EXAMPLES OF FEYNMAN DIAGRAMS WITH THE TIKZ PACKAGE

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Some example uses of the PGF/TikZ package for Feynman diagrams. Not necessarily the most efficient method!

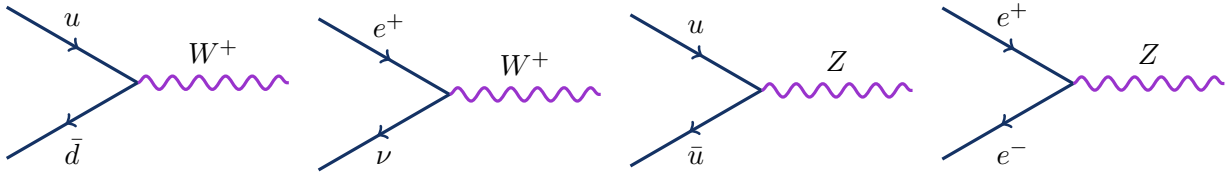PGF/TikZ code: http://sourceforge.net/projects/pgf/

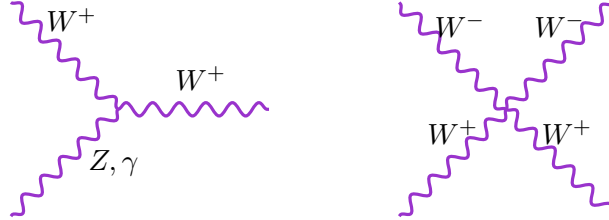FIGURE 1. Sample interactions vertices between quarks and leptons and W or Z bosons.

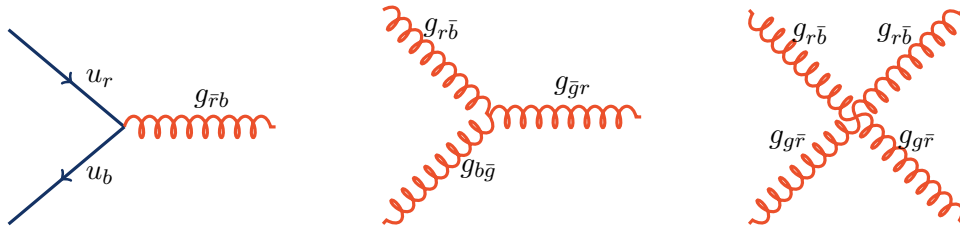FIGURE 2. Sample self-interaction vertices for W and Z bosons.

FIGURE 3. Sample interactions vertices between quarks and gluons, or gluon self-interaction, with the red (r), green (g), blue (b) color flow indicated.

FIGURE 4. Feynman diagrams for sample QCD (left) and EWK/QED (right) processes possible from pp collisions.

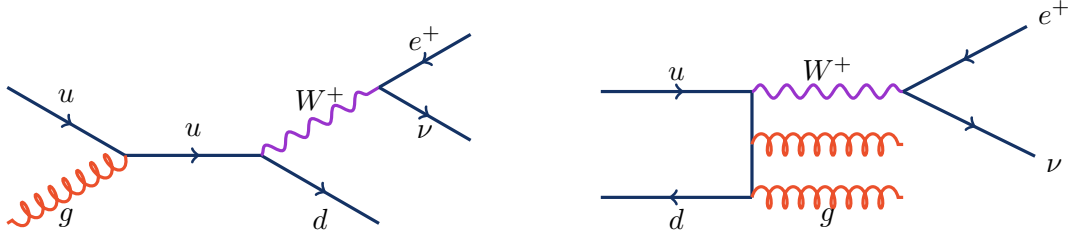

FIGURE 5. Sample Feynman diagrams for W+jets production. On the left, starting from an up quark and gluon and resulting in electron, neutrino, and down quark (becomes a jet). On the right, starting from an up quark and down anti-quark and resulting in electron, neutrino, and two gluon jets.
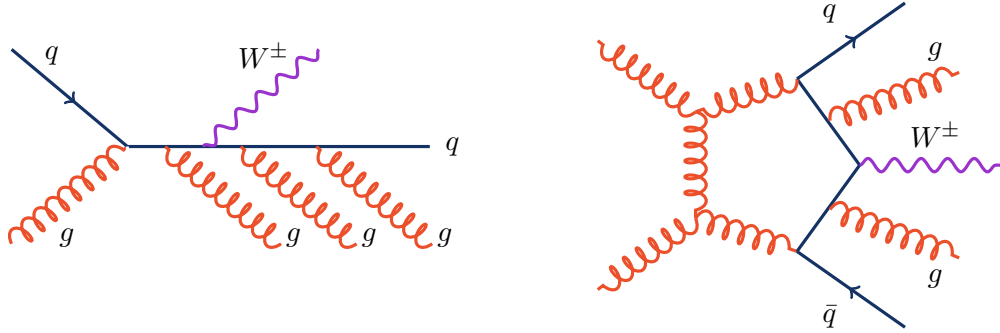

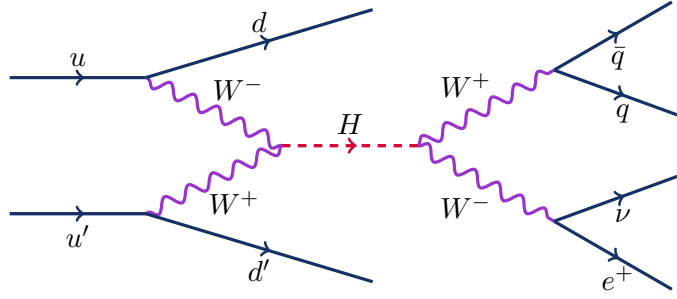FIGURE 6. Sample Feynman diagrams for W+4jets production.

