

# Anomalous Couplings with Forward Protons

EF06 Topical Group

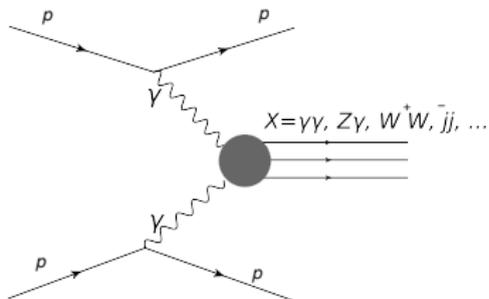
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Justin Williams

May 20<sup>th</sup>, 2020

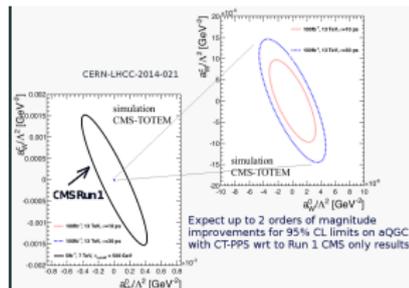
[justinwilliams@ku.edu](mailto:justinwilliams@ku.edu)

# Interest - Forward Proton Spectrometry

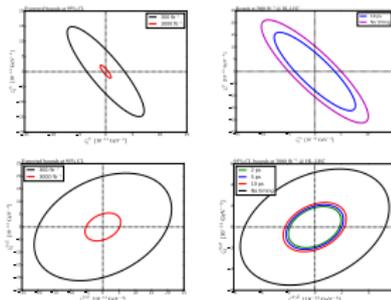


Best sensitivity to Anomalous Quartic Gauge Couplings comes by tagging final state protons

- HL-LHC studies:  $\gamma\gamma \rightarrow Z\gamma$  and  $\gamma\gamma \rightarrow \gamma\gamma$
- Overlap with EF04, see slides [1] [2]
- Central exclusive dijet production via gluon exchange detailed [here](#).

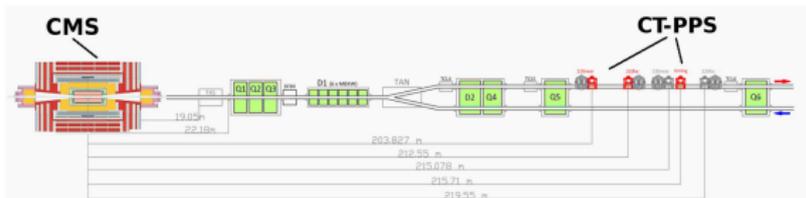


CERN-LHCC-2014-021



CERN-LPCC-2018-03

# Forward Central Matching



Require forward proton kinematics to be “matched” with the centrally produced system to greatly suppress backgrounds.

Forward proton detectors reconstruct the momentum loss from the intact protons

## Conservation of momentum

- Mass matching
- Rapidity matching

