Impact of EIC NC+CC DIS on unpolarised proton PDFs from NNPDF

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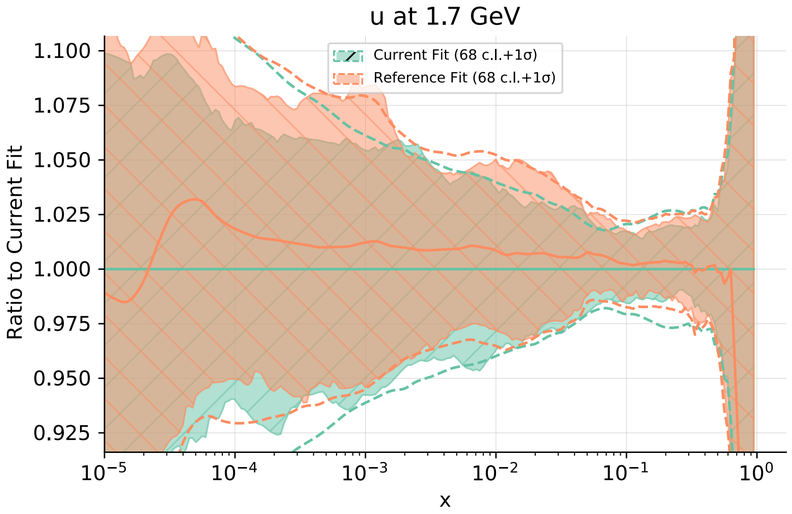
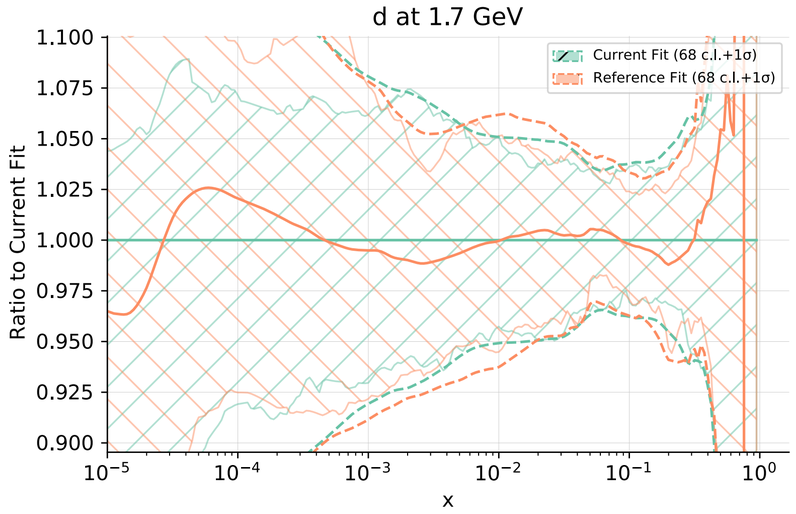
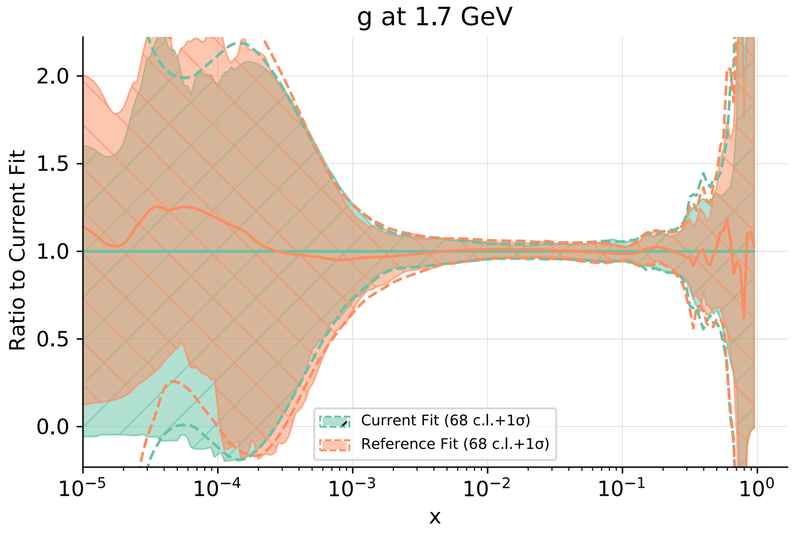
EIC Inclusive meeting, 6/10/2020

