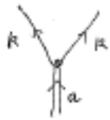
~~All energies which enter X, Y are positive~~ (4)

Box 3

$W_1(+2) = 2(\varepsilon_{g9/2} - \varepsilon_F) - E_{corr}(+2)$



$$X_1^a(k) = \frac{\frac{1}{2}\Omega_k^{1/2}\Lambda_1(+2)}{2(\varepsilon_k - \varepsilon_F) - W_1(+2)}$$

$$2(\varepsilon_k - \varepsilon_F) - W_1(+2) = \text{[illegible]}$$

$$= 2(\varepsilon_k - \cancel{\varepsilon_F}) - \left(2(\varepsilon_{g9/2} - \cancel{\varepsilon_F}) - E_{corr}(+2)\right)$$

$$= 2(\varepsilon_k - \varepsilon_{g9/2}) + E_{corr}(+2)$$

$$= 2(|\varepsilon_{g9/2}| - |\varepsilon_k|) + E_{corr}(+2)$$

$$\boxed{X_1^a(k) = \frac{\frac{1}{2}\Omega_k^{1/2}\Lambda_1(+2)}{2(|\varepsilon_{g9/2}| - |\varepsilon_k|) + E_{corr}(+2)}}$$

$$Y_1^a(i) = -\frac{\frac{1}{2}\Omega_i^{1/2}\Lambda_1(+2)}{2(\varepsilon_F - \varepsilon_i) + W_1(+2)}$$

$$2(\varepsilon_F - \varepsilon_i) + W_1(+2) = 2(\cancel{\varepsilon_F} - \varepsilon_i) + 2(\varepsilon_{g9/2} - \cancel{\varepsilon_F}) - E_{corr}(+2)$$

$$= 2(\varepsilon_{p1/2} - \varepsilon_i) + 2(\varepsilon_{g9/2} - \varepsilon_{p1/2}) - E_{corr}(+2)$$

$$= 2(|\varepsilon_i| - |\varepsilon_{p1/2}|) + \underbrace{2\underbrace{(|\varepsilon_{p1/2}| - |\varepsilon_{g9/2}|)}_{\text{s.p. gap } 3.41\,\text{MeV}}}_{6.28\,\text{MeV}} - \underbrace{E_{corr}(+2)}_{1.248\,\text{MeV (see Fig. 1)}}$$

~~const~~

~~$E_{corr}(+2) = 1.5$ MeV~~

OK $\boxed{\cancel{Y_1^a(i) = -\frac{\frac{1}{2}\Omega_i^{1/2}\Lambda_1(+2)}{2(|\varepsilon_i| - |\varepsilon_{p1/2}|) + 5.032\,\text{MeV}}}}$

$$\boxed{Y_1^a(i) = -\frac{\frac{1}{2}\Omega_i^{1/2}\Lambda_1(+2)}{2(|\varepsilon_i| - |\varepsilon_{p1/2}|) + 2\Delta\varepsilon_{sp} - E_{corr}(+2)}}$$

$\Delta\varepsilon_{sp}$ = single-particle closed shell gap > 0