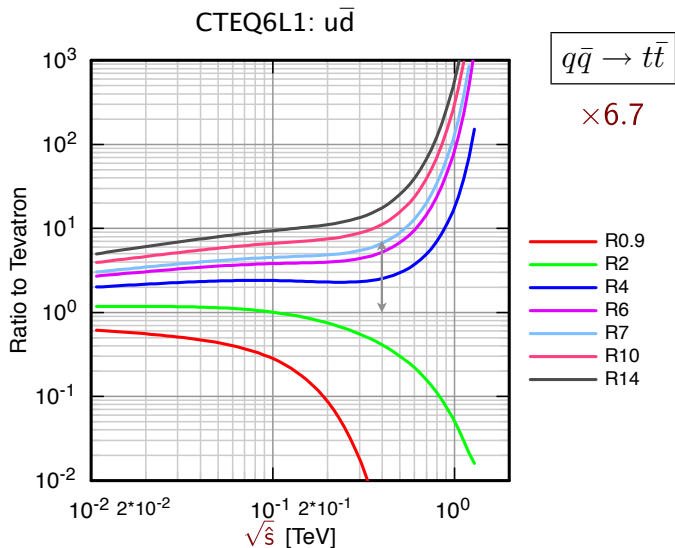


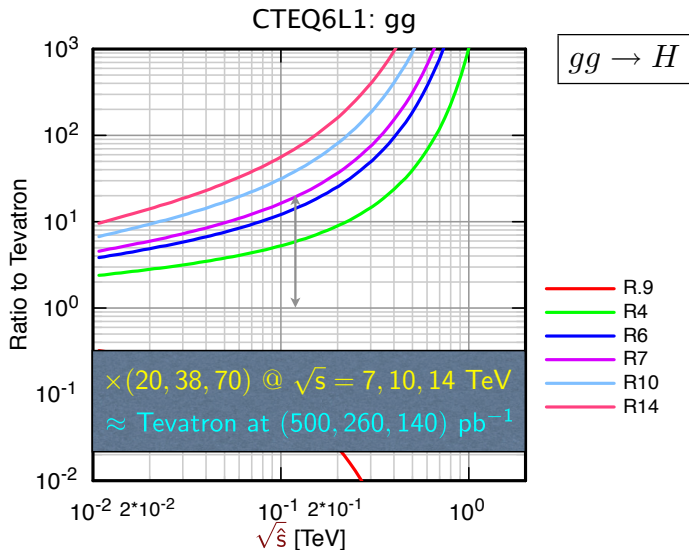
# Luminosity Ratios



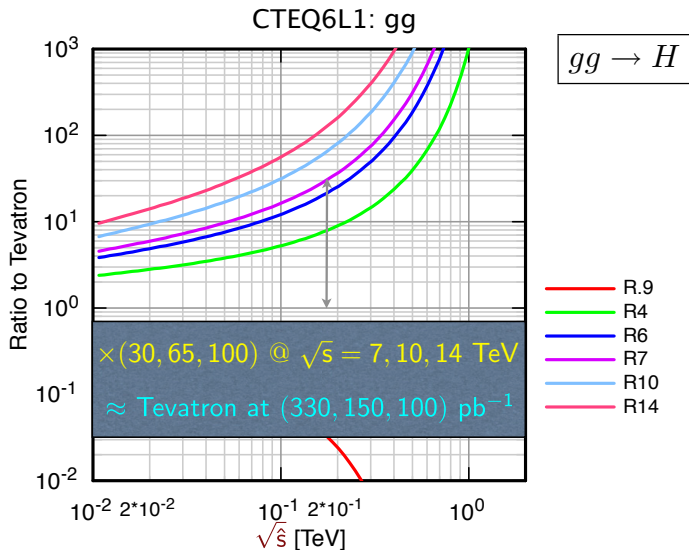
# Luminosity Ratios



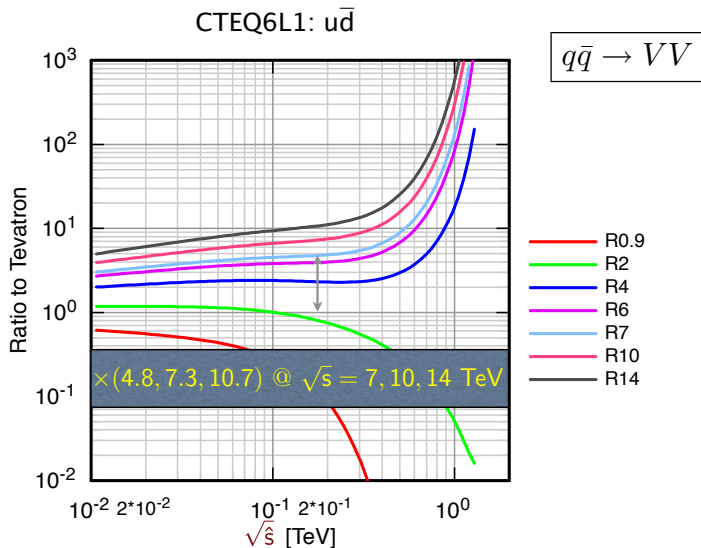
# Luminosity Ratios



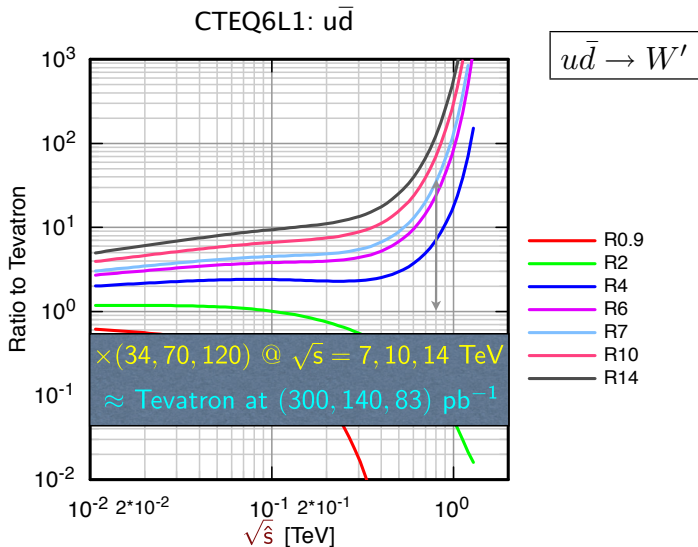
# Luminosity Ratios



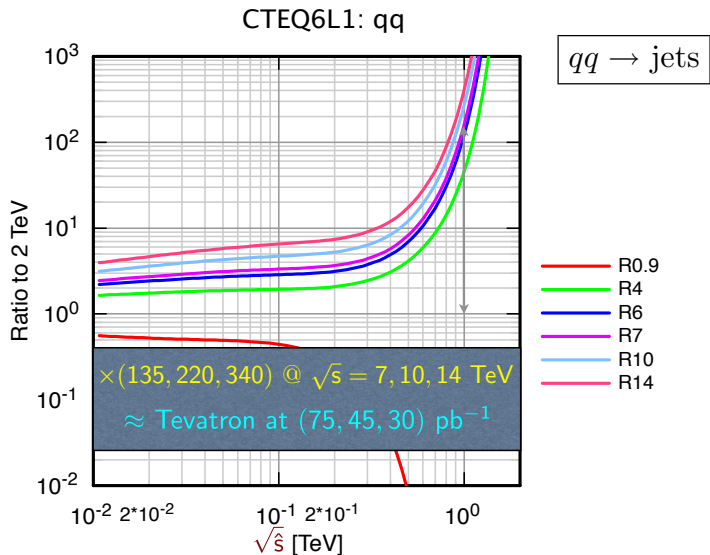
# Luminosity Ratios



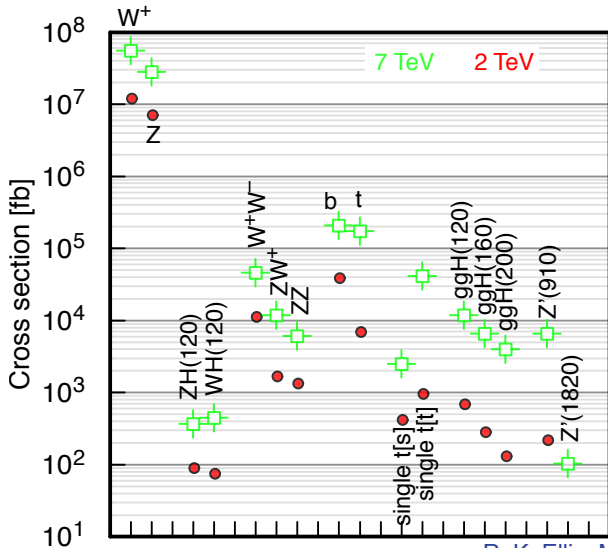
# Luminosity Ratios



# Luminosity Ratios



# Some Absolute Rates



R. K. Ellis, MCFM



## Leading-Order Analysis

At a few hundred  $\text{pb}^{-1}$ , the 7-TeV LHC enters terrain inaccessible to the Tevatron at  $10 \text{ fb}^{-1}$

*Useful starting point; but leaves out many detailed studies & precision measurements in progress at the Tevatron.*

Should know in 6 months how gracefully LHC starts up

## Deconstruct the Slogans

- Run the Tevatron until LHC has found or excluded the light Higgs boson (and established  $H \rightarrow b\bar{b}$ ).
- If a discovery were in reach, we should have hints now.
- Tevatron is a quark collider, LHC is a gluon collider.
- It will take years for LHC experiments to publish meaningful physics papers.
