

# Preliminary D/p ratio and F2n/F2p

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- **Yield:**

$$Y^i = \frac{\sum_n N(\text{measured})_n^i / LT_n \times C_{ECC} \times (1 - \tau_{e^+/e^-}^i) \times C_{rad}^i}{N(\text{charge}) \times N_{\text{targ}}}$$

i: each bin;      n: each run

- Cuts used:

trigger2 = "(DL.evtypebits>>2)&1";

CK = "L.cer.asum\_c>2000";

E/p = "(L.prl1.e+L.prl2.e)/(1000\*L.gold.p)>0.75";

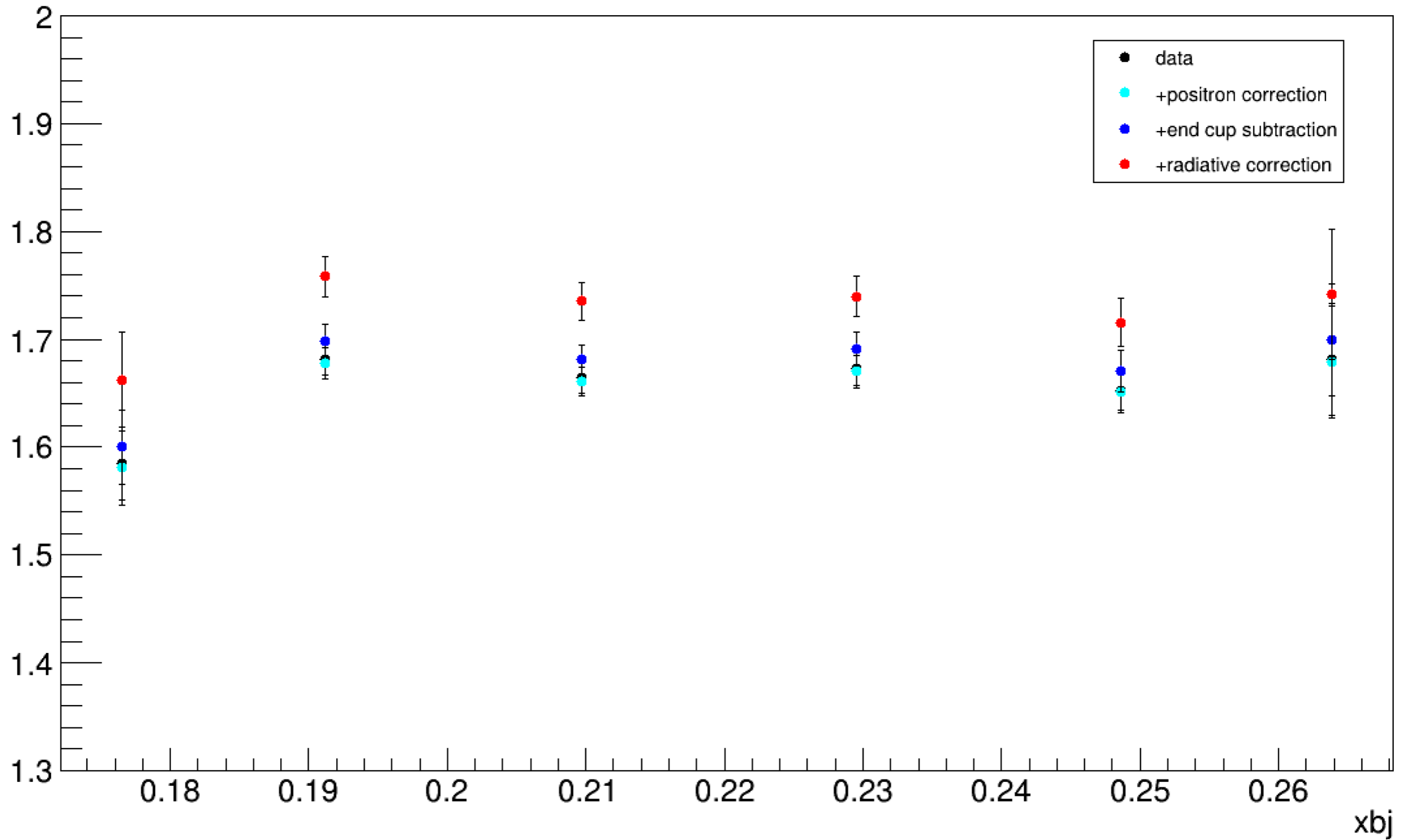
beta = "L.tr.beta>0";

ACC = abs(L.tr.tg\_th)<0.06 && abs(L.tr.tg\_ph)<0.03 && abs(L.tr.tg\_dp)<0.04;

VZ = abs(L.tr.vz)<0.07;