Optimistic EIC(NC+CC) vs. NNPDF3.1 Baseline

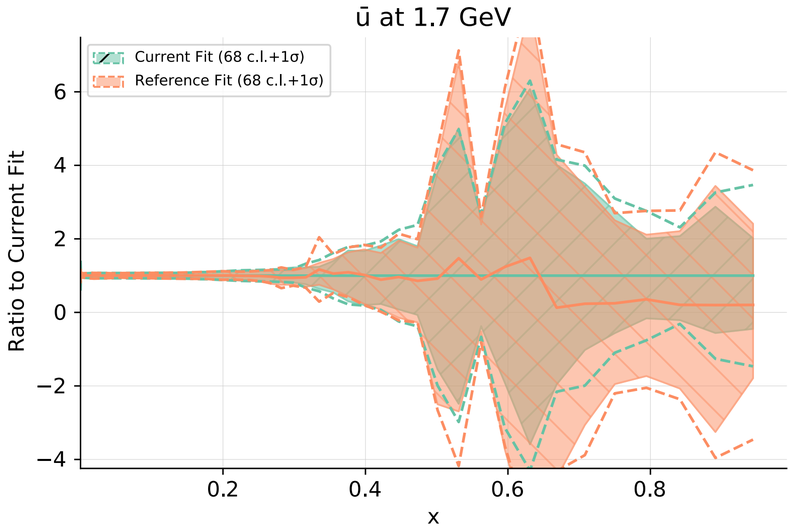


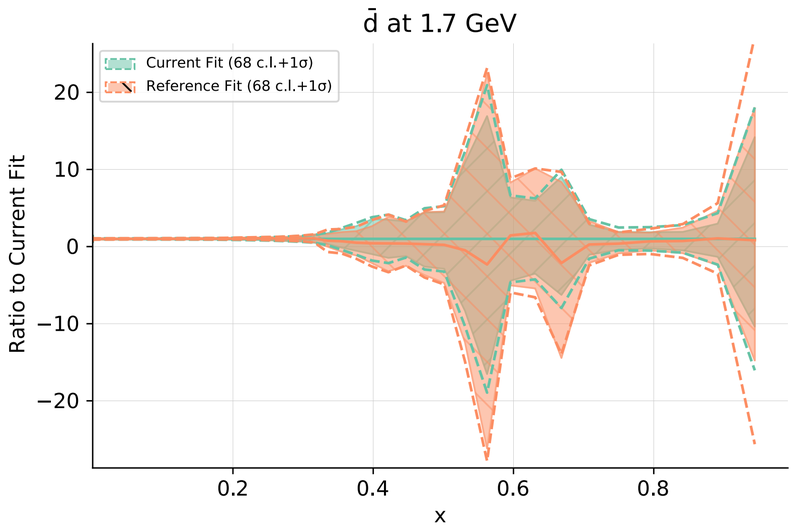


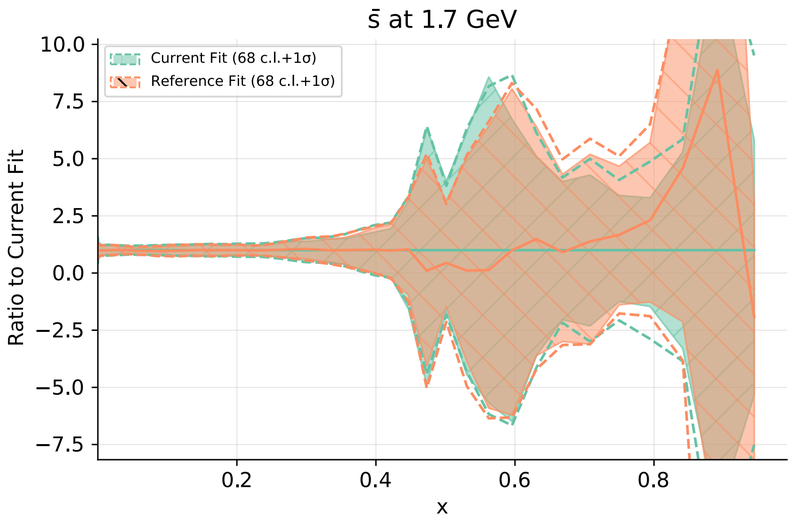
No noticeable impact on: $u,\ d,\ g$

