重味产生部分写作状态汇报

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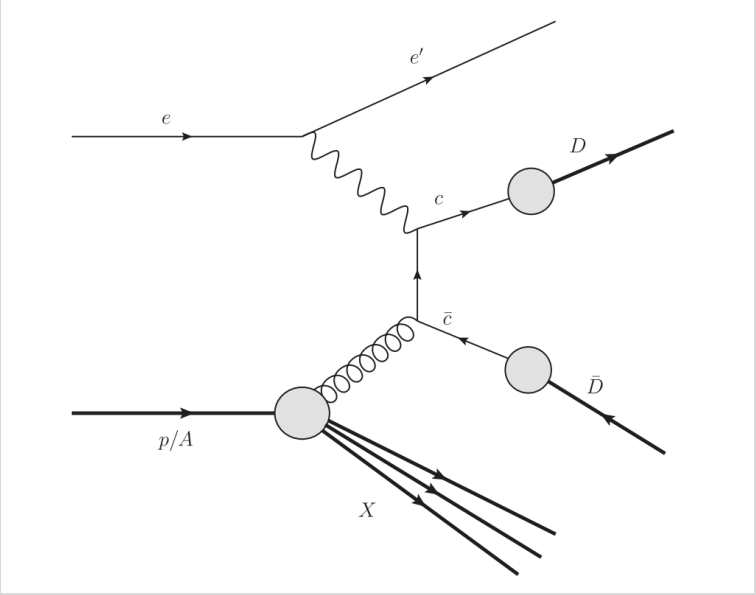
Outline

- 重味部分写作状态汇报
- 推荐写入executive summary的观测量



写作状态

重味部分共35页

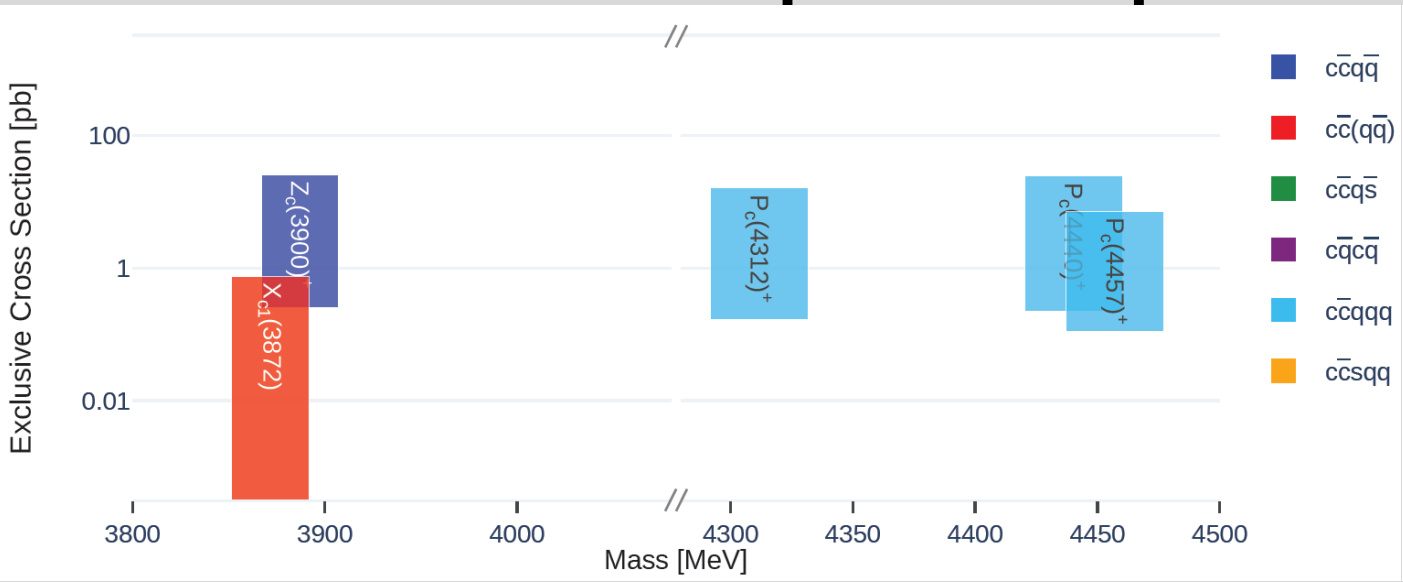
- 综述部分： 2页
- 胶子分布： 9页， （已发表）
- 粲夸克Sivers函数： 2页 （正在撰写draft)
- 奇特强子态：11页 （已发表）
- 核介质效应：11页 （已发表）