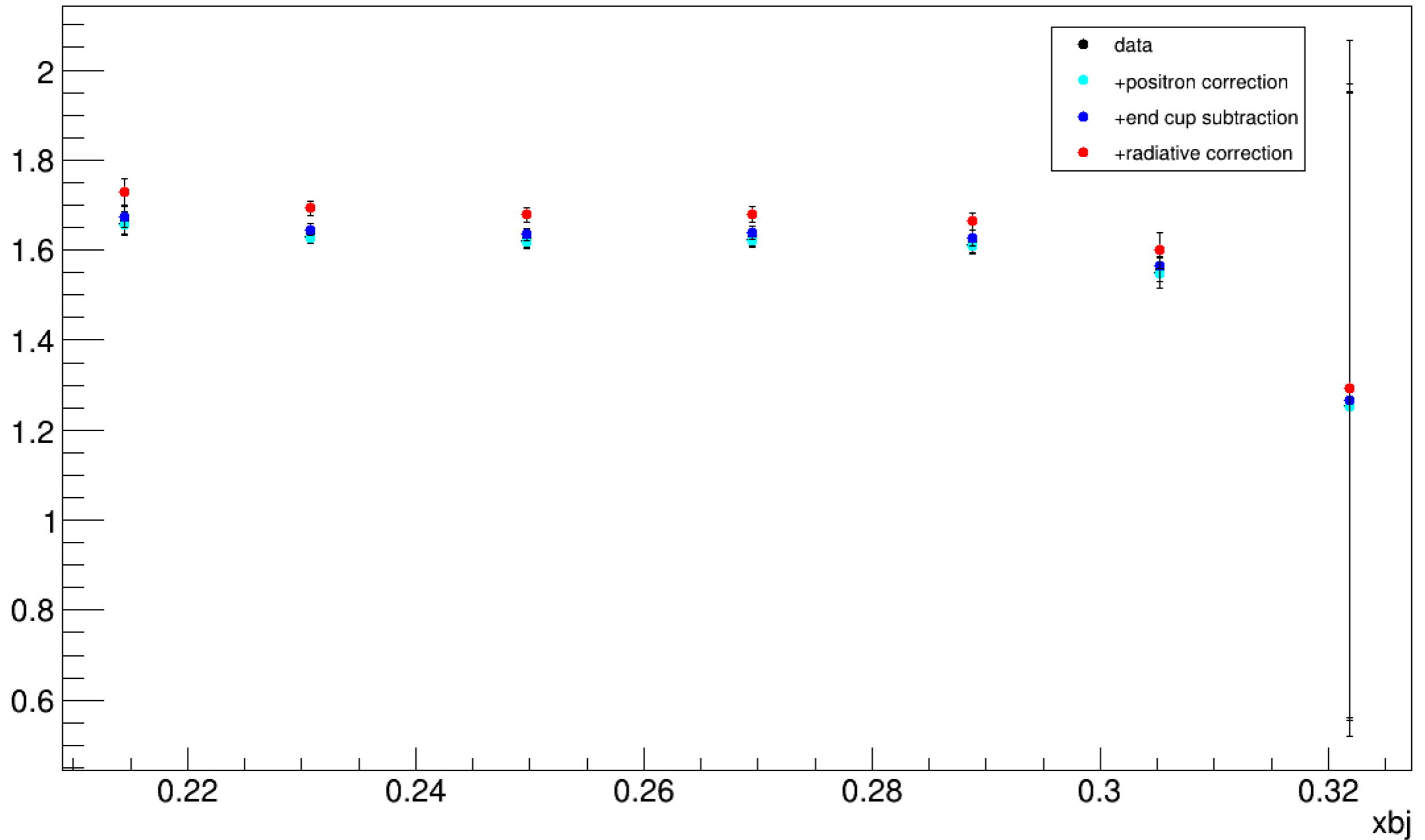
TRK1 = "L.tr.n==1";

