Interesting Observables

We can use RATIOS of cross sections

- may reduce M_A dependence
- in some cases enhance G_A^s effects
- reduce uncertainties related to flux-average
- reduce uncertainties coming from nuclear model

NC over CC ratio:

$$R_{NC/CC}(Q^2) = \frac{\left(d\sigma/dQ^2\right)_{\nu}^{NC}}{\left(d\sigma/dQ^2\right)_{\nu}^{CC}} \tag{1}$$

Asymmetry:

$$\mathcal{A}(Q^2) = \frac{\left(\frac{d\sigma}{dQ^2}\right)_{\nu}^{NC} - \left(\frac{d\sigma}{dQ^2}\right)_{\overline{\nu}}^{NC}}{\left(\frac{d\sigma}{dQ^2}\right)_{\nu}^{CC} - \left(\frac{d\sigma}{dQ^2}\right)_{\overline{\nu}}^{CC}} \tag{2}$$

Ratio p/n

$$R_{p/n}^{\nu}(Q^2) = \frac{\left(\frac{d\sigma}{dQ^2}\right)_{(\nu,p)}^{NC}}{\left(\frac{d\sigma}{dQ^2}\right)_{(\nu,n)}^{NC}} \tag{3}$$