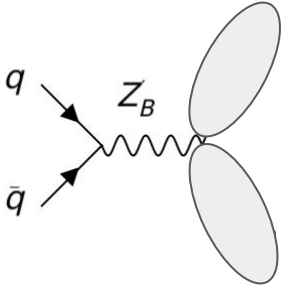
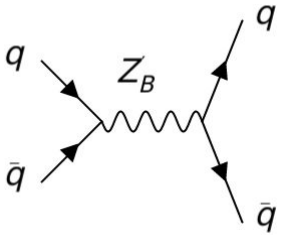
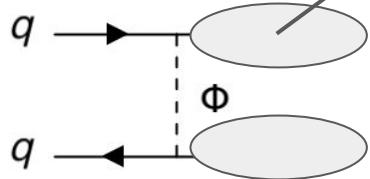
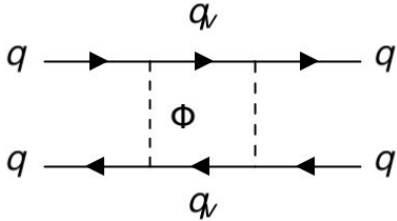


Evidence for dark gluon bremsstrahlung in three dark showers event

Chih-Ting Lu (KIAS)

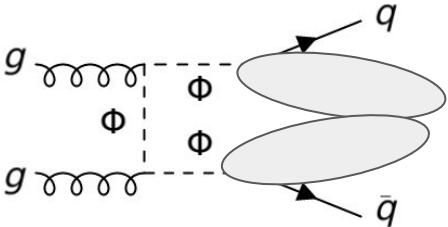
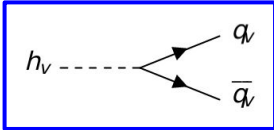
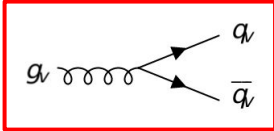


emerging jets,
semi-visible jets,
dark jets

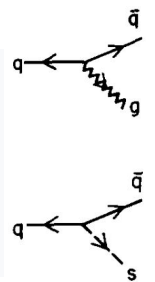
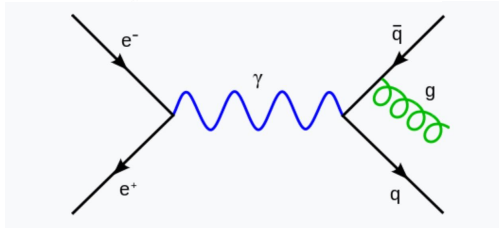


emerging jets,
semi-visible jets,
dark jets

Dark QCD or
Strong Yukawa
coupling ?



Nuclear Physics B148 (1979) 141-147



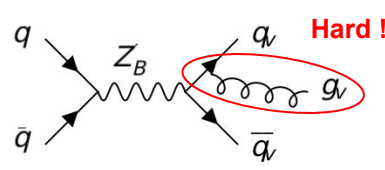
$$N \frac{d\sigma(q\bar{q}g)}{d(\cos\tilde{\theta})} \sim 1 + 2 \cos^2\tilde{\theta} .$$

$$N \frac{d\sigma(q\bar{q}s)}{d(\cos\tilde{\theta})} \sim 1 + 0.2 \cos^2\tilde{\theta} .$$

John ELLIS and Inga KARLINER

Three Dark Showers Event

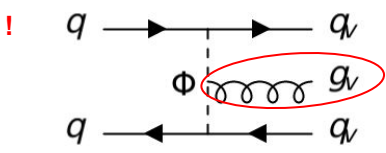
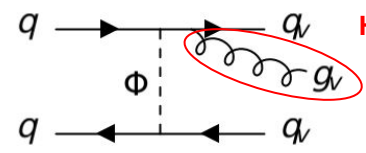
Issues :



matching/merging for dark gluon jet

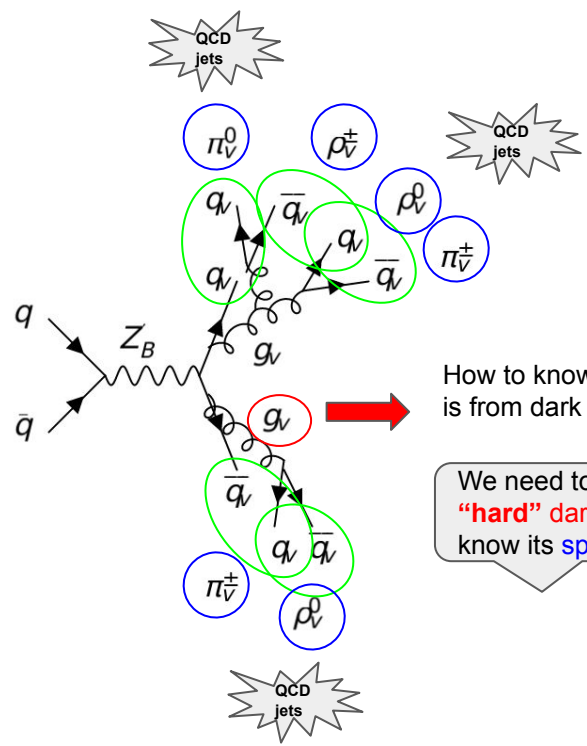
two dark quark jets may be too boosted

distinguish dark gluon from QCD partons



Hard !

Can we further distinguish s-channel and t-channel portals ?



How to know the dark sector is from dark QCD ?

We need to detect the **"hard"** dark gluon and know its **spin**

QCD jets

QCD jets

QCD jets