# Kin 1 D2/H1



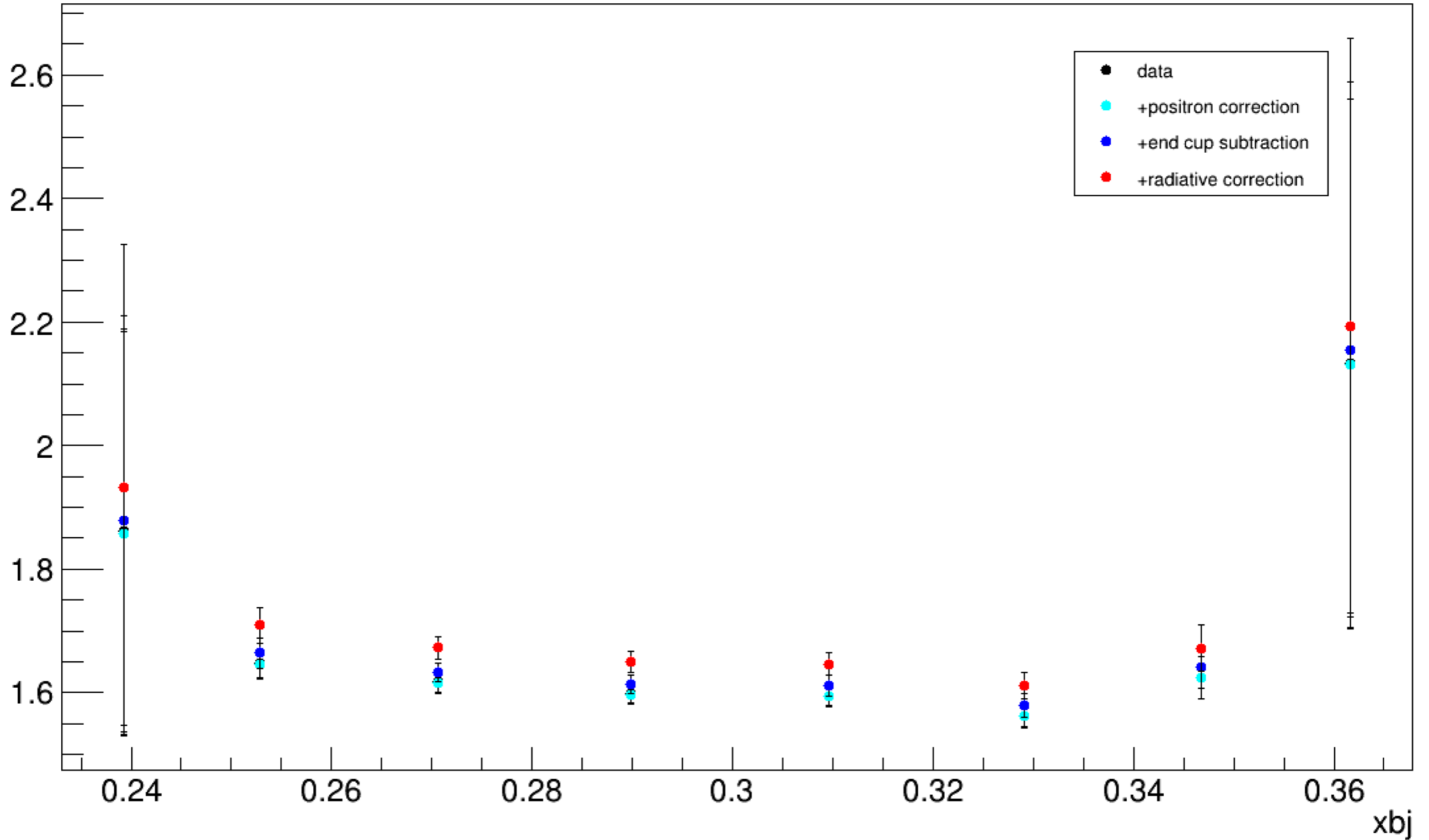
**2 to 5 points are kept**

# Kin 2 D2/H1



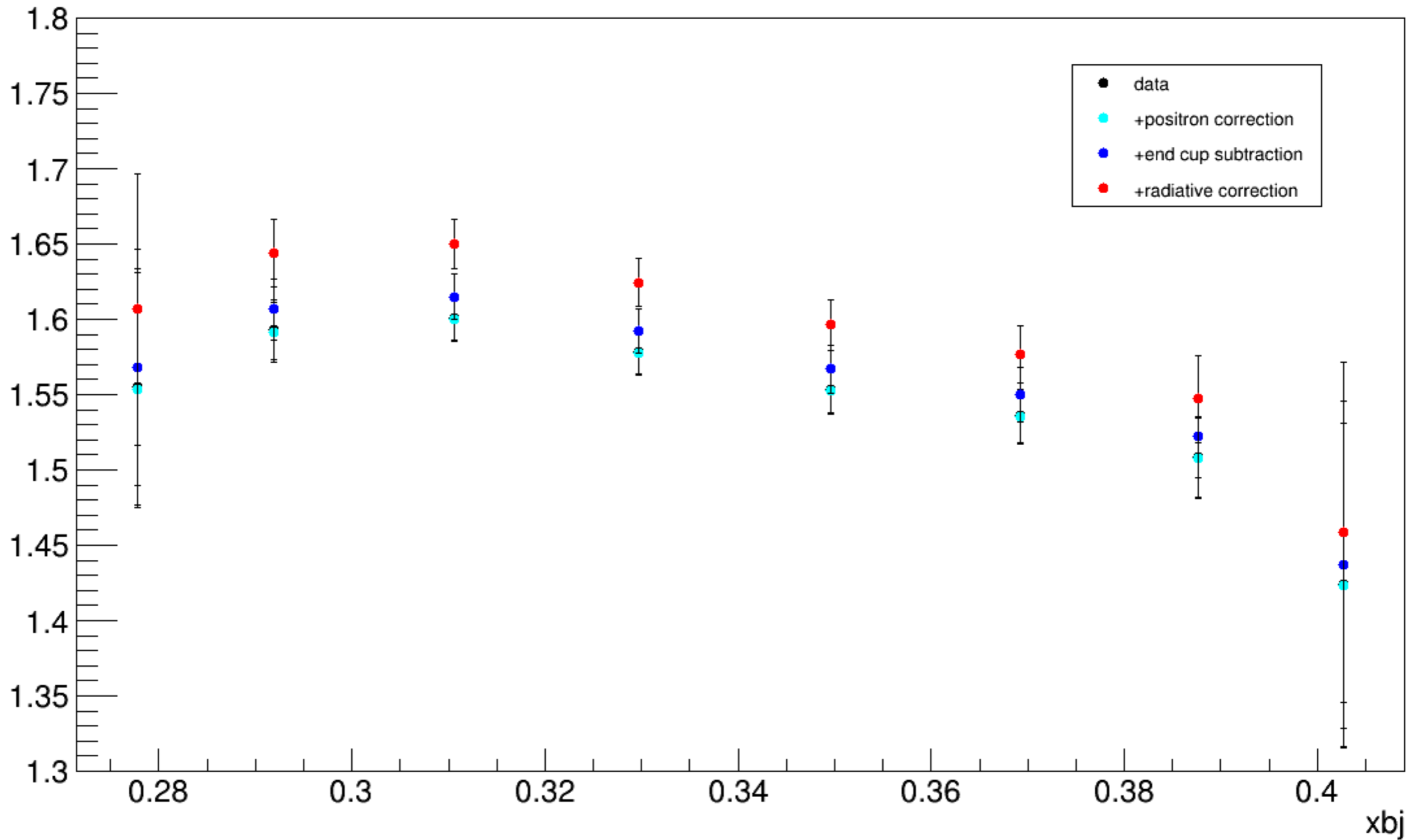
