5 26 2011 t.s. 7 9 2011 t.s. 8 5 2011 t.s. 1 14 2013 t.s.

I. Δ_A, Δ_V

Δ_V, Δ_A are defined in Eq. (52) of PRC72(2005)025204 as

$$A = -\frac{Q^2 G_F}{\sqrt{2} 4\pi\alpha}[2 - 4\sin^2\theta_W + \Delta_V + \Delta_A] \tag{1}$$

Q^2, W are calculated by using

$$Q^2 = 4\sin^2(\theta/2) k_i k_f \tag{2}$$

$$W = \sqrt{(P + k_i - k_f)^2} = \sqrt{m_N^2 + 2m_N(k_i - k_f) - Q^2} \tag{3}$$

II. DEUTERON

$\Delta_V(d), \Delta_A(d)$ for deuteron is defined as

$$A_d = -\frac{Q^2 G_F}{\sqrt{2} 4\pi\alpha}[2 - 4\sin^2\theta_W + \Delta_V(d) + \Delta_A(d)] \tag{4}$$

where A is

$$A_d = \frac{d\sigma_d(1) - d\sigma_d(-1)}{d\sigma_d(1) + d\sigma_d(-1)} \tag{5}$$

Simple calculation:cross section with helicity ± 1 for deuteron $d\sigma_d(h)$ is calculated simply sum of the cross section of proton and neutron

$$d\sigma_d(h) = d\sigma_{proton}(h) + d\sigma_{neutron}(h) \tag{6}$$

data files are $\theta, E_e, E'_e, W, Q^2, \Delta_V(p), \Delta_A(p), \Delta_V(n), \Delta_A(n), \Delta_V(d), \Delta_A(d)$. Last two numbers are for deuteron.

III. EXAMPLE A_x

My memo of code d-2013-v3.f(1.14.2013)

```
gf    = 1.16637d-5 ! GeV-2
swin  = 0.2312d0   ! sin^ theta_w
alpha = 1.d0/137.03604d0
```

```
fas   = - gf*qss*scaleg**2/4.d0/sqrt(2.d0)/pi/alpha
asymp = fas*(xdpv1 + xdpv2 + xdpa)
asymn = fas*(xdpv1 + xdnv2 + xdna)
asymd = fas*(xddv  + xdda)
```