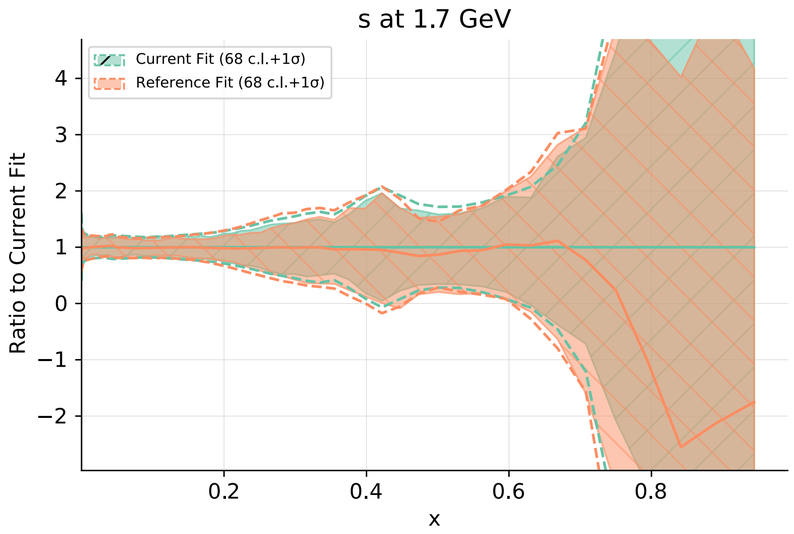


Optimistic EIC(NC+CC) vs. NNPDF3.1 Baseline



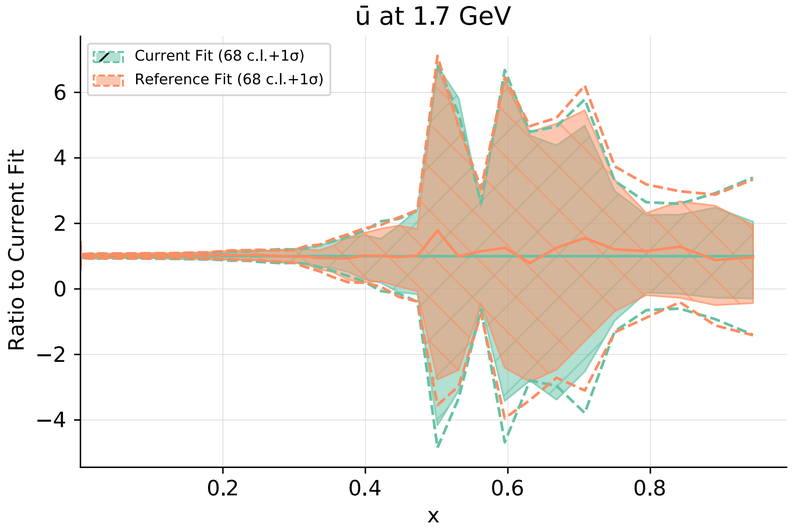


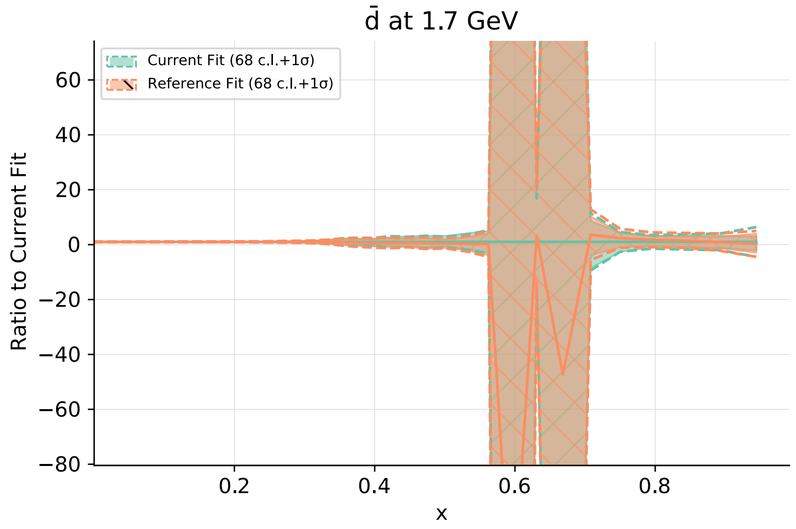


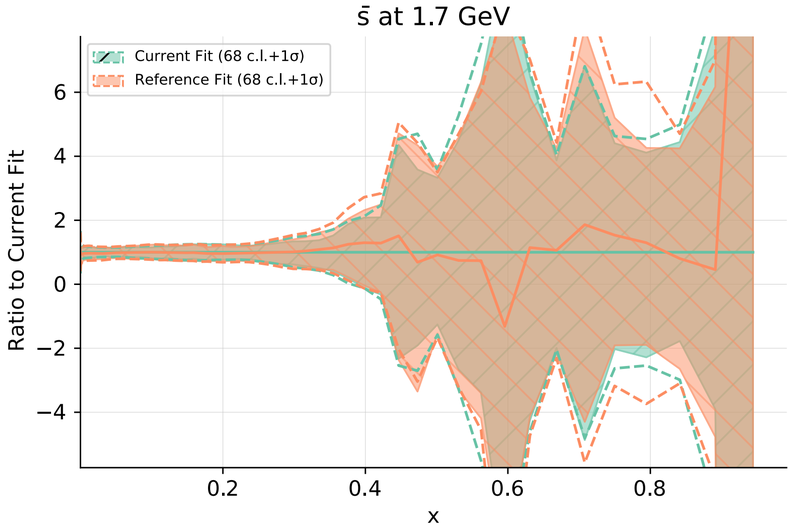