**1 to 6 points are kept**

# Kin 3 D2/H1



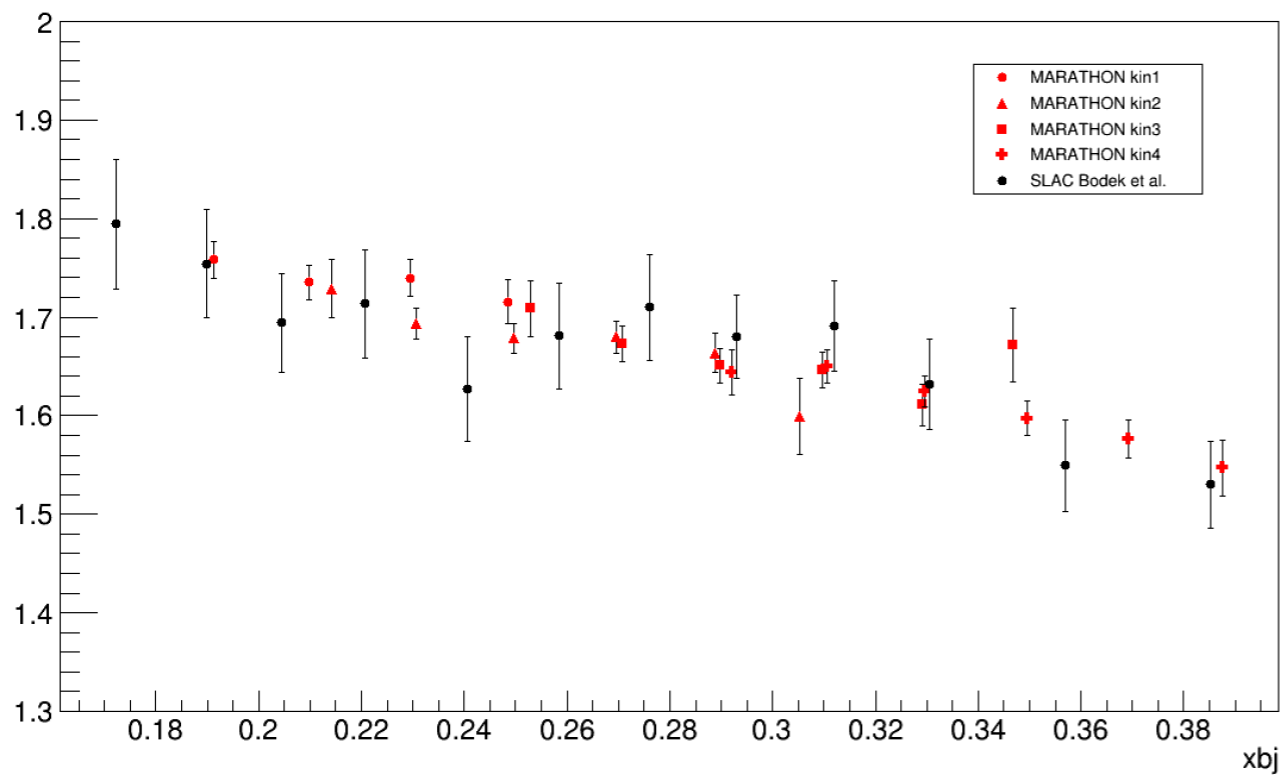
**2 to 7 points are kept**

# Kin 4 D2/H1



