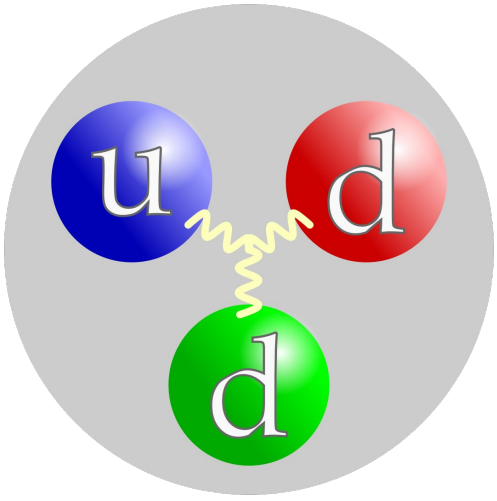
PHYSICS SEMINAR

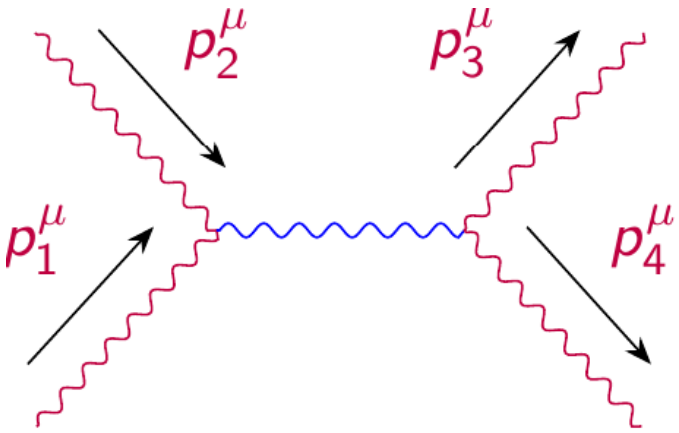
Predicting Gluon-Like Particles Using Feynman Diagrams

Able Martinez

Thursday, April 9, 2026
12:30 – 1:30 p.m.
Wubben 160

Feynman diagrams give an intuitive, pictorial method for understanding the inner workings of particle accelerators. We review how these diagrams are used to make quantitative predictions for the interactions of gluons, the carriers of the strong nuclear force. We present a simplified toy model system of gluons that exhibits a property known as color-kinematics (C-K) duality, a property which bridges the divide between the strong force and quantum gravity. This semester, I predict the scattering of gluons using Feynman diagrams for this system and show how C-K duality can be used to influence predictions in the form of a fundamental Bern-Carrasco-Johansson (BCJ) relation.





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