^{13}0x3 ③

$$X_1^r(i) = \frac{\frac{1}{2}\Omega_i^{1/2}\Lambda_1(-2)}{2(|\varepsilon_i| - |\varepsilon_{p1/2}|) + E_{corr}(-2)} \; ; \; Y_1^r(k) = \frac{\frac{1}{2}\Omega_k^{1/2}\Lambda_1(-2)}{2(|\varepsilon_{g9/2}| - |\varepsilon_k|) + 2(|\varepsilon_{p1/2}| - |\varepsilon_{g9/2}|) + E_{corr}(-2)}$$

$E_{corr}(-2) = 0.5\,MeV$ (cf. Fig. 1) $\quad \Omega = j + 1/2$

$2(|\varepsilon_{p1/2}| - |\varepsilon_{g9/2}|) = 6.82\,MeV \quad 2(|\varepsilon_{p1/2}| - |\varepsilon_{g9/2}|) + E_{corr}$
$= (6.82 - 0.5)\,MeV$
$= 6.32\,MeV$

Thus

$$\begin{cases} X_1^r(i) = \dfrac{\frac{1}{2}\Omega_i^{1/2}\Lambda_1(-2)}{2(|\varepsilon_i| - |\varepsilon_{p1/2}|) + 0.5\,MeV} ; \\ Y_1^r(k) = -\dfrac{\frac{1}{2}\Omega_k^{1/2}\Lambda_1(-2)}{2(|\varepsilon_{g9/2}| - |\varepsilon_k|) + 6.23\,MeV} \end{cases}$$

Table 2.C.1

units		MeV	MeV^{-1}		TDA
nlj	Ω_i	$\lvert\varepsilon_i\rvert - \lvert\varepsilon_{p1/2}\rvert$	$A(i) = \frac{\frac{1}{2}\Omega_i^{1/2}}{2(\lvert\varepsilon_i\rvert - \lvert\varepsilon_{p1/2}\rvert) + 0.5\,MeV}$	$X_1^r(i)$	$X_1^r(i)$
$2p_{1/2}$	1	0	1	0.83	0.80
$1f_{5/2}$	3	0.57	0.528	0.44	0.42
$2p_{3/2}$	2	0.90	0.307	0.25	0.25
$0i_{13/2}$	7	1.64	0.350	0.29	0.28
$1f_{7/2}$	4	2.35	0.192	0.16	0.15
$0h_{9/2}$	5	3.47	0.150	0.12	0.12

$\Sigma A^2(i) = 1.5549$

Very similar to column labeled 2204 Table 2.C.1 adv. AP

$\frac{1}{\sqrt{1.5549}} = 0.802 \leftarrow \sum (X_1^r(i))^{TD} = 1$

units		$\lvert\varepsilon\rvert$ MeV	MeV^{-1}	
nlj	Ω_k	$\lvert\varepsilon_{g9/2}\rvert - \lvert\varepsilon_k\rvert$	$B(k) = \frac{\frac{1}{2}\Omega_k^{1/2}\Lambda_1(-2)}{2(\lvert\varepsilon_{g9/2}\rvert - \lvert\varepsilon_k\rvert) + 6.23\,MeV}$	$Y_1^r(k)$
$1g_{9/2}$	5	0	0.179	−0.15
$0i_{11/2}$	6	0.77	0.158	−0.13
$0j_{15/2}$	8	1.41	0.156	−0.13
$2d_{5/2}$	3	1.56	0.093	−0.08
$3s_{1/2}$	1	2.03	0.046	−0.04
$1g_{7/2}$	4	2.47	0.090	−0.07
$2d_{3/2}$	2	2.51	0.063	−0.05

$\Sigma B^2(k) = 0.10418$

$\Lambda_1(-2) = 0.83025\,MeV \quad \Lambda_1^2(-2)\left(\sum_i A^2(i) - \sum_k B^2(k)\right) = \Lambda_1^2(-2)\,(1.5549 - 0.10418)$
$= \Lambda_1^2(-2)\; 1.45073 = 1$