From DD 14

$$K = \frac{(4\pi)^3}{(2\pi)^{3/2}} \int dr_1 r_1^2 \, h_{n_1 l_1}(r_1) \, h_{n_1' l_1}(r_1) \sum_{l_2 \delta_2 t_2} \frac{2\delta_2+1}{4\pi} \sum_{n_2 n_2'} a^{t_2}_{n_2 l_2 \delta_2} a^{t_2}_{n_2' l_2 \delta_2} \int h_{n_2 l_2}(r_1) \, h_{n_2' l_2}(r_1)$$

$$\int dr_2 r_2^2 \sum_{l_3 \delta_3 t_3} \frac{2\delta_3+1}{4\pi} \sum_{n_3 n_3'} a^{t_3}_{n_3 l_3 \delta_3} a^{t_3}_{n_3' l_3 \delta_3} \, h_{n_3 l_3}(r_2) \, h_{n_3' l_3}(r_2) \, f_D(r_1, r_2) \int dq q^2 j_{\delta_0}(qr_1) j_{\delta_0}(qr_2) V_R(q)$$

$$- \frac{(4\pi)^2}{(2\pi)^{3/2}} \sum_{l_2 \delta_2 t_2} \sum_{l_3 \delta_3 t_3} \int dr_1 r_1^2 \, h_{n_1 l_1}(r_1) h_{n_1' l_1}(r_1) \sum_{n_2} a^{t_2}_{n_2 l_2 \delta_2} \sum_{n_3} a^{t_3}_{n_3 l_3 \delta_3} \, h_{n_2 l_2}(r_1) \, h_{n_3 l_3}(r_1)$$

$$\int dr_2 r_2^2 \sum_{n_2' n_3'} a^{t_2}_{n_2' l_2} a^{t_3}_{n_3' l_3} \, h_{n_2' l_2}(r_2) \, h_{n_3' l_3}(r_2) \, f_D(r_1, r_2)$$

$$\sum_L \int dq q^2 j_L(qr_1) j_L(qr_2) V_R(q) \frac{\hat{\delta_2}^2 \hat{\delta_3}^2 \hat{L}^2}{4\pi} \begin{pmatrix} \delta_2 & L & \delta_3 \\ 1/2 & 0 & -1/2 \end{pmatrix}^2 \xi(l_2 + l_3 + L) =$$

$$= \sqrt{\frac{2}{\pi}} \sum_{l_2 \delta_2 t_2} \sum_{l_3 \delta_3 t_3} \sum_{n_2 n_2'} a^{t_2}_{n_2 l_2 \delta_2} a^{t_2}_{n_2' l_2 \delta_2} \sum_{n_3 n_3'} a^{t_3}_{n_3 l_3 \delta_3} a^{t_3}_{n_3' l_3 \delta_3} (2\delta_3+1)(2\delta_2+1)$$

$$\int dr_1 r_1^2 \, h_{n_1 l_1}(r_1) \, h_{n_1' l_1}(r_1) \, h_{n_2 l_2}(r_1) \, h_{n_2' l_2}(r_1) \int dr_2 r_2^2 \, h_{n_3 l_3}(r_2) \, h_{n_3' l_3}(r_2) \, f_D(r_1, r_2) \Big/ \int dq q^2 j_{\delta_0}(qr_1) j_{\delta_0}(qr_2) V_R(q)$$

$$- \sqrt{\frac{2}{\pi}} \sum_{l_2 \delta_2 t_2} \sum_{l_3 \delta_3 t_3} \sum_{n_2 n_2'} a^{t_2}_{n_2 l_2 \delta_2} a^{t_2}_{n_2' l_2 \delta_2} \sum_{n_3 n_3'} a^{t_3}_{n_3 l_3 \delta_3} a^{t_3}_{n_3' l_3 \delta_3}$$

$$\sum_L (2\delta_2+1)(2\delta_3+1)(2L+1) \begin{pmatrix} \delta_2 & L & \delta_3 \\ 1/2 & 0 & -1/2 \end{pmatrix}^2 \xi(l_2 + l_3 + L)$$

$$\int dr_1 r_1^2 \, h_{n_1 l_1}(r_1) \, h_{n_1' l_1}(r_1) \, h_{n_2 l_2}(r_1) \, h_{n_3 l_3}(r_1) \int dr_2 r_2^2 \, h_{n_2' l_2}(r_2) \, h_{n_3' l_3}(r_2) \, f_D(r_1, r_2) \int dq q^2 j_{\delta_0}(qr_1) j_{\delta_0}(qr_2) V_R(q)$$