

$$\alpha = \int_0^\infty dr^3 \int_r^\infty dr'^3 |\Psi_{M1}(Z_{\text{eff}}^{\text{Ho}}(M1), r)|^2 |\Psi_{N1}(Z_{\text{eff}}^{\text{Dy}}(N1, r')|^2 \approx 0.9649$$