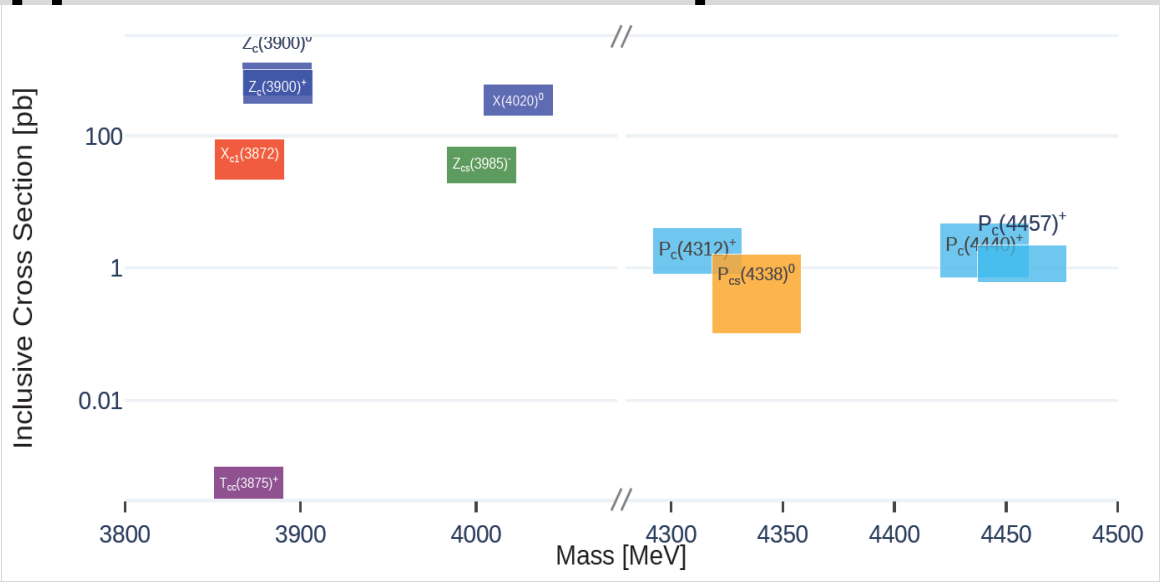
Exotic hadronic states

- **Heavy Charmonium Production as a benchmark:**

  - Heavy Charmonium Production ≤ 1 nb
  - From quasi-real to deep virtual photon
  - Exotic Pentaquark States Production < 10pb

- **Semi-inclusive electroproduction puts an upper limit of exclusive production**



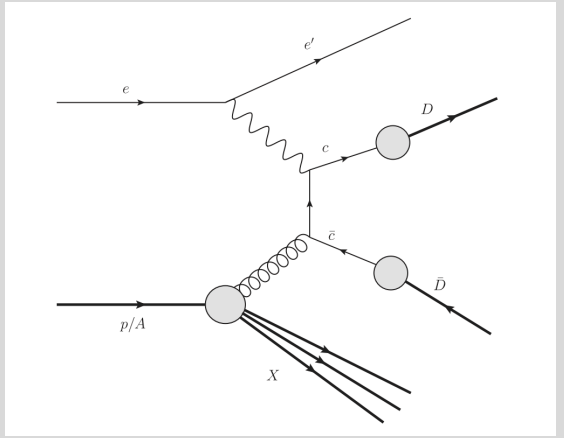


- **Exclusive processes:**
  Heavy Charmonium Production, pentaquark, X(3872)/Zc(3900)
- **Inclusive process:**
  Integrated cross sections for many exotic states