FIGURE 7. Feynman diagram for vector boson fusion Higgs production resulting in an electron, neutrino, and two quark jets.
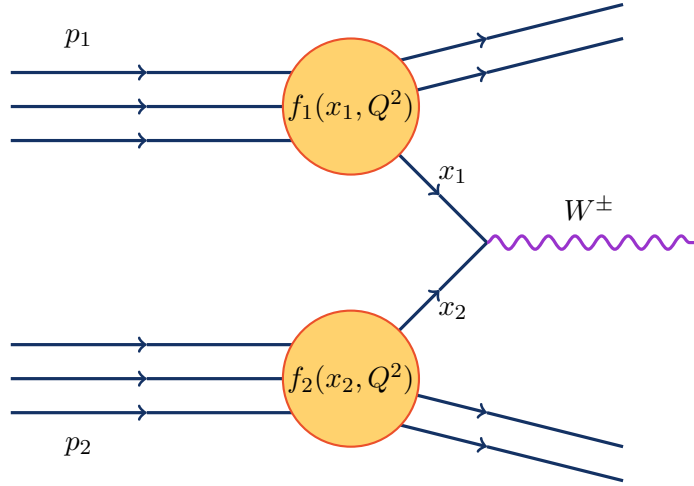

FIGURE 8. Formation of a W boson through deep inelastic scattering of two protons, p_1 and p_2, shown as an interaction between two of the constituent particles with momentum fractions x_1 and x_2.
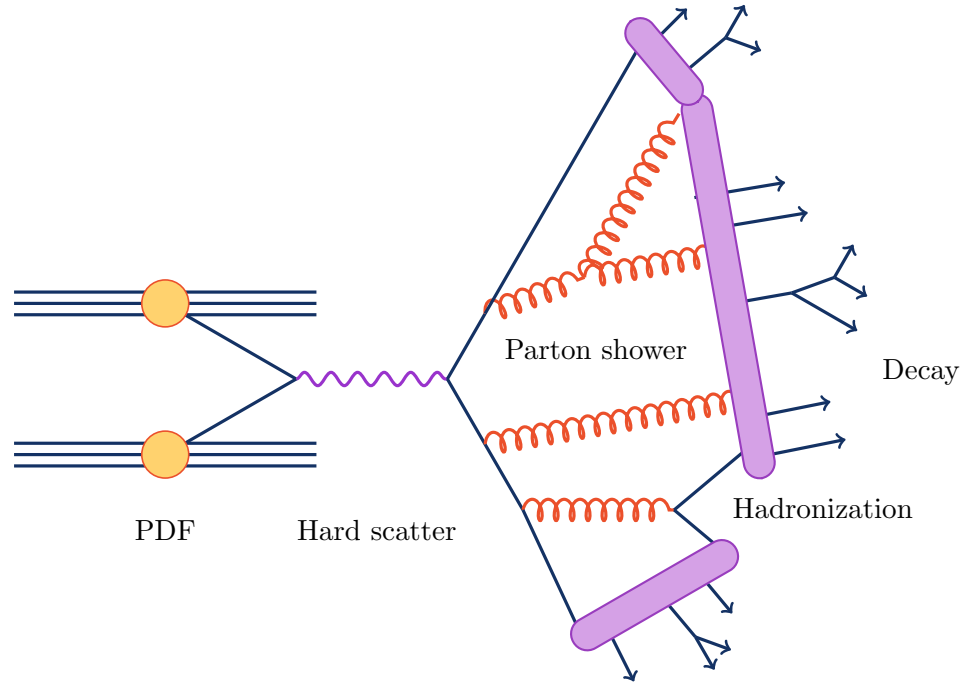
FIGURE 9. A pictorial representation of a collision with the hard interaction and the resulting fragmentation, hadronization, and decay.
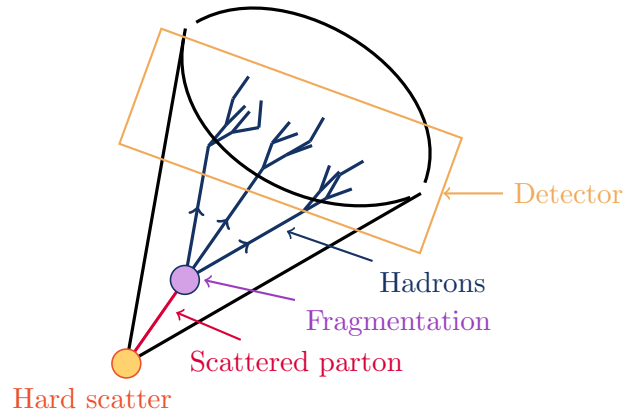

FIGURE 10. Illustration of the evolution from the hard scattering parton to the jet in the detector.