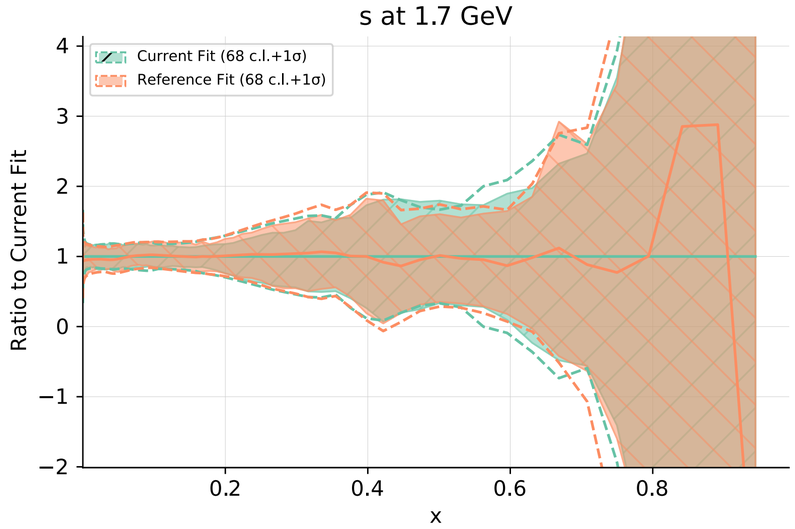
- **No noticeable impact on:** u, d, g
- **Low-x: EIC ($\sqrt{s}_{max} = 140$ GeV) is not competitive with HERA (318 GeV).**
- **Large-x small impact on sea quarks, mainly from CC DIS**