- The Tevatron will become irrelevant overnight.
- The Tevatron is old; it will collapse.
- The LHC is new; it will take years to work.

## Deconstruct the Slogans

Run the Tevatron until LHC has found or excluded the light Higgs boson (and established  $H \rightarrow b\bar{b}$ ).

- What could Tevatron contribute?

On current path, Tevatron cannot discover SM Higgs exclusion / evidence / “early”  $b\bar{b}$  in  $HV$

How seriously would you take exclusion?

- What would be required?

$20 \text{ fb}^{-1}$ ? / raised  $\langle \mathcal{L} \rangle$ ? / New Si? / Shutdown?

- Cost and opportunity cost

Are the people there to execute the program?

# Planning, American Style

## Opportunities Not (Yet) Taken at the Tevatron

- CDF & D0:  
Study of minimum-bias events / particle production  
Charm physics (in light of  $D^0\bar{D}^0$  mixing)
- Tevatron Collider Program:  
 $\sigma_{\text{tot}}$ ,  $\rho \equiv \text{Re/Im}$  of forward elastic amplitude  
(BTeV)
- 21st-Century Fixed-Target Experiments  
Charm physics (in light of  $D^0\bar{D}^0$  mixing)  
 $\nu e$  scattering  
 $\nu_\tau$  experiments (LAr-based)  
Exotic (decaying?) neutrinos  
See arXiv:0905.3004