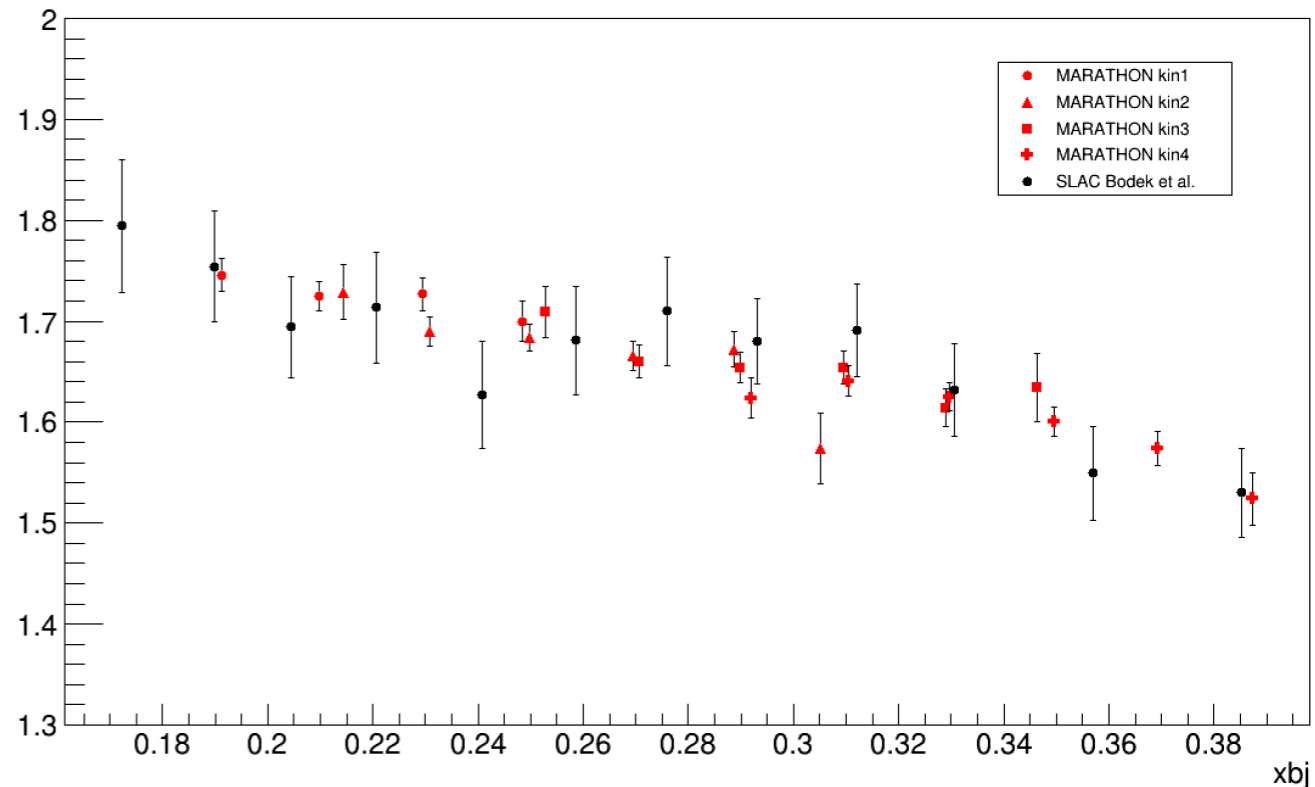
**2 to 7 points are kept**

D2/H1



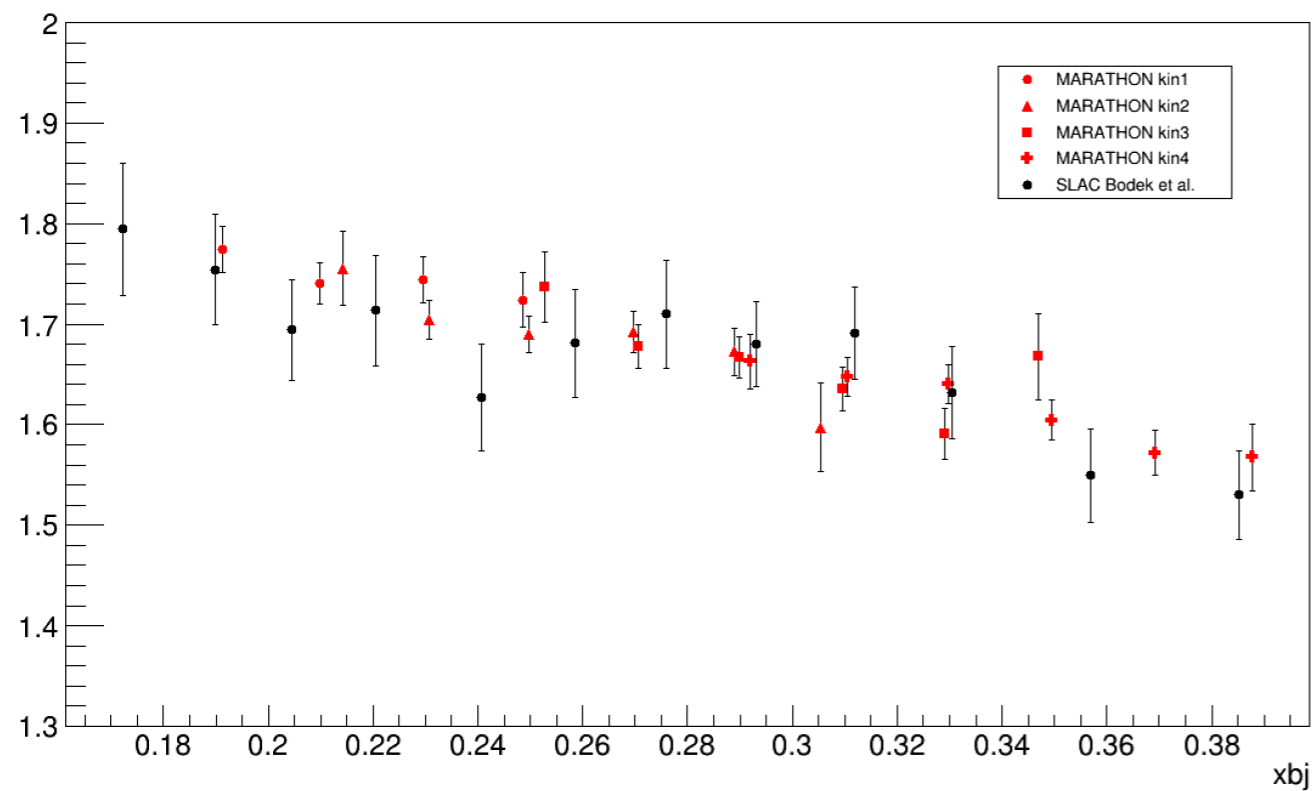
$$VZ = \text{abs}(L.\text{tr}.vz) < 0.07;$$