Pessimistic EIC(NC+CC) vs. Optimistic EIC(NC+CC)



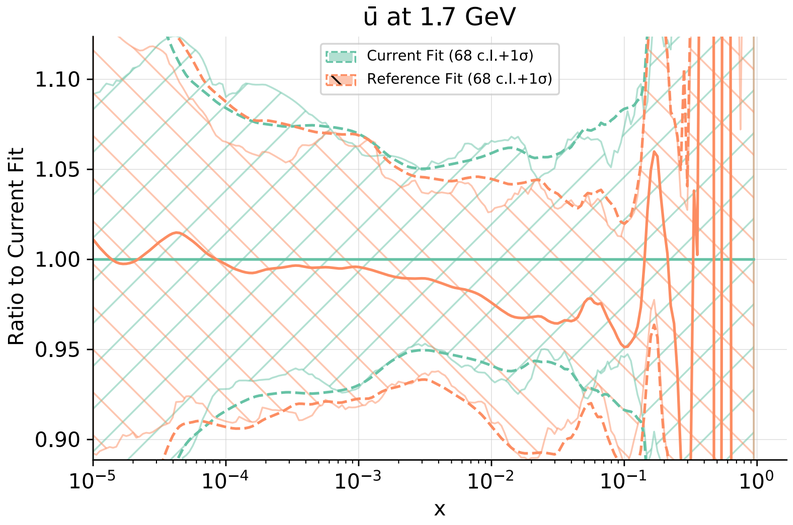


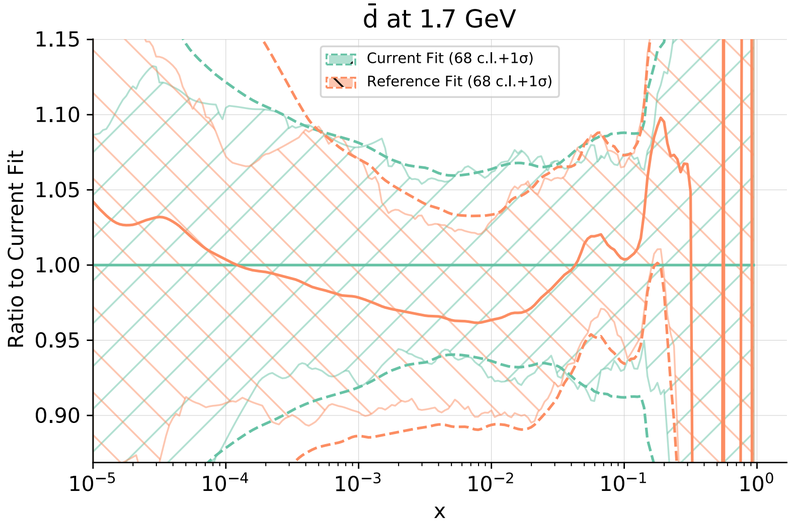


