

RC Error Study and Plan

Hanjie Liu

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Current RC input model:

- Get $F_{1d}, F_{2d}, F_{1p}, F_{2p}$ from Bodek fit with $R=0.18$
- $F_{1n} = F_{1d} - F_{1p}, F_{2n} = F_{2d} - F_{2p}$
- $F_{1A} = Z * F_{1p} + (A - Z) * F_{1n}, F_{2A} = Z * F_{2p} + (A - Z) * F_{2n}$
- $\sigma = \sigma_{mott}(F_{2A}/\nu + 2\frac{F_{1A}}{m_p} \tan^2(\frac{\theta}{2})) \times emcfac(x, A)$

Problem:

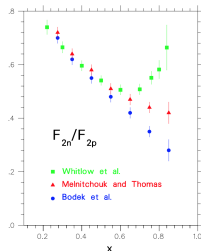
- It's not free neutron structure function;
- Doesn't remove isoscalar correction in $emcfac(x,A)$

Modified model:

- Know F_{2d} ;
- Get EMC ratio $\frac{F_2(^3\text{He})}{F_{2d}}$, $\frac{F_2(^3\text{H})}{F_{2d}}$ or $\frac{F_2(A=3)}{F_{2d}}$ from model;
- For $\frac{F_2(A=3)}{F_{2d}}$, need to remove the isoscalar correction, which need F_{2n}/F_{2p} input;
- $F_2(^3\text{He}) = F_{2d} \times \frac{F_2(^3\text{He})}{F_{2d}}$, $F_2(^3\text{H}) = F_{2d} \times \frac{F_2(^3\text{H})}{F_{2d}}$

To study the RC error:

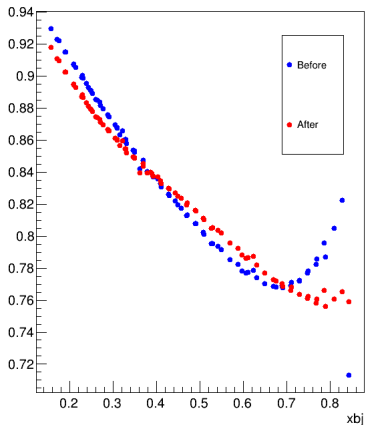
- F_{2d} : 1. Bodek; 2. NMC
- EMC ratio $\frac{F_2(A=3)}{F_{2d}}$: 1. K&P; 2. FE Close, Phys. Rev. D.31.1004 (1985);
- F_{2n}/F_{2p} : 3 curves and probably CJ15
- ($R = \sigma_L/\sigma_T$) (later..)



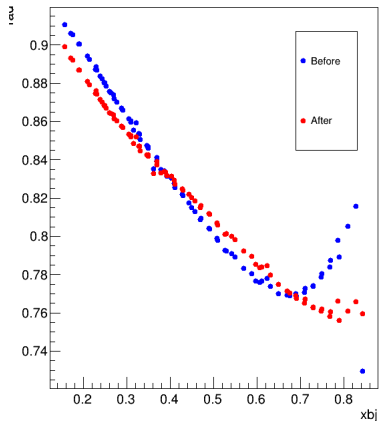
The RC error should be the changes by applying different models

Compare the RC factor calculated previously with the one calculated by modified model (F_{2d} from Bodek and EMC from K&P)

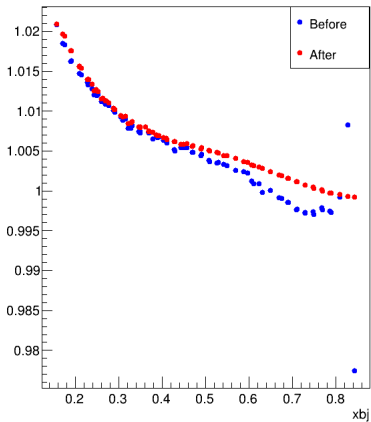
H3/He3 born cross section ratio



H3/He3 rad cross section ratio



H3/He3 RC=born/rad ratio



H3/He3 Before/After ratio