D2/H1



$$VZ = -0.09 < L.\text{tr}.vz < 0.10;$$

D2/H1

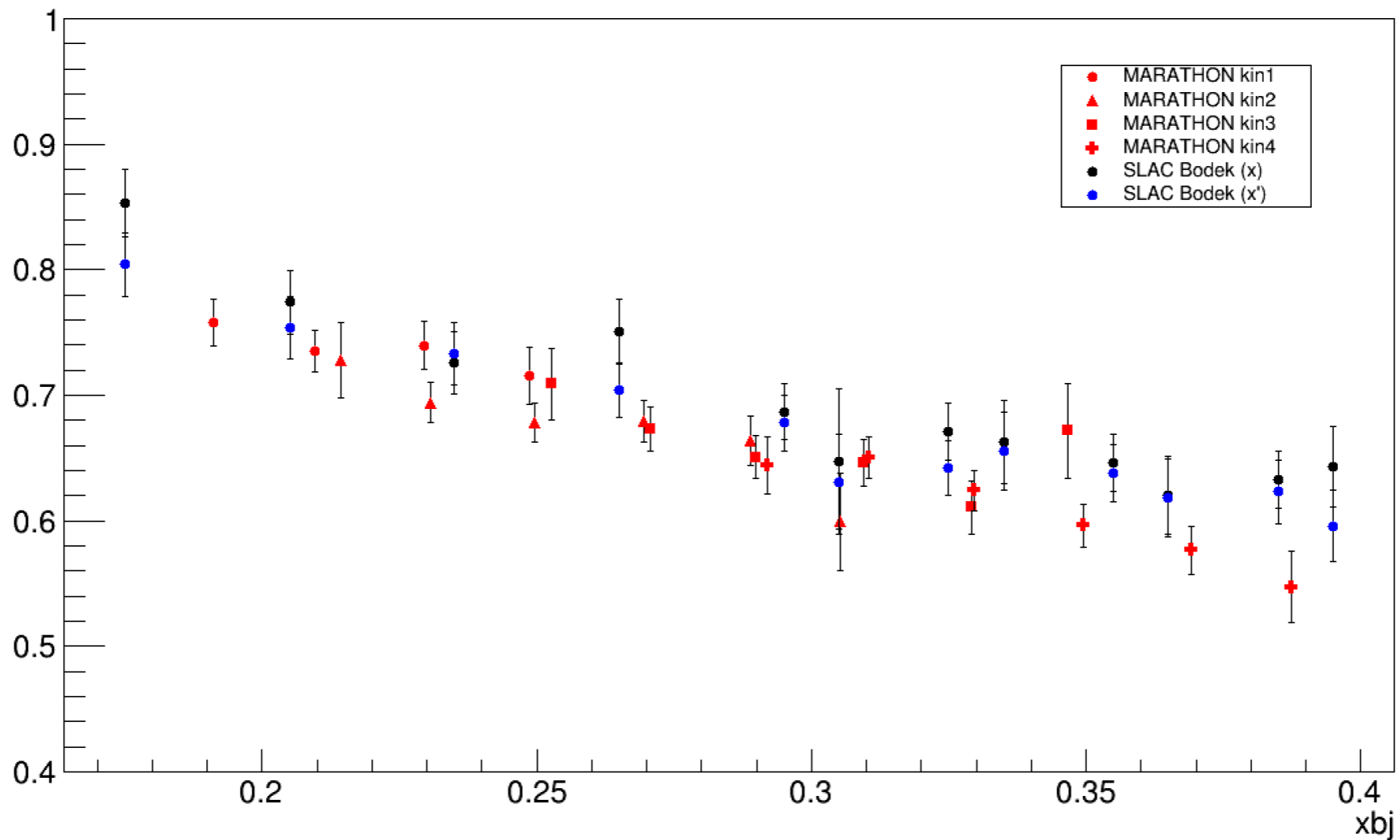


$$VZ = -0.045 < L.\text{tr}.vz < 0.05;$$

# F2n/F2p

$$\frac{F_2^n}{F_2^p} = \frac{\sigma_d}{\sigma_p} - 1$$

compared with SLAC Bodek table IX and  $\frac{\sigma_n}{\sigma_p}$  table X



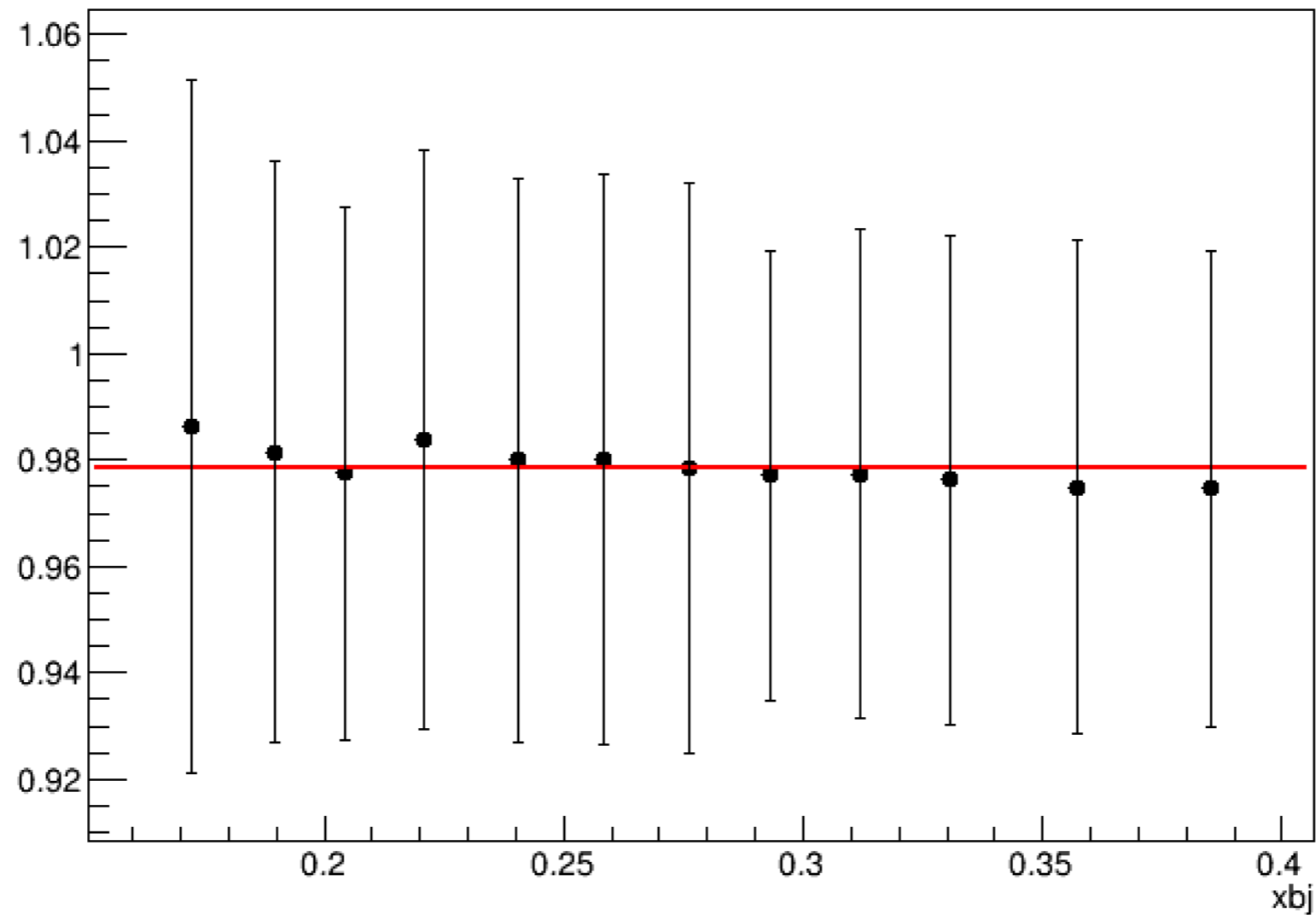
VZ = abs(L.tr.vz)<0.07;



- SLAC assumes  $\frac{\sigma_n}{\sigma_p} = \frac{\sigma_d}{\sigma_p} \times \frac{1}{R} - 1$