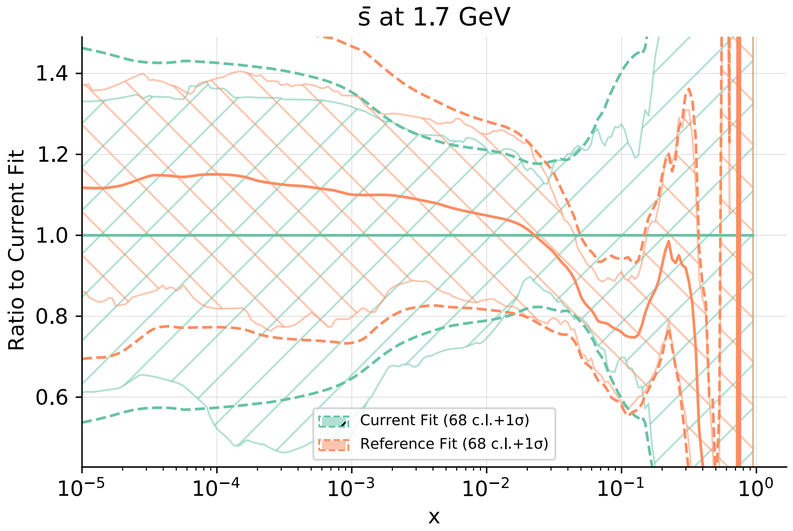


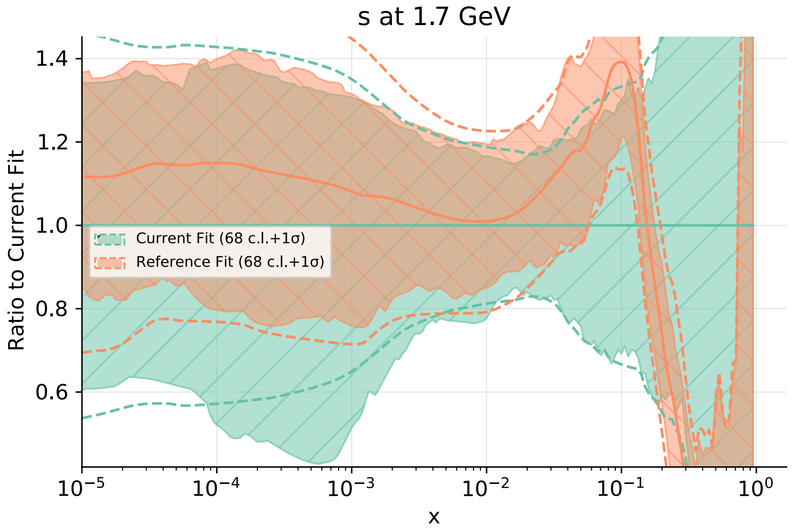
Even in pessimistic scenario, the impact at large-x is noticeable.