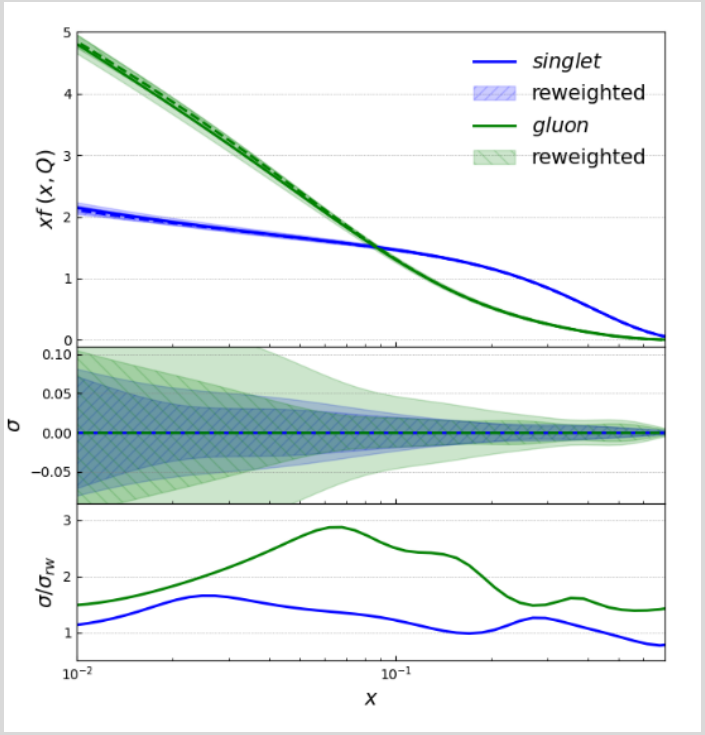
Gluon PDF

Heavy flavor hadrons are produced via photon-gluon fusion in DIS (LO)

➟ sensitive to gluonic structure functions.