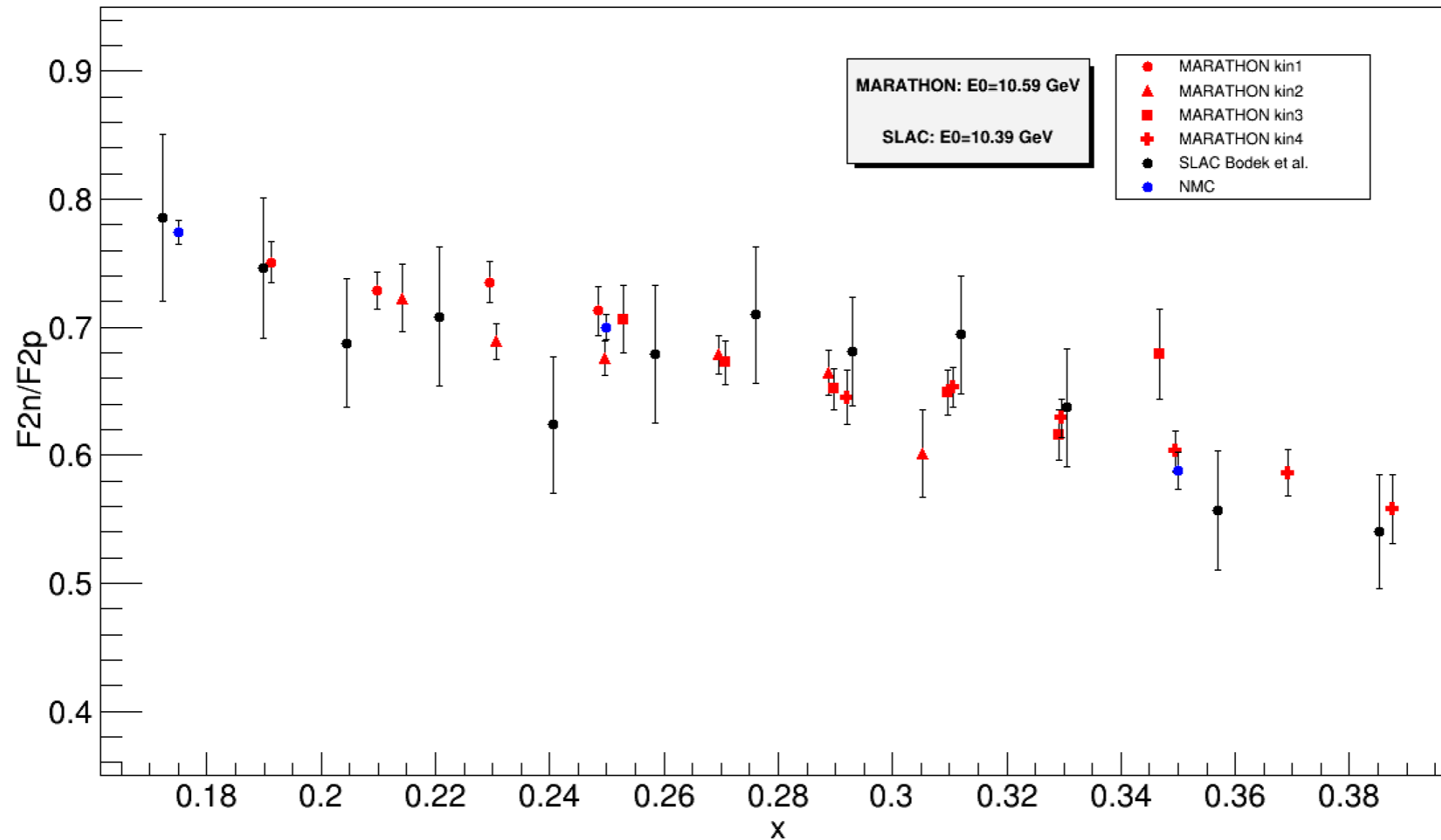
- if draw  $\frac{\sigma_d}{\sigma_p + \sigma_n}$  from Bodek's data:

sigma\_D/(sigma\_p+sigma\_n)



- $R \sim 0.978$

- assume  $R = 1.0095 - 0.0109x - 0.0821x^2$  [1], apply to both our data and Bodek's data;
- This R fit is valid in x range (0.15, 0.4);



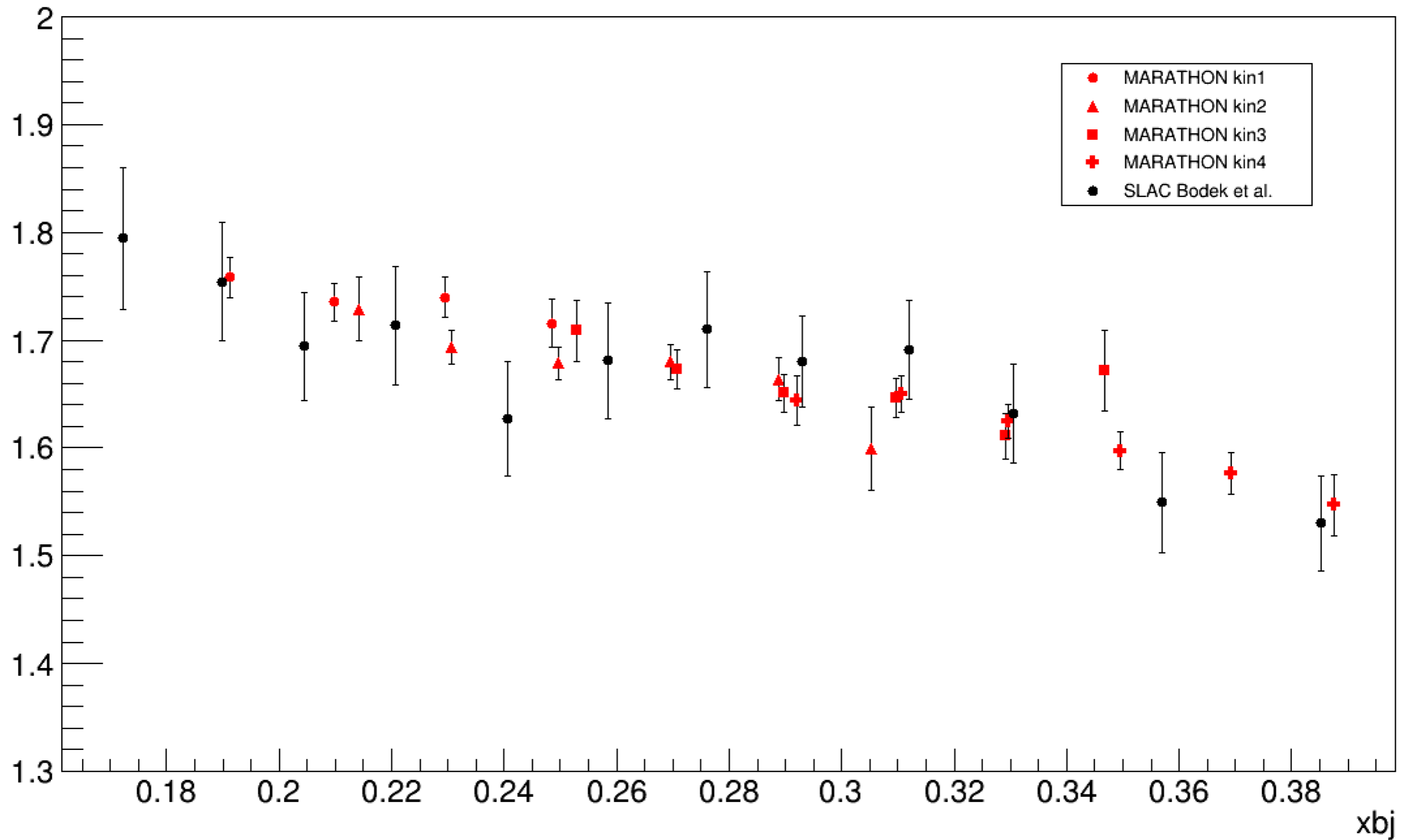
[1] S. A. Kulagin, R. Petti, Phys. Rev. 82C, 054614 (2010); and private communication, 2018.