Optimistic EIC(NC+CC) - CHORUS - NuTeV vs. NNPDF3.1 Baseline





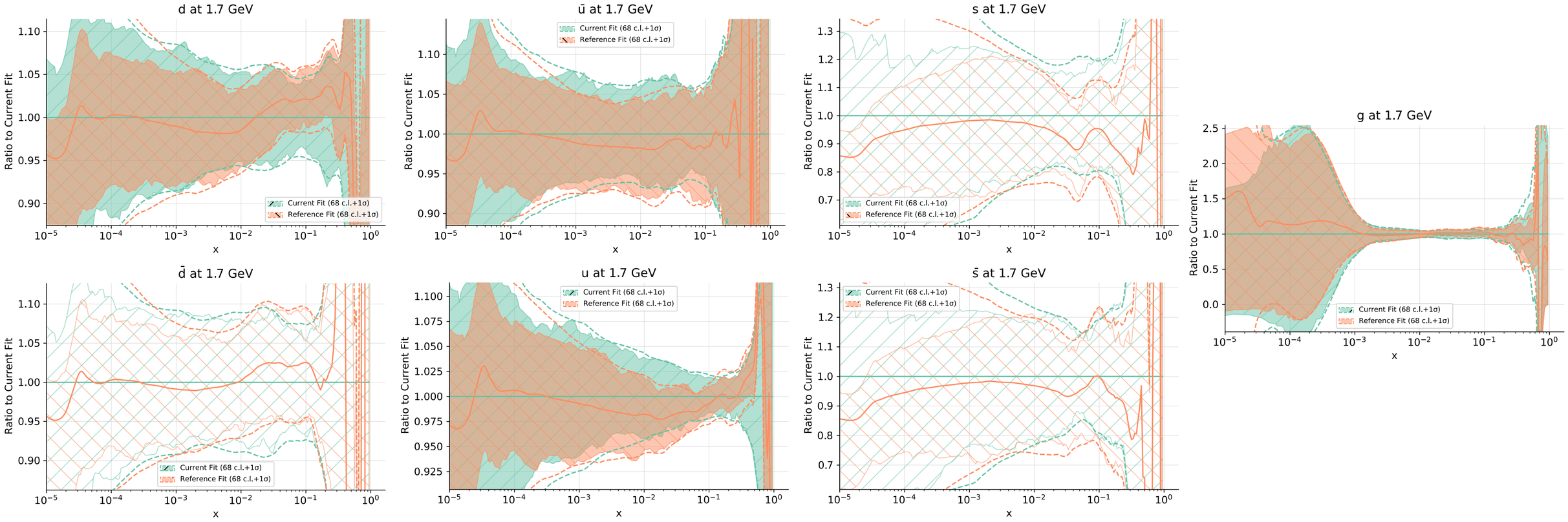




- **The charm tagged NuTeV is still very important to constrain s and $\bar{s}$**
- **$\nu/\bar{\nu}$ DIS is important to disentangle the sea quarks.**
- **It nicely complements the EIC CC data that mainly constrain $\bar{u}$ and $\bar{d}$ where s and $\bar{s}$ are suppressed**

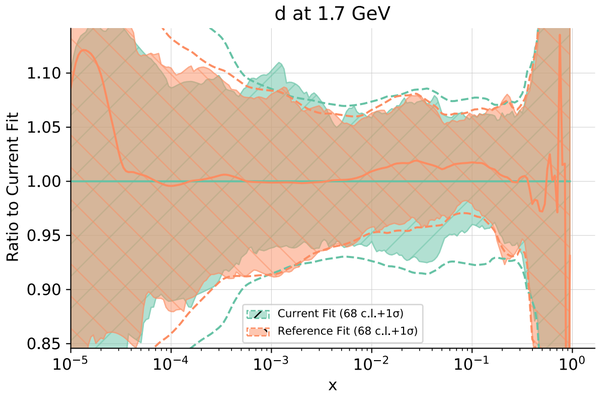
Optimistic EIC(NC+CC) - fixed target DIS

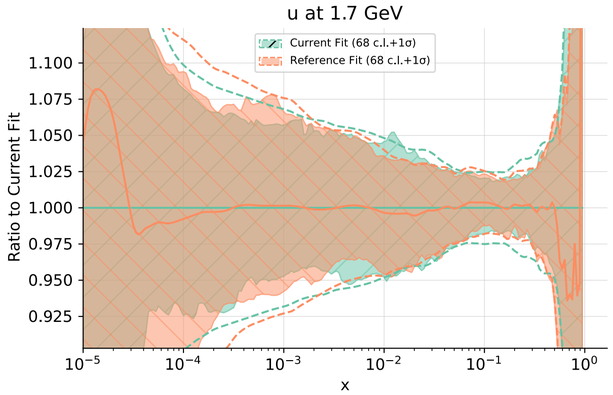
vs. Optimistic EIC(NC + CC)