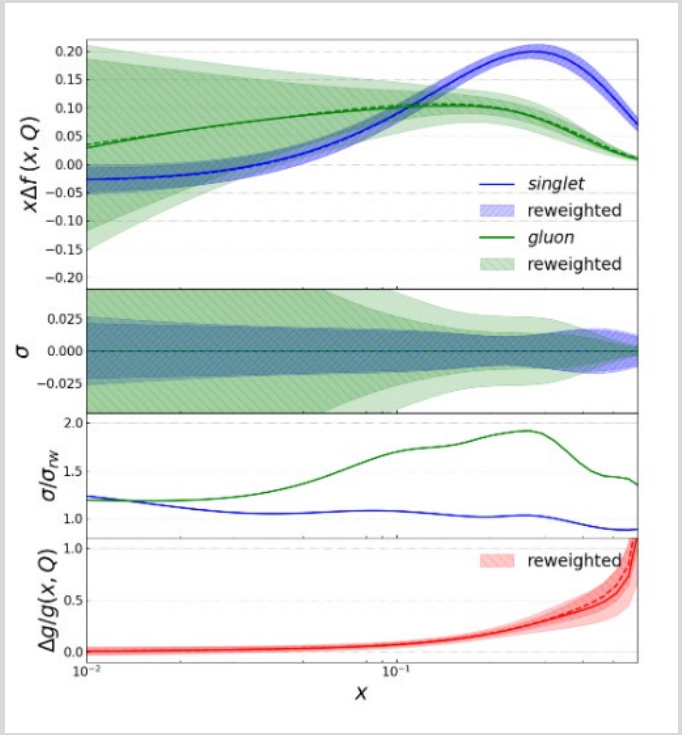


With ~6.8 fb^{-1} @ 3.5X20 GeV^2
With ~5.5 fb^{-1} @ 5X25 GeV^2

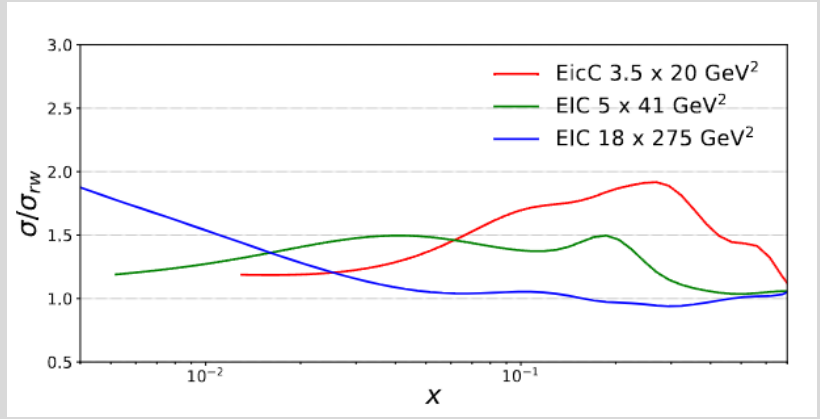


- Impact on the **unpolarized** proton gluon PDF g(x, Q2) using reweighting techniques. (CTEQ PDF set)
- Maximum uncertainty reduction up to **a factor of 3** for **gluon** PDF

With ~100 fb^{-1} @ 3.5X20 GeV^2



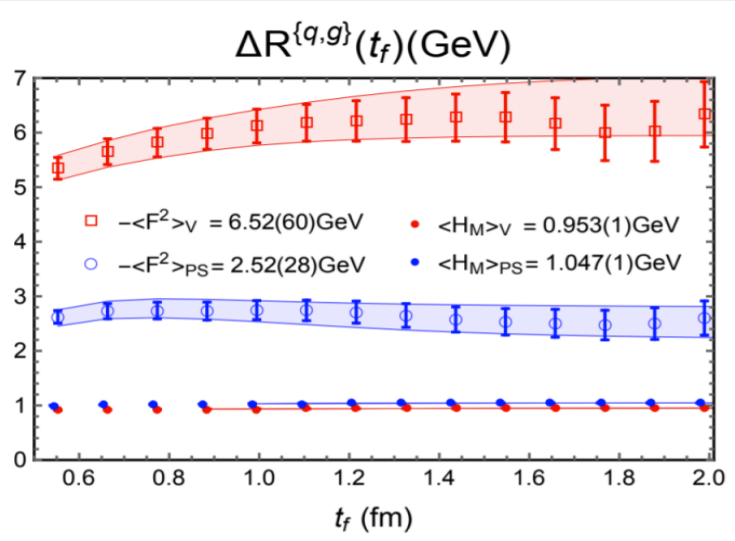
- Impact on the **polarized** proton gluon PDF **Δ**g/g(x, Q2)
- Maximum uncertainty reduction up to **a factor of 2** for **polarized gluon** PDF



Comparison of the impact on the polarized proton gluon PDF Δg/g(x, Q2) between EIC and EicC

强子质量起源

探究强子质量起源是EIC(US)和EICC的重要物理目标之一。



FC He, P Sun, YB Yang Phys.Rev.D 104 (2021) 7, 074507

$$M_H = \langle T^\mu_\mu \rangle_H = (1+\gamma_m)\langle H_m \rangle_H + \frac{\beta}{2g}\langle F^2 \rangle_H$$

$$\langle P|T^\mu{}_\mu|P\rangle = \frac{1}{4}(A_q(0)+A_g(0))M_N$$

XD Ji et al PRD 103 096010