$$B(M1, I\alpha \to I'\alpha') = \frac{3}{4\pi} \big| \sum_{K\phi} \sum_{K'\phi'} C_\phi^{IK} C_{\phi'}^{I'K'}$$

$$\sum_\mu \{ \langle IK1\mu | I'K' \rangle \langle \phi' | (g_p - g_R) j_{p\mu} + (g_n - g_R) j_{n\mu} | \phi \rangle$$

$$+ (-1)^{I-K} \langle I - K1\mu | I'K' \rangle \langle \phi' | (g_p - g_R) j_{p\mu} + (g_n - g_R) j_{n\mu} | \bar{\phi} \rangle \big|^2$$

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$$B(M1, I\alpha \to I'\alpha') = \frac{3}{4\pi} \big| \sum_{K\phi} \sum_{K'\phi'} C_\phi^{IK} C_{\phi'}^{I'K'} \{$$

$$\langle IK11 | I'K' \rangle (g_p - g_R) \langle \phi' | j_{p+1} | \phi \rangle$$

$$+ \langle IK11 | I'K' \rangle (g_n - g_R) \langle \phi' | j_{n+1} | \phi \rangle$$

$$+ (-1)^{I-K} \big[\langle I - K11 | I'K' \rangle (g_p - g_R) \langle \phi' | j_{p+1} | \bar{\phi} \rangle$$

$$+ \langle I - K11 | I'K' \rangle (g_n - g_R) \langle \phi' | j_{n+1} | \bar{\phi} \rangle \big]$$

$$+ \langle IK10 | I'K' \rangle (g_p - g_R) \langle \phi' | j_{pz} | \phi \rangle$$

$$+ \langle IK10 | I'K' \rangle (g_n - g_R) \langle \phi' | j_{nz} | \phi \rangle$$

$$+ (-1)^{I-K} \big[\langle I - K10 | I'K' \rangle (g_p - g_R) \langle \phi' | j_{pz} | \bar{\phi} \rangle$$

$$+ \langle I - K10 | I'K' \rangle (g_n - g_R) \langle \phi' | j_{nz} | \bar{\phi} \rangle \big]$$

$$+ \langle IK1 - 1 | I'K' \rangle (g_p - g_R) \langle \phi' | j_{p-1} | \phi \rangle$$

$$+ \langle IK1 - 1 | I'K' \rangle (g_n - g_R) \langle \phi' | j_{n-1} | \phi \rangle$$

$$+ (-1)^{I-K} \big[\langle I - K1 - 1 | I'K' \rangle (g_p - g_R) \langle \phi' | j_{p-1} | \bar{\phi} \rangle$$

$$+ \langle I - K1 - 1 | I'K' \rangle (g_n - g_R) \langle \phi' | j_{n-1} | \bar{\phi} \rangle \big] \} \big|^2$$

$$B(M1, I\alpha \to I'\alpha') = \sum_{K\phi} \sum_{K'\phi'} C_\phi^{IK} C_{\phi'}^{I'K'} [\{$$

$$\langle IK11|I'K'\rangle \left[(g_p - g_R)\langle\phi'|j_{p+}|\phi\rangle + (g_n - g_R)\langle\phi'|j_{n+}|\phi\rangle\right] \times (-\frac{1}{\sqrt{2}})$$

$$+ \langle IK10|I'K'\rangle \left[(g_p - g_R)\langle\phi'|j_{pz}|\phi\rangle + (g_n - g_R)\langle\phi'|j_{nz}|\phi\rangle\right]$$

$$+ \langle IK1-1|I'K'\rangle \left[(g_p - g_R)\langle\phi'|j_{p-}|\phi\rangle + (g_n - g_R)\langle\phi'|j_{n-}|\phi\rangle\right] \times \frac{1}{\sqrt{2}}\}$$

$$+ (-1)^{I-K}$$

$$\{\langle I-K11|I'K'\rangle \left[(g_p - g_R)\langle\phi'|j_{p+}|\bar{\phi}\rangle + (g_n - g_R)\langle\phi'|j_{n+}|\bar{\phi}\rangle\right] \times (-\frac{1}{\sqrt{2}})$$

$$+ \langle I-K10|I'K'\rangle \left[(g_p - g_R)\langle\phi'|j_{pz}|\bar{\phi}\rangle + (g_n - g_R)\langle\phi'|j_{nz}|\bar{\phi}\rangle\right]$$

$$+ \langle I-K1-1|I'K'\rangle \left[(g_p - g_R)\langle\phi'|j_{p-}|\bar{\phi}\rangle + (g_n - g_R)\langle\phi'|j_{n-}|\bar{\phi}\rangle\right] \times \frac{1}{\sqrt{2}}\}]$$