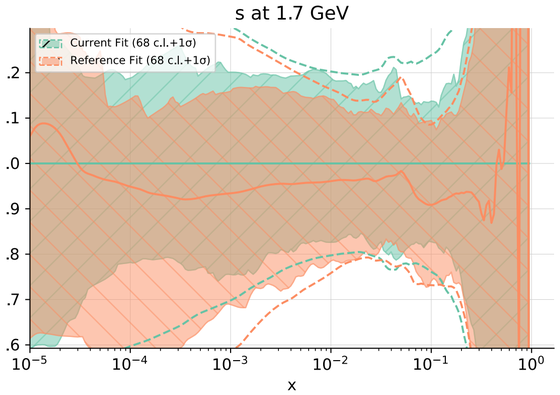


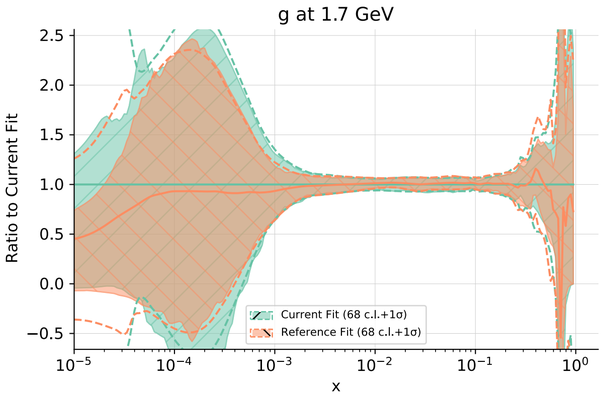
Pessimistic EIC(NC+CC) - fixed target DIS

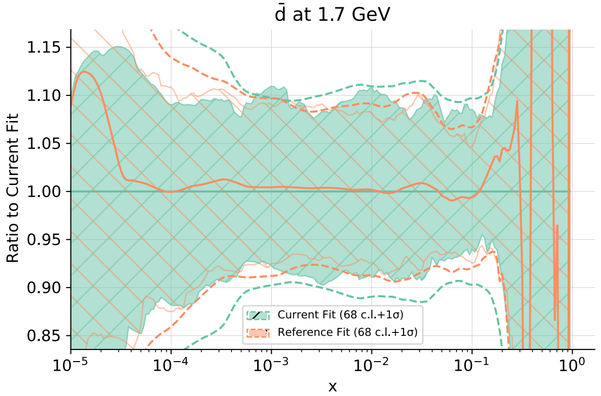
vs. Optimistic EIC(NC + CC) - fixed target DIS

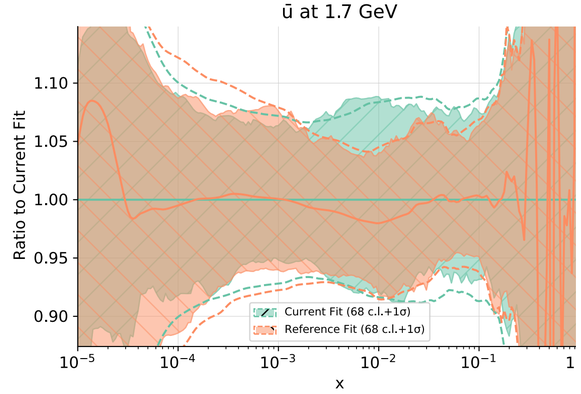


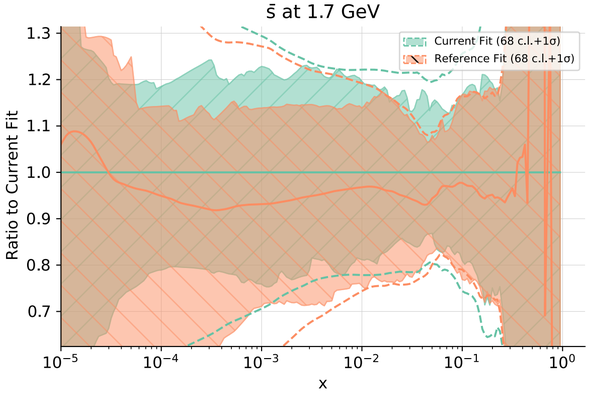












On the side…
FL comparison