- Tyler K. applied boiling in a different way and we see difference ;
- The radiative correction is model dependent. Using different input models could give up to 1.5% different correction factor. This will be studied after Gordon.

backup

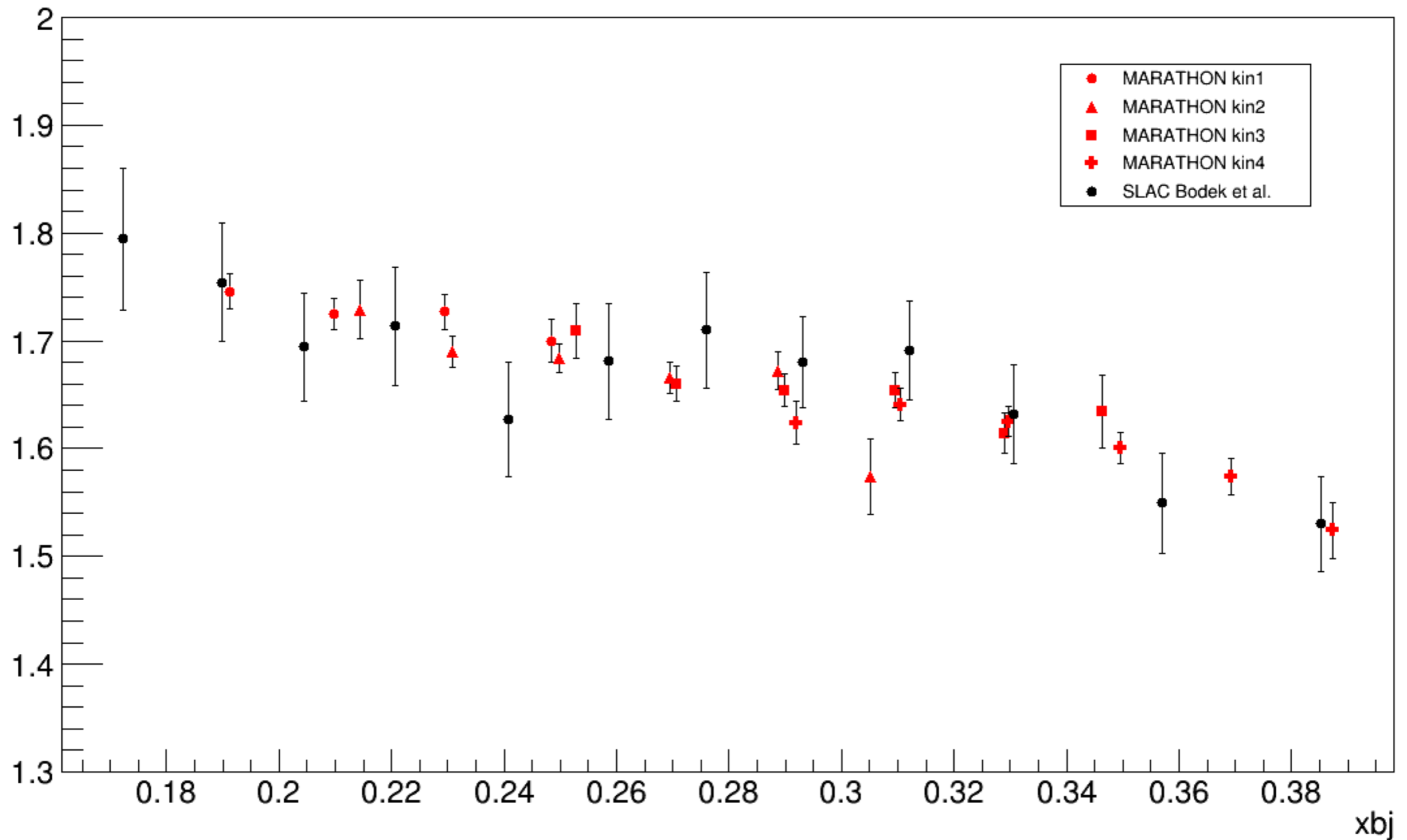
$$VZ = \text{abs}(L.\text{tr.vz}) < 0.07;$$

D2/H1



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D2/H1



$VZ = -0.045 < L.tr.vz < 0.05;$

D2/H1

